# Comprehensive Annual Financial Report

of the

Park Employees' and
Retirement Board Employees'
Annuity and Benefit Fund

Component Unit of the Chicago Park District
State of Illinois

For the years ended December 31, 2018 and 2017

Prepared by the Administrative Staff of the Retirement Board

Park Employees' Annuity and Benefit Fund
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# Certificate of Achievement for Excellence in Financial Reporting

Presented to

**Park Employees' and Retirement Board**

**Employees' Annuity and Benefit Fund**

**Illinois**

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

**December 31, 2017**

Christopher P. Morrill

Executive Director/CEO

## Transmittal Letter

**Retirement Board of the**
**PARK EMPLOYEES' ANNUITY AND BENEFIT FUND**
**55 East Monroe Street**
**Suite 2720**
**Chicago, Illinois 60603**
**Tel. # (312) 553-9265**
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June 28, 2019

To the Retirement Board of the Park Employees' and
Retirement Board Employees' Annuity and Benefit Fund

Dear Members of the Retirement Board:

The Park Employees' and Retirement Board Employees' Annuity and Benefit Fund of Chicago (Fund) presents its Comprehensive Annual Financial Report (CAFR) for the year ended December 31, 2018. The accuracy of the information contained in the report, including all disclosures, is the sole responsibility of the Fund. The intent of the CAFR is to present fairly the financial condition of the Fund and its related results of operations. The statements and disclosures contained in the CAFR are necessary to assist the Fund's participants, taxpayers and other interested parties in fully understanding the Fund's financial condition. Readers of the CAFR are directed to review the Management Discussion and Analysis (MD&A) narrative of the Financial Section for important overview and analysis.

### Fund Background

The Fund is a single employer, defined benefit plan covering the eligible public employees of the Chicago Park District. The Fund was created by an act of the Legislature of the State of Illinois, approved June 21, 1919 and effective July 1, 1919, covering the three major park systems of Chicago. With the statutory consolidation of the separate park districts of Chicago on May 1, 1934, the Chicago Park District was created authorizing the Fund to cover its employees. The Fund is administered in accordance with Chapter 40 of the Illinois Compiled Statutes, Act 5, Articles 1 and 12.

### Responsibilities of the Board of Trustees

The Board of Trustees is composed of seven members. Four members are elected by the active participants for four-year terms and the Chicago Park District Board of Commissioners appoints three members for three-year terms. Elected members' terms are staggered so that one member is elected each year. All Trustees serve the Fund without compensation. The Board of Trustees elects a President, Vice President and Secretary from within its ranks at its annual meeting in July. These elected office holders each have a prescribed set of duties. The Board of Trustees has various duties and responsibilities which include: invest funds in accordance with state law and its internal investment policy; approve the appointments of all necessary consultants and advisors; develop and approve all rules, regulations, and policies governing the operation of the Fund; review and approve all applications for disability, annuities, and other benefits; and monitor the financial and operational activities of the Fund. The day-to-day operations of the Fund are the responsibility of the Executive Director.

### Overview

At December 31, 2018, total Fund membership, including active, inactive, disability, retired members and beneficiaries is 10,820. The Fund's fiduciary net position decreased by $55.4 million during 2018 resulting in a net position restricted for pension benefits of $342.3 million. The additions to the Fund, which include employer and employee contributions and net investment income, totaled $22.6 million. During 2018, the Chicago Park District contributed the required tax levy contribution equal to 1.1 times the total employee contributions received two years prior. The total Fund deductions for 2018 were $78.0 million, which is less in comparison to the total deductions from prior year. Fund deductions include annuity payments, disability and death benefits, refund of employee contributions, and administrative expenses. For a full

## Overview (Continued)

understanding of the Fund's financial condition, we encourage the reader to review the Financial Section as well as the Actuarial Section of this report.

## Accounting Method and Internal Controls

The CAFR was prepared to conform with the principles of governmental accounting and reporting as pronounced by the Governmental Accounting Standards Board (GASB) and the American Institute of Certified Public Accountants (AICPA). In recording assets and liabilities, revenues and expenses, the accrual basis of accounting is used. All revenues including contributions are recognized when earned and expenses are recorded when incurred.

The Fund employs a system of internal controls to adequately safeguard its assets and assure the reliability of its financial records which includes the financial statements, supporting schedules and statistical tables. The internal control structure is designed to provide reasonable, but not absolute assurance that these objectives are met. The concept of reasonable assurance recognizes that the cost of control should not exceed the benefits likely to be derived, and that the valuation costs and benefits require estimates and judgments by management. An evaluation of the internal control structure during the Fund's annual independent audit disclosed no material weaknesses. Management, with the assistance of its outside auditors, continually reviews the system of internal control to insure its adequacy and effectiveness.

## Actuarial Status

The Fund's independent actuary, Segal Consulting, conducts an actuarial valuation of the Fund annually. Each actuarial valuation involves a projection of the benefits expected to be paid in the future to all members of the Fund. The projection is based on the characteristics of members at the valuation date, the benefit provisions in effect on that date, and assumptions of future events and conditions. Segal Consulting also conducts an actuarial experience review every five years. These studies serve as the basis for recommended changes in actuarial assumptions and methods adopted by the Fund.

The funded ratio is the Fund's actuarial value of assets divided by the Fund's actuarial accrued liability. At December 31, 2018, the actuarial value of assets is $366,806,612 and the actuarial accrued liability is $1,142,297,965. The Fund's funded ratio at December 31, 2018 is 32.1% compared to 37.1% for the year ended December 31, 2017. The unfunded actuarial accrued liability at December 31, 2018 amounted to $775,491,353. Since Public Act 098-0622 was found unconstitutional by the courts, the Fund's actuarial accrued liability increased during the current year, which resulted in a decrease in the Fund's funded ratio. The calculations of these figures are discussed further within the note disclosures of the Financial Section and within the Actuarial Section of this report.

## Investment Policy and Performance

The Fund's investment policy was developed to insure the long-term financing of its funding requirements. Utilizing the services of Marquette Associates, Inc., the Trustees review the investment policy on an on-going basis making amendments as needed. The Fund's current investment policy, which details investment authority, asset allocation, diversification, liquidity, performance measurement, and objectives, is provided in the Investment Section of this report. The policy is designed to obtain the highest expected return on investments consistent with the level of risk for a public pension fund with the funded status described above.

As of December 31, 2018, the fair value of investments was $323,404,925, which compares to $376,303,293 as of December 31, 2017. As of December 31, 2018, the Fund's annual investment rate of return was -5.1% compared to 14.2% for December 31, 2017. The Fund's -5.1% rate of return underperformed its performance benchmark by approximately 210 basis points and underperformed the peer median by approximately 70 basis points. A more enhanced discussion about the Fund's performance history can be found in the Investment Section of this report.

## Technology

The Fund has made upgrading its information systems a priority. The benefit system for retirees has been redesigned and is up and running. The system for the active employees is in the process of being redesigned. Ultimately, the two systems will be linked, creating one system. The Fund's systems are backed up daily with replication to secure cloud storage. This will allow the Fund to reduce the duration of downtime given any disaster scenario. The Fund has launched a new website that is mobile compatible, allows for easier navigation and improves overall security of the website. The website allows visitors to

## Technology (Continued)

access Board meeting minutes, Comprehensive Annual Financial Reports, investment information, benefit forms, as well as keeping visitors apprised of the latest Pension Fund news.

## Legislative Matters

Effective June 1, 2014, Public Act 098-0622 amended Article 12 of the Pension Code by increasing the normal retirement age, increasing employee and employer contributions to the Fund, suspending and reducing the automatic annual increases for retirees, and reducing the duty disability benefit. On October 14, 2015, the Fund was served with a lawsuit challenging Public Act 098-0622 as unconstitutionally diminishing and impairing pension benefits. After the Illinois Supreme Court issued its decision in *Jones v. Municipal Employees' Annuity and Benefit Fund of Chicago* declaring unconstitutional similar changes to Articles 8 and 11 of the Pension Code, the Fund entered into an agreed court order and made retroactive payments for the suspended automatic annual increases, effective November 1, 2016, and restored the automatic annual increases, effective December 1, 2016.

On March 1, 2018, the court issued an opinion declaring Public Act 098-0622 unconstitutional. Therefore, the additional 1% in employee contributions paid to the Fund since January 1, 2015, were refunded to employees with pre-judgment interest in July 2018. In addition, in June 2018, the Fund restored any reduced duty disability benefits retroactively, with pre-judgment interest to any employees who received a reduced duty disability benefit. The total of these payments amounted to $3.9 million.

Pursuant to an agreed court order, the Fund retained the $12.5 million supplemental contribution the employer made in both 2016 and 2015 and the increased contributions made by the employer in 2016 and 2015 pursuant to the increase in the tax multiplier to 1.7 times the amount of employer contributions. The Fund also retained the employer contributions from the 2017 tax levy of $20.8 million, received in 2018, which were made pursuant to a tax multiplier of 1.7 times the amount of employee contributions. Although the 2018 tax levy reverted to a tax multiplier of 1.1 times the amount of employee contributions, the employer has budgeted for an additional voluntary contribution of $14.4 million to be paid to the Fund for a total of $27.6 million. The employer plans to make a similar voluntary contribution to the Fund in 2019.

## GFOA Award

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Park Employees' and Retirement Board Employees' Annuity and Benefit Fund for its comprehensive annual financial report for the year ended December 31, 2017. In order to be awarded a Certificate of Achievement, a public pension fund must publish an easily readable and efficiently organized comprehensive annual financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

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

## Governmental Accounting Standards Board

The Fund is currently in full compliance with all pronouncements from the Governmental Accounting Standards Board.

## Retirement Board

The annual election for an employee representative to the Retirement Board was held on Friday, June 28, 2019. Frank Hodorowicz was re-elected for a four year term beginning July 1, 2019.

## Acknowledgments

All the statistical and financial information compiled and presented in this CAFR is due to the combined efforts of the administrative staff of the Fund under the direction of the Executive Director, Dean J. Niedospial, and the Comptroller, Jaime L. McCabe. Their efforts are hereby acknowledged with thanks and appreciation.

On behalf of the Retirement Board,

Pamela A. Munizzi

Pamela A. Munizzi, President

# PARK EMPLOYEES' ANNUITY AND BENEFIT FUND MEMBERS as of December 31, 2018

**Elected by the Employees**

**Frank Hodorowicz**
*Term expires June 30, 2019*

**Brian Biggane**
*Term expires June 30, 2020*

**Edward L. Affolter**
*Term expires June 30, 2021*

**Matthew Duggan**
*Term expires June 30, 2022*

**Appointed by the Chicago Park District Board of Commissioners**

**Steven J. Lux**
*Term expires June 30, 2019*

**Pamela A. Munizzi**
*Term expires June 30, 2021*

**Cecilia Prado**
*Term expires June 30, 2021*

## OFFICERS

**Pamela A. Munizzi,** President
**Edward L. Affolter,** Vice President
**Frank Hodorowicz,** Secretary

## ADMINISTRATIVE STAFF

**Dean J. Niedospial,** Executive Director
**Jaime L. McCabe,** Comptroller

## CONSULTANTS

**Jacobs, Burns, Orlove & Hernandez,** Attorney

**Bansley and Kiener, L.L.P.,** Auditor

**The Segal Company,** Consulting Actuary

**Marquette Associates, Inc.,** Investment Consultant

## CUSTODIAN

The Northern Trust Company of Chicago

## INVESTMENT ADVISORS

Ariel Investments - *Chicago*

Ativo Capital – *Chicago*

Chicago Equity Partners - *Chicago*

Denali Advisors – *San Diego*

Great Lakes Advisors, LLC - *Chicago*

HarbourVest Partners, LLC – *Boston*

Industry Funds Managements (IFM) – *New York*

Invesco – *Atlanta*

LM Capital Group, LLC – *San Diego*

MacKay Shields – LLC – *New York*

Mesirow Financial Capital Partners – *Chicago*

GoldPoint Partners, LLC – *New York*

Northern Trust Asset Management - *Chicago*

Parametric – *Washington*

PineBridge Investments – *New York*

Principal Global Investors – *Des Moines*

RBC Global Asset Management – *Minneapolis*

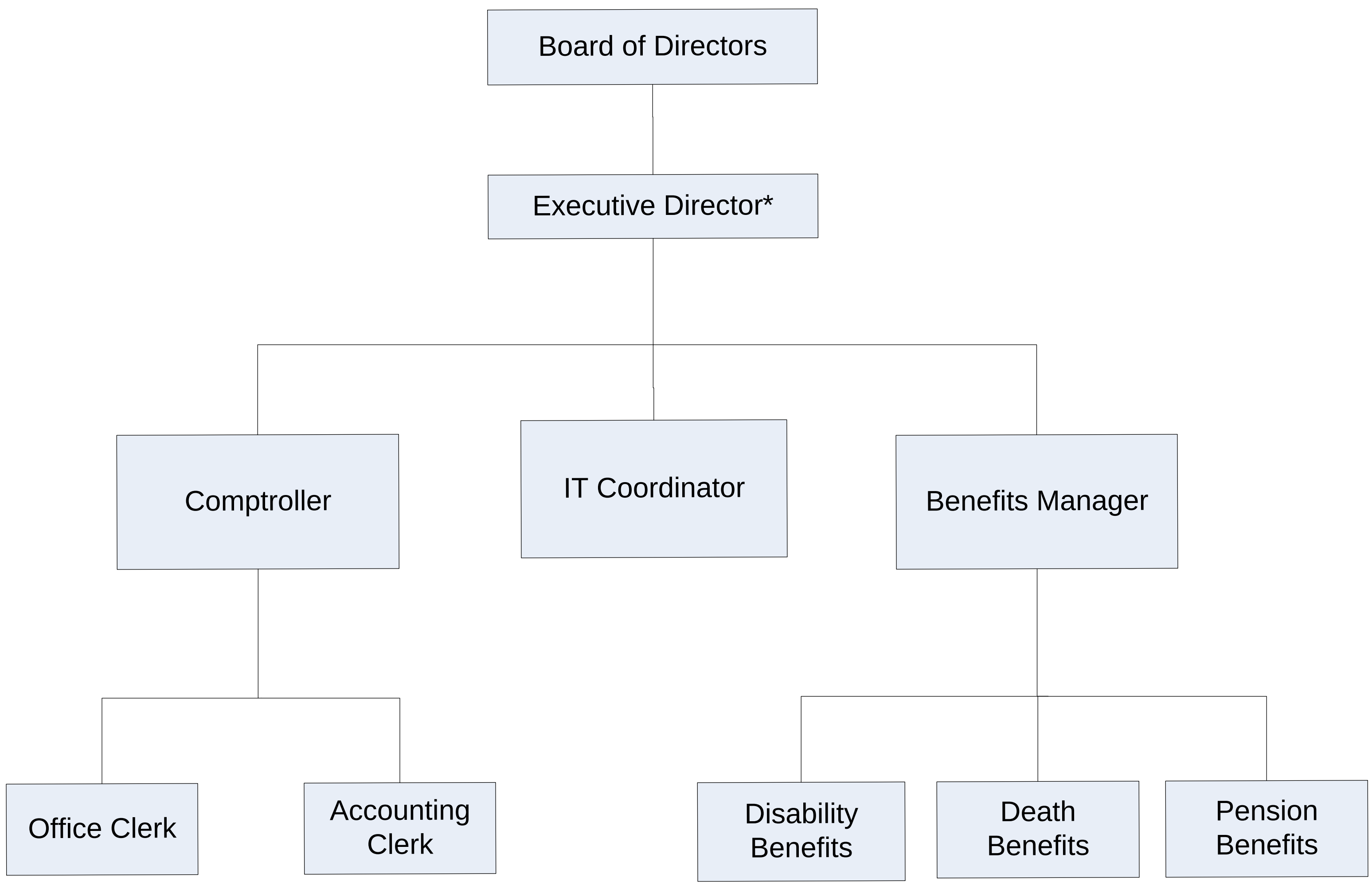
UBS Realty Investors – LLC – *Hartford*

ULLICO Investment Company – *Washington D.C.*

William Blair & Company - *Chicago*

PARK EMPLOYEES' AND RETIREMENT BOARD EMPLOYEES'
ANNUITY AND BENEFIT FUND

## ORGANIZATION CHART




*The Executive Director is responsible for the handling of all investment matters. The Fund does not internally manage any investments.

For a listing of the Fund's investment managers and associated investment fees, see page 37.

For a listing of the Fund's brokers and associated commissions, see page 45.

# Report of the Independent Auditor

BANSLEY AND KIENER, L.L.P.
Certified Public Accountants
O'Hare Plaza
8745 West Higgins Road, Suite 200
Chicago, Illinois 60631
312.263.2700

The Retirement Board
Park Employees' and Retirement Board Employees'
Annuity and Benefit Fund of Chicago
Chicago, Illinois

We have audited the statements of fiduciary net position of the Park Employees' and Retirement Board Employees' Annuity and Benefit Fund of Chicago (the Fund), a Component Unit/Fund of the Chicago Park District, as of December 31, 2018 and 2017, 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 statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of 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 Fund'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 Fund'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 Park Employees' and Retirement Board Employees' Annuity and Benefit Fund of Chicago as of December 31, 2018 and 2017, and the changes in its fiduciary net position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

## Report of the Independent Auditor (Continued)

**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 9 through 13 and pages 32 and 33 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 tax levies receivable, administrative and general expenses, professional expenses, and investment expenses are presented for purposes of additional analysis and are not a required part of the basic financial statements. The schedules of tax levies receivable, administrative and general expenses, professional expenses, and investment expenses 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
June 3, 2019

# Management's Discussion and Analysis

## Management Discussion and Analysis for the Year Ended December 31, 2018

The Management Discussion and Analysis (MD&A) of the Park Employees' and Retirement Board Employees' Annuity and Benefit Fund of Chicago (Fund) financial performance provides an overview and analysis of the Fund's financial activities for the years ended December 31, 2018 and 2017. Please read the MD&A in conjunction with the basic financial statements and the accompanying note disclosures to have a better understanding of the financial condition and performance of the Fund. Information provided for the year ended December 31, 2016 is presented for comparative purposes only.

## Using this Report

The Management Discussion and Analysis introduces the Fund's basic financial statements. The basic financial statements include the Statements of Fiduciary Net Position and the Statements of Changes in Fiduciary Net Position, which are prepared on an accrual basis of accounting in accordance with Government Accounting Standards Board (GASB) pronouncements and reflect the Fund's overall financial condition.

The Statements of Fiduciary Net Position reports the Fund's assets at fair value and liabilities as amounts owed as of the statement date, resulting in the net position restricted for pension benefits.

The Statements of Changes in Fiduciary Net Position illustrate the additions and deductions made to the Fund during the statement date. These additions include employee and employer contributions, as well as net investment income. The deductions consist of benefit payments, refunds of contributions and administrative and general expenses. The net result indicates an increase or decrease in Fund net position restricted for pension benefits.

The accompanying notes are an integral part of the financial statements. They provide information essential to achieve full understanding of the Fund's financial statements.

The required supplementary information, presented following the notes to the financial statements, is required by GASB. These schedules offer the reader additional details, which may be useful in evaluating the financial condition and performance of the Fund. The schedules include the Schedule of Changes in Employer's Net Pension Liability, the Schedule of Employer Contributions, the Schedule of Investment Returns, as well as related disclosures. Other supplementary information consists of schedules of Tax Levies Receivable, Administrative and General Expenses, Professional Expenses, and Investment Expenses.

## Financial Highlights

a) The Fund's fiduciary net position decreased during the year by $55.4 million or -13.9% compared to an increase of $5.9 million or 1.5% for the year ended December 31, 2017.
b) The Fund's annual investment return of -5.1% underperformed the portfolio benchmark return of -3.0%.
c) The Fund's three-year rate of return of 5.6% underperformed the portfolio benchmark return of 5.8%.
d) The Fund's five-year rate of return of 5.2% outperformed the portfolio benchmark return of 5.1%.
e) The Fund's ten-year rate of return of 8.5% outperformed the portfolio benchmark return of 7.8%.
f) For the year ended December 31, 2018, the additions to the Fund's fiduciary net position of $22.6 million is $63.1 million less than the year ended December 31, 2017 additions.
g) For the year ended December 31, 2018, the deductions to the Fund's fiduciary net position of $78.0 million is $1.8 million less when compared to the deductions for the year ended December 31, 2017.
h) The Fund's actuarially computed funded ratio is 32.1% at December 31, 2018, which is 5.0% less than at December 31, 2017.

# Management's Discussion and Analysis (Continued)

## Net Position Restricted for Pension Benefits

The Fund's net position restricted for pension benefits at December 31, 2018 is $342,255,873. This is $55,392,885 less than the December 31, 2017 net position restricted for pension benefits of $397,648,758. This compares to an increase of $5,949,836 for the year ended December 31, 2017. On March 1, 2018, Public Act 098-0622 was ruled unconstitutional by the courts. Pursuant to the court order, the 2018 tax levy will revert to a tax multiplier of 1.1 times the amount of employee contributions, which resulted in a large decrease in receivables in 2018. The tax multiplier in 2017 and 2016 was 1.7 times the amount of employee contributions from two years prior. The Fund's investment portfolio increases and decreases from year to year. This fluctuation is directly related to the strength of the financial markets at the financial statement date. The Fund is also still experiencing a cash flow shortage and continues to liquidate portfolio assets to supplement benefit payments made. The following tables are comparative summaries of fiduciary net position restricted for pension benefits:

### Statements of Fiduciary Net Position – Current Year

| | December 31, 2018 | December 31, 2017 | Increase (Decrease) |
|---|---|---|---|
| ASSETS | | | |
| Receivables and other current assets | $ 21,407,605 | $ 28,231,761 | $ (6,824,156) |
| Investments, at fair value | 323,404,925 | 376,303,293 | (52,898,368) |
| Invested securities lending collateral | 24,113,674 | 33,992,926 | (9,879,252) |
| Total assets | $368,926,204 | $438,527,980 | $(69,601,776) |
| LIABILITIES | | | |
| Accrued expense and other liabilities | $ 2,556,657 | $ 6,886,296 | $ (4,329,639) |
| Securities lending collateral | 24,113,674 | 33,992,926 | (9,879,252) |
| Total liabilities | $ 26,670,331 | $ 40,879,222 | $(14,208,891) |
| Fiduciary net position restricted for pension benefits | $342,255,873 | $397,648,758 | $(55,392,885) |

### Statements of Fiduciary Net Position – Prior Period

| | December 31, 2017 | December 31, 2016 | Increase (Decrease) |
|---|---|---|---|
| ASSETS | | | |
| Receivables and other current assets | $ 28,231,761 | $ 34,955,976 | $ (6,724,215) |
| Investments, at fair value | 376,303,293 | 358,461,840 | 17,841,453 |
| Invested securities lending collateral | 33,992,926 | 36,306,598 | (2,313,672) |
| Total assets | $438,527,980 | $429,724,414 | $ 8,803,566 |
| LIABILITIES | | | |
| Accrued expense and other liabilities | $ 6,886,296 | $ 1,718,894 | $ 5,167,402 |
| Securities lending collateral | 33,992,926 | 36,306,598 | (2,313,672) |
| Total liabilities | $ 40,879,222 | $ 38,025,492 | $ 2,853,730 |
| Fiduciary net position restricted for pension benefits | $397,648,758 | $391,698,922 | $ 5,949,836 |

# Management's Discussion and Analysis (Continued)

## Changes in Fiduciary Net Position

The Fund's total additions during the year ended December 31, 2018 decreased by $63,135,025 as compared to an increase of $11,610,840 for the year ended December 31, 2017. The Fund recorded a net investment loss during the year of $17,128,885 as compared to net investment income of $51,174,093 in 2017 and $31,022,803 in 2016. The large decrease is due to poor investment returns primarily in the international and U.S. equity portfolios. Additions from employer contributions increased from $20,920,614 in 2017 to $27,638,402 in 2018. Pursuant to Public Act 098-0622 being ruled unconstitutional, the tax levy multiplier for 2018 was decreased from 1.7 times the employee contributions from two years prior to 1.1 times the employee contributions from two years prior. In 2018, the Fund received a portion of PPRT (personal property replacement taxes) revenues collected in addition to the tax levy from the employer of approximately $14.4 million.

In 2017, the Fund did not receive any supplemental contributions from the employer. However, in 2016, the employer made supplemental contributions to the Fund of $12.5 million in accordance with Public Act 098-0622. Effective March 7, 2018, the employee contributions decreased from 10% to 9% in accordance with the court order. Consequently, employee contributions decreased to $12,125,457 in 2018 from $13,675,292 in 2017. The Fund also experienced a decrease in active members during 2018 of about 350 members.

The number of retirees has not fluctuated much over the recent years. The Fund's total benefit payments in 2018 increased slightly in comparison to 2017 mainly due to annual increases. On March 1, 2018, the court issued an opinion finding Public Act 098-0622 unconstitutional. As a result, the additional 1% in employee contributions paid to the Fund since January 1, 2015, were refunded to employees with pre-judgment interest in July 2018. These amounts were accrued for in the prior year. The Fund refunded $3.9 million in employee contributions plus pre-judgment interest. The following tables are comparative summaries of changes in fiduciary net position restricted for pension benefits:

### Statements of Changes in Fiduciary Net Position – Current Year

| | December 31, 2018 | December 31, 2017 | Increase (Decrease) |
|---|---|---|---|
| ADDITIONS | | | |
| Employer contributions | $ 27,638,402 | $ 20,920,614 | $ 6,717,788 |
| Employee contributions | 12,125,457 | 13,675,292 | (1,549,835) |
| Net investment (loss) income (includes security lending activities) | (17,128,885) | 51,174,093 | (68,302,978) |
| Total additions | $ 22,634,974 | $ 85,769,999 | $(63,135,025) |
| DEDUCTIONS | | | |
| Retirement benefits | $ 61,178,336 | $ 59,488,303 | $ 1,690,033 |
| Spousal benefits | 12,108,228 | 12,252,673 | (144,445) |
| Child benefits | 16,900 | 15,900 | 1,000 |
| Disability benefits | 268,389 | 190,464 | 77,925 |
| Death benefits | 229,000 | 305,000 | (76,000) |
| Total benefits | 73,800,853 | 72,252,340 | 1,548,513 |
| Refund of contributions | 2,725,967 | 2,025,805 | 700,162 |
| Refund of excess contributions | - | 3,859,882 | (3,859,882) |
| Administrative and general expenses | 1,501,039 | 1,682,136 | (181,097) |
| Total deductions | $ 78,027,859 | $ 79,820,163 | $ (1,792,304) |
| Net increase (decrease) | (55,392,885) | 5,949,836 | (61,342,721) |
| Beginning of year net position | 397,648,758 | 391,698,922 | 5,949,836 |
| End of year net position | $342,255,873 | $397,648,758 | $(55,392,885) |

# Management's Discussion and Analysis (Continued)

## Changes in Fiduciary Net Position (Continued)

### Statements of Changes in Fiduciary Net Position – Prior Period

| | December 31, 2017 | December 31, 2016 | Increase (Decrease) |
|---|---|---|---|
| ADDITIONS | | | |
| Employer contributions | $ 20,920,614 | $ 30,890,241 | $ (9,969,627) |
| Employee contributions | 13,675,292 | 12,246,115 | 1,429,177 |
| Net investment income (includes security lending activities) | 51,174,093 | 31,022,803 | 20,151,290 |
| Total additions | $ 85,769,999 | $ 74,159,159 | $ 11,610,840 |
| DEDUCTIONS | | | |
| Retirement benefits | $ 59,488,303 | $ 58,967,909 | $ 520,394 |
| Spousal benefits | 12,252,673 | 12,043,511 | 209,162 |
| Child benefits | 15,900 | 18,000 | (2,100) |
| Disability benefits | 190,464 | 283,963 | (93,499) |
| Death benefits | 305,000 | 255,000 | 50,000 |
| Total benefits | 72,252,340 | 71,568,383 | 683,957 |
| Refund of contributions | 2,025,805 | 2,509,493 | (483,688) |
| Refund of excess contributions | 3,859,882 | - | 3,859,882 |
| Administrative and general expenses | 1,682,136 | 1,537,699 | 144,437 |
| Total deductions | $ 79,820,163 | $ 75,615,575 | $ 4,204,588 |
| Net increase (decrease) | 5,949,836 | (1,456,416) | 7,406,252 |
| Beginning of year net position | 391,698,922 | 393,155,338 | (1,456,416) |
| End of year net position | $397,648,758 | $391,698,922 | $ 5,949,836 |

## Actuarial Update

The actuarial valuation for the year ended December 31, 2018 includes the impact on the Fund from the March 1, 2018 court decision made on Public Act 098-0622 and the changes in actuarial assumptions adopted by the Board in 2018. The decision to find Public Act 098-0622 unconstitutional has now projected the Fund to run out of money by the year 2026. The valuations for 2018 and 2017 also reflect GASB 67 requirements that improve financial reporting for local governmental pension plans. The notes to the financial statements include information about the individual components of the Fund's net pension liability. The net pension liability is equal to the difference between the total pension liability and the Fund's fiduciary net position. The Fund's required supplementary information provides the reader with a more enhanced look on how the total pension liability, the fiduciary net position and net pension liability is measured.

The Fund's actuarially computed funded ratio is 32.1% at December 31, 2018, which is 5.0% less than at December 31, 2017. The funded ratio is based on the actuarial value of assets over the actuarial accrued liability.

# Management's Discussion and Analysis (Continued)

## Investment Performance

The Fund's annual investment return for the year ended December 31, 2018 was -5.1%, which is lower than the 14.2% return reported for the year ended December 31, 2017 and lower than the 8.4% return for the year ended December 31, 2016. Performance in 2018 was primarily driven by a selloff in the Fund's International Equity portfolio, which returned -16.5% for the year and U.S. Equity portfolio, which returned -11.5% for the year. Strong returns in the Fund's infrastructure portfolio, which returned 15.3% for the year, real estate portfolio, which returned 7.5% for the year, and private equity portfolio, which returned 7.0% for the year helped offset the losses in the U.S. and international equity portfolios. The Fund's -5.1% return for 2018 underperformed its performance benchmark by approximately 210 basis points and underperformed the peer median by approximately 70 basis points. The Fund's underperformance vs. its' benchmark in 2018 was driven by active management underperformance within the U.S. equity and international equity portfolios. The Fund's portfolio performance for the past five years ranked in the upper seventeenth percentile as measured against its peers. Over the trailing three-year period, the Fund underperformed its' performance benchmark by approximately 20 basis points. Over the trailing five-year period, the Fund outperformed the performance benchmark by roughly 10 basis points. Over the trailing ten-year period, the Fund returned 8.5%, outperforming the performance benchmark by 70 basis points and ranked in the upper 27th percentile as measured against its peers, and outperforming the 7.5% actuarial rate of return.

## Litigation Matters

Effective June 1, 2014, Public Act 098-0622 amended Article 12 of the Pension Code by increasing the normal retirement age, increasing employee and employer contributions to the Fund, suspending and reducing the automatic annual increases for retirees, and reducing the duty disability benefit. On October 14, 2015, the Fund was served with a lawsuit challenging Public Act 098-0622 as unconstitutionally diminishing and impairing pension benefits. After the Illinois Supreme Court issued its decision in *Jones v. Municipal Employees' Annuity and Benefit Fund of Chicago* declaring unconstitutional similar changes to Articles 8 and 11 of the Pension Code, the Fund entered into an agreed court order and made retroactive payments for the suspended automatic annual increases, effective November 1, 2016, and restored the automatic annual increases, effective December 1, 2016.

On March 1, 2018, the court issued an opinion declaring Public Act 098-0622 unconstitutional. Therefore, the additional 1% in employee contributions paid to the Fund since January 1, 2015, were refunded to employees with pre-judgment interest in July 2018. In addition, in June 2018, the Fund restored any reduced duty disability benefits retroactively, with pre-judgment interest to any employees who received a reduced duty disability benefit. The total of these payments amounted to $3.9 million.

Pursuant to an agreed court order, the Fund retained the $12.5 million supplemental contribution the employer made in both 2016 and 2015 and the increased contributions made by the employer in 2016 and 2015 pursuant to the increase in the tax multiplier to 1.7 times the amount of employer contributions. The Fund also retained the employer contributions from the 2017 tax levy of $20.8 million, received in 2018, which were made pursuant to a tax multiplier of 1.7 times the amount of employee contributions. Although the 2018 tax levy reverted to a tax multiplier of 1.1 times the amount of employee contributions, the employer has budgeted for an additional voluntary contribution of $14.4 million to be paid to the Fund for a total of $27.6 million. The employer plans to make a similar voluntary contribution to the Fund in 2019.

## Contacting the Fund's Financial Management

This report is intended to provide a general overview of the Park Employees' and Retirement Board Employees' Annuity and Benefit Fund of Chicago for its employees and other interested parties. If you have questions, requests, or need additional information, please visit the Fund's website at www.chicagoparkpension.org or contact the Fund at 55 East Monroe Street, Suite 2720, Chicago, Illinois 60603.

## Statements of Fiduciary Net Position

December 31, 2018 and 2017

| ASSETS | 2018 | 2017 |
|---|---|---|
| Receivables | | |
| Contributions from employer | $ 14,464,069 | $ 20,799,934 |
| Employee contributions | 595,560 | 564,787 |
| Workers' compensation offset of duty disability benefits, net of allowance for loss of $16,615 in 2018 and 2017 | 75,844 | 131,115 |
| Due from broker | 321,604 | 1,309,824 |
| Accrued investment income | 411,061 | 448,401 |
| Miscellaneous receivables | 258,954 | 14,021 |
| | 16,127,092 | 23,268,082 |
| Investments, at fair value | | |
| Common stocks | 45,332,504 | 56,254,103 |
| Fixed income | 61,043,992 | 65,382,838 |
| Collective investment funds | 72,315,985 | 108,036,902 |
| Mutual funds | 15,420,085 | 20,340,559 |
| Hedged equity | 24,437,510 | 25,160,062 |
| International equity | 18,093,650 | - |
| Risk parity | 1,348,182 | 10,388,615 |
| Private equity | 19,232,200 | 22,366,679 |
| Real estate | 37,225,201 | 36,104,891 |
| Infrastructure | 22,774,008 | 23,328,660 |
| Short-term investments | 6,181,608 | 8,939,984 |
| | 323,404,925 | 376,303,293 |
| Invested securities lending collateral | 24,113,674 | 33,992,926 |
| Property and equipment – net | 138,555 | 110,539 |
| Prepaid annuity benefits | 5,061,599 | 4,777,637 |
| Other prepaid expenses | 80,359 | 75,503 |
| | 5,141,958 | 4,853,140 |
| Total assets | 368,926,204 | 438,527,980 |
| LIABILITIES | | |
| Accounts payable | 396,639 | 471,562 |
| Accrued benefits payable | 588,867 | 498,195 |
| Accrued payroll liabilities | 21,726 | 17,881 |
| Member contribution refunds and reduced disability benefits payable | - | 4,069,355 |
| Unamortized rent abatement | 55,136 | 63,108 |
| Securities lending collateral | 24,113,674 | 33,992,926 |
| Due to broker | 1,494,289 | 1,766,195 |
| | 26,670,331 | 40,879,222 |
| Net position restricted for pension benefits | $ 342,255,873 | $ 397,648,758 |

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

## Statements of Changes in Fiduciary Net Position

Years ended December 31, 2018 and 2017

| | 2018 | 2017 |
|---|---|---|
| Additions | | |
| Contributions | | |
| Employer contributions | $ 27,638,402 | $ 20,920,614 |
| Employee contributions | 12,125,457 | 13,675,292 |
| Total contributions | 39,763,859 | 34,595,906 |
| Investment income | | |
| Net appreciation (depreciation) in fair value of investments | (27,559,554) | 39,842,188 |
| Interest | 2,203,951 | 2,476,983 |
| Dividends | 925,828 | 1,076,628 |
| Partnership and real estate income | 9,064,682 | 9,542,177 |
| | (15,365,093) | 52,937,976 |
| Less investment expenses | 1,831,719 | 1,855,662 |
| Net income from investing activities | (17,196,812) | 51,082,314 |
| Security lending activities | | |
| Securities lending income | 721,122 | 476,428 |
| Borrower rebates | (596,824) | (316,668) |
| Bank fees | (56,538) | (71,749) |
| Net income from securities lending activities | 67,760 | 88,011 |
| Other income | 167 | 3,768 |
| Total additions | 22,634,974 | 85,769,999 |
| Deductions | | |
| Benefits | | |
| Annuity payments | 73,303,464 | 71,756,876 |
| Disability and death benefits | 497,389 | 495,464 |
| Total benefits | 73,800,853 | 72,252,340 |
| Refund of contributions | 2,725,967 | 2,025,805 |
| Refund of increased contributions and reduced disability benefits (see Note 10) | - | 3,859,882 |
| Administrative and general expenses | 1,501,039 | 1,682,136 |
| Total deductions | 78,027,859 | 79,820,163 |
| Net increase (decrease) | (55,392,885) | 5,949,836 |
| Net position restricted for pension benefits | | |
| Beginning of year | 397,648,758 | 391,698,922 |
| End of year | $ 342,255,873 | $ 397,648,758 |

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

## Notes to Financial Statements

### Note 1 – Fund Description and Contribution Information

The Fund is the administrator of a single employer defined benefit plan (PERS) established by the State of Illinois to provide annuities and benefits for substantially all employees of the Chicago Park District. The Fund is considered a component unit of the Chicago Park District's financial statements as a pension trust fund. The Fund is administered in accordance with the Illinois Compiled Statutes. The defined benefits as well as the employer and employee contribution levels of the Fund are mandated by Illinois State Statutes and may be amended only by the Illinois legislature. The Fund provides retirement, disability and death benefits to fund members and beneficiaries. At December 31, 2018 and 2017, Fund membership consists of:

| | 2018 | 2017 |
|---|---|---|
| Retirees and beneficiaries currently receiving benefits | 2,854 | 2,876 |
| Current employees | 3,187 | 3,543 |
| Vested terminated members entitled to benefits | 145 | 150 |

Pension legislation (Public Act 096-0889) was approved during 2010 and establishes two distinct classes of membership with different retirement eligibility conditions and benefit provisions. For convenience, the Fund uses a tier concept to distinguish these groups, generally:

Tier 1 – Participants that contributed before January 1, 2011.

Tier 2 – Participants that contributed on or after January 1, 2011.

Tier 1 employees attaining the age of 50 with at least ten years of creditable service are entitled to receive a service retirement pension. The retirement pension is based upon the average of the four highest consecutive years of salary within the last ten years of service. If the employee retires prior to the attainment of age 60, the rate associated with the service is reduced by one-quarter percent for each full month the employee is under age 60. There is no reduction if the participant has 30 years of service. Employees with four years of service at age 60 may receive a retirement benefit.

Tier 2 employees attaining the age 62 with at least ten years or more of creditable service are entitled to receive a discounted service retirement pension. Employees attaining the age 67 or more, with at least 10 years of service are entitled to receive a non-discounted annuity benefit. The annuity is discounted one-half percent for each full month the employee is under age 67. The retirement pension is based upon the average of the eight highest consecutive years of salary within the last 10 years of service prior to retirement. Pensionable salary is limited to $113,645 in 2018 and $112,408 in 2017.

***Post-Retirement Increase***

Tier 1: An employee annuitant under Tier 1 who retires at age 50 or older with at least 30 years of service is eligible to receive an increase of three percent, based on the annuity granted at retirement, payable following the first 12 months of benefits on either the next January or July. If the employee annuitant retires before age 60 with less than 30 years of service, then the increases begin on the January or July following the later of the attainment of age 60 or 12 months of benefits received.

Tier 2: An employee annuitant under Tier 2 that is eligible to receive an increase in the annuity benefit, shall receive an annual increase equal to the lesser of three 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 after age 67 on the first January following one full year of benefits received.

# Notes to Financial Statements (Continued)

## Note 1 – Fund Description and Contribution Information (Continued)

***Surviving Spouse Pension***

Tier 1: Upon the death of an employee annuitant under Tier 1, the surviving spouse, meeting certain eligibility requirements, is entitled to a spousal annuity. The surviving spouse is entitled to the lesser of a money purchase calculation, 50% of the highest salary or 75% of the granted annuity. With 20 years of service, the entitlement becomes the higher of the eligible money purchase calculation or 50% of retiree's annuity at time of death. The surviving spouse is also eligible to receive an increase of three percent compounded, on the January following one full year after the date of death of the employee or annuitant.

Tier 2: The annuity payable to the surviving spouse of an employee annuitant under Tier 2 is equal to 66 2/3% of the participant's earned retirement annuity at the time of death without reduction due to age. The surviving spouse is also eligible to receive an increase equal to the lesser of three 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, on the January following one full year after the date of death of the employee or annuitant.

***Child Annuity***

Under Tier 1 and Tier 2, unmarried children under the age of 18 of a deceased employee or annuitant having at least two years of service are entitled to a benefit. The child's annuity is an amount equal to $100 a month when there is a surviving spouse or $150 when there is no surviving spouse, subject to maximum limitations.

***Ordinary Disability Benefit***

Under Tier 1 and Tier 2, 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 45% 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/her service credits up to a maximum of five years, exclusive of the disability period. Tier 2 participants have salary limitations similar to employee contributions.

***Duty Disability Benefit***

Under Tier 1 and Tier 2, an employee who becomes disabled as the result of a work related 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. Tier 2 participants have salary limitations similar to employee contributions.

***Contributions***

Covered employees are required by state statutes to contribute 9.0 percent of their salary to the Fund. If a covered employee leaves employment before the age of 55, accumulated employee contributions are refundable without interest. The District is required by state statute to contribute the remaining amounts necessary to finance the requirements of the Fund on an actuarially funded basis. It is required to levy a tax at a rate not more than an amount equal to the total amount of contributions by the employees to the Fund made in the fiscal year two years prior to the year for which the annual applicable tax is levied, multiplied by a factor of 1.1 annually. The District has no legal obligation to fund pension costs above that allowed by statute. The District's contributions to the Fund were $27,638,402 and $20,920,614 for the years ended December 31, 2018 and 2017, respectively.

# Notes to Financial Statements (Continued)

## Note 1 – Fund Description and Contribution Information (Continued)

***Benefit and Contribution Changes – Public Act 098-0622***

Public Act 098-0622, which took effect January 1, 2015, was signed by the governor in January 2014 and included benefit changes for both Tier 1 and Tier 2 members as well as increases in the employer and employee contributions. On March 1, 2018, the court issued an opinion finding Public Act 098-0622 unconstitutional.

Increase in employer contributions provided by the provisions of Public Act 098-0622 for 2015, 2016 and 2017 were generally not affected by the ruling, and these increases were not required to be returned by the Fund. However, employee contribution increases collected and reductions in duty disability benefits payments during 2015, 2016 and 2017 were returned to the employees in July 2018. See note 10.

***Net Pension Liability of Participating Employer***

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

| | 2018 | 2017 |
|---|---|---|
| Total pension liability | $1,646,968,021 | $1,624,571,524 |
| Plan fiduciary net position | 342,255,873 | 397,648,758 |
| Employer’s net pension liability | 1,304,712,148 | 1,226,922,766 |
| Plan fiduciary net position as a percentage of net pension liability | 20.78% | 24.48% |

***Actuarial Assumptions***

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

| | 2018 | 2017 |
|---|---|---|
| Inflation | 2.50% | 2.75% |
| Salary increase | 20% to 2.75% | 15% to 2.75% |
| Investment rate of return | 4.21%, net of investment expense | 3.65%, net of investment expense |
| Cost of living adjustments | Retirees – 3% of the original benefit for employees who first became a participant before January 1, 2011. Retirees – lesser of 3% and ½ CPI of the original benefit for employees and beneficiaries of employees who first became a participant on or after January 1, 2011. Beneficiary – 3% compounded for beneficiaries of employees who first became a participant by January 1, 2011. | Retirees – 3% of the original benefit for employees who first became a participant before January 1, 2011. Retirees – lesser of 3% and ½ CPI of the original benefit for employees and beneficiaries of employees who first became a participant on or after January 1, 2011. Beneficiary – 3% compounded for beneficiaries of employees who first became a participant by January 1, 2011. |

## Notes to Financial Statements (Continued)

### Note 1 – Fund Description and Contribution Information (Continued)

***Actuarial Assumptions (Continued)***

Post-retirement mortality rates adjusted from RP-2000 with mortality improvements projected generationally from 2003 using Scale AA to 110% of PubG-2010 with mortality improvements projected generationally using MP-2017.

The actuarial assumptions used in the December 31, 2018 were based on the results of an actuarial experience study for a five-year period ending December 31, 2017. The actuarial assumptions used in the December 31, 2017 valuation were based on the results of an actuarial experience study for a five-year period ending June 30, 2012.

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, 2018 and 2017 are summarized in the following table:

| | 2018 | | 2017 | |
|---|---|---|---|---|
| | Target allocation | Long-term expected real rate of return | Target allocation | Long-term expected real rate of return |
| Fixed income | 20.5% | 1.65% | 20.5% | 1.75% |
| Domestic equity | 28.5% | 6.45% | 28.5% | 6.40% |
| International equity | 18.0% | 6.95% | 18.0% | 7.40% |
| Emerging market | 2.0% | 9.25% | 2.0% | 9.80% |
| Risk parity | 3.0% | 4.55% | 3.0% | 4.10% |
| Hedge equity | 7.0% | 4.55% | 7.0% | 4.10% |
| Private equity | 7.0% | 11.55% | 7.0% | 10.70% |
| Real assets | 14.0% | 4.25% | 14.0% | 5.10% |

***Discount Rate***

The discount rate used to measure the total pension liability was 4.21% for December 31, 2018. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the 9% contribution rate for 2019 and thereafter. Employer contributions will be made at the 1.1 multiple of member contributions from two years prior to 2019 and thereafter. For this purpose, only employer contributions that are intended to fund benefits or current plan members and their beneficiaries are included. Projected employer contributions and contributions from future plan members that are intended to fund the service costs 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 2024 were discounted at the expected long-term rate of returns (7.25%). Starting in 2025, the projected benefit payments were discounted at the municipal bond index (4.10%). Therefore, a single equivalent blended discount rate of 4.21% was calculated using the long-term expected rate of return and the municipal bond index.

# Notes to Financial Statements (Continued)

## Note 1 – Fund Description and Contribution Information (Continued)

***Discount Rate (Continued)***

The discount rate used to measure the total pension liability was 3.65% for December 31, 2017. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the 9% contribution rate for 2018 and thereafter. Employer contributions will be made at the 1.1 multiple of member contributions from two years prior to 2018 and thereafter. For this purpose, only employer contributions that are intended to fund benefits or current plan members and their beneficiaries are included. Projected employer contributions and contributions from future plan members that are intended to fund the service costs 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 2025 were discounted at the expected long-term rate of returns (7.5%). Starting in 2026, the projected benefit payments were discounted at the municipal bond index (3.44%). Therefore, a single equivalent blended discount rate of 3.658% 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, 2018, calculated using the discount rate of 4.21%, as well as what the net pension liability would be if it was calculated using a discount rate that is 1 percentage point lower (3.21%) or 1 percentage point higher (5.21%) than the current rate:

| Net pension liability | 1% Decrease (3.21%) | Current Discount Rate (4.21%) | 1% Increase (5.21%) |
|---|---|---|---|
| December 31, 2018 | $1,551,957,537 | $1,304,712,148 | $1,104,251,891 |

For comparison purposes, the net pension liability as of December 31, 2017, calculated using the discount rate of 3.65%, as well as what the net pension liability would be if it was calculated using a discount rate that is 1 percentage point lower (2.65%) or 1 percentage point higher (4.65%) than the current rate:

| Net pension liability | 1% Decrease (2.65%) | Current Discount Rate (3.65%) | 1% Increase (4.65%) |
|---|---|---|---|
| December 31, 2017 | $1,466,351,862 | $1,226,922,766 | $1,031,461,240 |

## Note 2 – 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 appointed 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 Fund has no component units. The Fund is considered a component unit fund of the Chicago Park District and, as such, is included in the Chicago Park District's financial statements as a pension trust fund. Accordingly, these financial statements present only the Park Employees' and Retirement Board Employees' Annuity and Benefit Fund and are not intended to present fairly the financial position of the Chicago Park District and the result of its operations in conformity with generally accepted accounting principles.

# Notes to Financial Statements (Continued)

## Note 2 – Summary of Significant Accounting Policies (Continued)

***Basis of Accounting***

The financial statements are prepared using the accrual basis of accounting. Employee and employer contributions are recognized 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 Fund.

***Use of Estimates***

The preparation of financial statements in accordance with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Actual results may differ from those estimates.

***Risks and Uncertainties***

The Fund 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.

***Method Used to Value Investments***

The Fund 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; collective investment funds; and private equity partnerships 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. Short-term investments are reported at cost, which approximates fair value. Fair values for bonds, stocks and mutual funds are determined by quoted market prices. Investments for which market quotations are not readily available are valued at their fair values as determined by the bank administrator under the direction of the Board of Trustees, with the assistance of a valuation service.

***Administrative Expenses***

Administrative expenses are budgeted and approved by the Fund's Board of Trustees. Funding for these expenses is included in the employer contributions as determined by the annual actuarial valuation.

***Recently Issued Accounting Pronouncements***

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. The Fund 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.

GASB Statement No. 87, *Leases*, was established to improve accounting and financial reporting for leases by governments. This Statement increases the usefulness of governmental financial statements by requiring recognition of certain lease assets and liabilities for leases that were previously classified as operating leases. Statement No 87 establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Statement No. 87 is effective for the Fund's fiscal year ending December 31, 2020.

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

# Notes to Financial Statements (Continued)

## Note 3 – Investment Policies, Asset Allocation and Money-Weighted Rate of Return

***Investment Policy***

The Fund'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 Fund'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 as of December 31, 2018 and 2017.

| Asset Class | 2018 Target | 2017 Target |
|---|---|---|
| Fixed income | 20.5% | 20.5% |
| Domestic equity | 28.5% | 28.5% |
| International equity | 18.0% | 18.0% |
| Emerging market | 2.0% | 2.0% |
| Risk parity | 3.0% | 3.0% |
| Hedge equity | 7.0% | 7.0% |
| Private equity | 7.0% | 7.0% |
| Real assets | 14.0% | 14.0% |
| | 100.0% | 100.0% |

***Money-Weighted Rate of Return***

For the year ended December 31, 2018 and 2017, the annual money-weighted rate of return on plan investments, net of investment expense, was 5.49% and 5.58%, respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

## Note 4 – Deposits and Investments

At December 31, 2018 and 2017, the Fund's book balances of cash were $-0- and $-0-, respectively. The actual bank balances were $-0- and $-0- at December 31, 2018 and 2017, respectively. The Fund maintains cash balances at the Northern Trust Company Bank. Accounts at this institution may from time to time exceed amounts insured by the Federal Deposit Insurance Company.

The Fund's investments are held by a bank-administered trust fund, except for the collective investment funds, private equity partnerships, real estate, mutual funds, infrastructure, hedged equity and certain fixed income investments. Investments that represent 5 percent or more of the Fund's net position (except those issued or guaranteed by the U.S. Government) are separately identified as follows:

| | 2018 | 2017 |
|---|---|---|
| Collective investment funds – common stock | | |
| NTGI QM Collective Daily US Market Cap Equity | $ 35,491,812 | $ 41,353,963 |
| NTGI QM Collective Daily All Country World Index | $ 22,881,641 | $ 50,673,507 |
| Hedged Equity – Parametric Defensive Equity Fund | $ 24,437,510 | $ 25,160,062 |
| Mutual Funds – William Blair | $ 15,420,085* | $ 20,340,559 |

* *Does not represent 5 percent or more of the Fund's Net Position*

# Notes to Financial Statements (Continued)

## Note 4 – Deposits and Investments (Continued)

The Fund's investments are reported at fair value in the accompanying statements 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 Fund 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 provide 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 Fund 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.

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, 2018 and 2017.

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 securities and short-term investment securities classified in Level 1 are valued using prices quoted in active markets for those securities.

Debt securities classified in Level 2 or Level 3 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 classified in Level 2 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 fund less its liabilities. This practical expedient is not used when it is determined to be probable that the Fund will sell the investment for an amount different than the reported NAV.

# Notes to Financial Statements (Continued)

## Note 4 – Deposits and Investments (Continued)

The following table summarizes the valuation of the Fund's investments by the fair value hierarchy levels as of December 31, 2018.

| | | Fair Value Measurements Using | | |
|---|---|---|---|---|
| **Investment Measured at Fair Value** | December 31, 2018 | 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 | $ 87,673,188 | $ 45,332,504 | $ 42,340,684 | $ - |
| Common Stock – foreign | 45,395,386 | 15,420,085 | 29,975,301 | - |
| **Total equity securities** | 133,068,574 | 60,752,589 | 72,315,985 | - |
| **Debt securities** | | | | |
| Government Bonds | 15,953,011 | - | 15,953,011 | - |
| Government Agencies | 1,370,216 | - | 1,370,216 | - |
| Corporate Bonds | 16,822,554 | - | 16,820,247 | 2,307 |
| Government Mortgage-Backed Securities | 15,876,479 | - | 15,780,728 | 95,751 |
| Commercial Mortgage-Backed | 9,943,558 | - | 9,943,558 | - |
| Asset Backed Securities | 289,313 | - | 234,346 | 54,967 |
| Non-Government Backed CMO's | 108,325 | - | 108,325 | - |
| Index Linked Government Bonds | 680,536 | - | 680,536 | - |
| **Total debt securities** | 61,043,992 | - | 60,890,967 | 153,025 |
| **Short-term investment securities** | | | | |
| Short-term Bills & Notes | 224,887 | - | 224,887 | - |
| Funds-short-term investment | 5,956,721 | 5,956,721 | - | - |
| **Total short-term investments securities** | 6,181,608 | 5,956,721 | 224,887 | - |
| **Total investments measured by fair value level** | 200,294,174 | $ 66,709,310 | $133,431,839 | $ 153,025 |
| **Investments measured at Net Asset Value (NAV)** | | | | |
| Hedged equity | 24,437,510 | | | |
| International equity | 18,093,650 | | | |
| Risk parity | 1,348,182 | | | |
| Private equity | 19,232,200 | | | |
| Real estate | 37,225,201 | | | |
| Infrastructure | 22,774,008 | | | |
| **Total investments measured at NAV** | 123,110,751 | | | |
| **Total investments measured at fair value** | $323,404,925 | | | |
| **Collateral from securities lending** | $ 24,113,674 | | $ 24,113,674 | |

# Notes to Financial Statements (Continued)

## Note 4 – Deposits and Investments (Continued)

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

| | | Fair Value Measurements Using | | |
|---|---|---|---|---|
| **Investment Measured at Fair Value** | December 31, 2017 | 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 | $ 105,305,220 | $ 56,254,103 | $ 49,051,117 | $ - |
| Common Stock - foreign | 79,326,344 | 20,340,559 | 58,985,785 | - |
| **Total equity securities** | 184,631,564 | 76,594,662 | 108,036,902 | - |
| **Debt securities** | | | | |
| Government Bonds | 17,374,364 | - | 17,374,364 | - |
| Government Agencies | 1,673,582 | - | 1,673,582 | - |
| Corporate Bonds | 20,233,703 | - | 20,231,514 | 2,189 |
| Government Mortgage-Backed Securities | 16,328,816 | - | 16,328,816 | - |
| Commercial Mortgage-Backed | 9,463,179 | - | 9,463,179 | - |
| Non-Government Backed CMO's | 108,101 | - | - | 108,101 |
| Index Linked Government Bonds | 201,093 | - | 201,093 | - |
| **Total debt securities** | 65,382,838 | - | 65,272,548 | 110,290 |
| **Short-term investment securities** | | | | |
| Short-term Bills & Notes | 829,756 | 829,756 | - | - |
| Funds-short-term investment | 8,110,228 | 8,110,228 | - | - |
| **Total short-term investments securities** | 8,939,984 | 8,939,984 | - | - |
| **Total investments measured by fair value level** | 258,954,386 | $ 85,534,646 | $173,309,450 | $ 110,290 |
| **Investments measured at Net Asset Value (NAV)** | | | | |
| Hedged equity | 25,160,062 | | | |
| Risk parity | 10,388,615 | | | |
| Private equity | 22,366,679 | | | |
| Real estate | 36,104,891 | | | |
| Infrastructure | 23,328,660 | | | |
| **Total investments measured at NAV** | 117,348,907 | | | |
| **Total investments measured at fair value** | $376,303,293 | | | |
| **Collateral from securities lending** | $ 33,992,926 | | $ 33,992,926 | |

## Notes to Financial Statements (Continued)

### Note 4 – 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, 2018 | Unfunded Commitments | Redemption Frequency (if Currently Eligible) | Redemption Notice Period |
|---|---|---|---|---|
| Hedged equity | $ 24,437,510 | $ - | Monthly | 5 days |
| International equity | $ 18,093,650 | $ - | Daily/Quarterly | 5 – 30 days |
| Risk parity | $ 1,348,182 | $ - | Daily | 1 day |
| Private equity | $ 19,232,200 | $13,395,000 | n/a | n/a |
| Real estate | $ 37,225,201 | $ - | Quarterly | 60-90 days |
| Infrastructure | $ 22,774,008 | $ - | Quarterly | 90 days |

**Investments Measured at Net Asset Value (NAV)**

| | Fair Value December 31, 2017 | Unfunded Commitments | Redemption Frequency (if Currently Eligible) | Redemption Notice Period |
|---|---|---|---|---|
| Hedged equity | $ 25,160,062 | $ - | Monthly | 5 days |
| Risk parity | $ 10,388,615 | $ - | Daily | 1 day |
| Private equity | $ 22,366,679 | $ 9,245,000 | n/a | n/a |
| Real estate | $ 36,104,891 | $ - | Quarterly | 60-90 days |
| Infrastructure | $ 23,328,660 | $ - | Quarterly | 90 days |

**Hedged Equity**
The hedged equity investment consists of one open-end long/short equity hedge fund of funds portfolio that primarily invests both long and short in publicly traded US equities.

**International Equity**
The international equity investment consists of two funds portfolio that primarily invests both long and short in publicly traded international equities.

**Risk Parity**
The risk parity investment consists of one open-end fund that primarily invests in global equities, global government bonds and commodities.

**Private Equity Partnerships**
The private equity investments consist of ten closed-end limited partnership private equity fund of funds. 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 Fund has no plans to liquidate the total portfolio.

# Notes to Financial Statements (Continued)

## Note 4 – Deposits and Investments (Continued)

**Real Estate**

The real estate investments consists of two core open-end real estate funds and one value-added open-end real estate fund that primarily invest in U.S. commercial real estate.

**Infrastructure**

The infrastructure investments consist of two core open-end infrastructure funds that primarily invest in global infrastructure assets.

The Fund shall apply the prudent investor rule in investing for funds under its supervision. The "prudent investor rule" means that in making investments, the fiduciaries shall exercise the judgment and care, under the circumstances then prevailing, that an institutional investor of ordinary prudence, discretion, and intelligence exercises in the management of large investments entrusted to it, with regards to preservation of capital and income and not speculation. The funds belonging to the Fund must be invested exclusively for the benefit of their members and in accordance with the respective Fund's investment goals and objectives.

*Interest Rate Risk*

Interest rate risk is the risk that changes in interest rates of debt securities that will adversely affect the fair value of an investment. The price of a debt security typically moves in the opposite direction of the change in interest rates.

The Fund does not maintain a policy relative to interest rate risk. The Board of Trustees recognized that its investments are subject to short-term volatility. However, their goal is to maximize total return within prudent risk parameters.

*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 Fund has not adopted a formal policy related to foreign currency risk. At December 31, 2018 and 2017, the Fund had $43.4 and $79.3 million, respectively, in foreign investments, all of which was in mutual funds that were held in U.S. dollars. At December 31, 2018, the Fund had $18.1 million in foreign investments in two international equity hedge funds all of which were held in U.S. dollars.

The following tables show the investments in debt securities by investment type and maturity as of December 31, 2018 and 2017 (expressed in thousands).

December 31, 2018

| Security Type | Total Fair Value | Less Than 1 Year | 1 – 6 Years | 6 -10 Years | 10+ Years |
|---|---|---|---|---|---|
| Commercial mortgage backed | $ 9,944 | $ - | $ - | $ 307 | $ 9,637 |
| Corporate bonds | 16,823 | 1,316 | 7,891 | 4,929 | 2,687 |
| Government agencies | 1,370 | 195 | 832 | 343 | - |
| Government bonds | 15,953 | 198 | 8,823 | 3,193 | 3,739 |
| Asset backed securities | 289 | - | - | 99 | 190 |
| Index linked government bonds | 681 | - | - | 681 | - |
| Government mortgage backed | 15,876 | - | 33 | 352 | 15,491 |
| Non-government backed CMO's | 108 | - | - | - | 108 |
| Total | $61,044 | $1,709 | $17,579 | $9,904 | $31,852 |

## Notes to Financial Statements (Continued)

### Note 4 – Deposits and Investments (Continued)

December 31, 2017

| Security Type | Total Fair Value | Less Than 1 Year | 1 – 6 Years | 6 -10 Years | 10+ Years |
|---|---|---|---|---|---|
| Commercial mortgage backed | $ 9,463 | $ - | $ - | $ - | $ 9,463 |
| Corporate bonds | 20,234 | 504 | 9,639 | 5,762 | 4,329 |
| Government agencies | 1,674 | - | 1,420 | 254 | - |
| Government bonds | 17,374 | - | 7,937 | 5,543 | 3,894 |
| Asset backed securities | - | - | - | - | - |
| Index linked government bonds | 201 | - | - | 201 | - |
| Government mortgage backed | 16,329 | 14 | 152 | 552 | 15,611 |
| Non-government backed CMO's | 108 | - | - | - | 108 |
| Total | $65,383 | $ 518 | $19,148 | $12,312 | $33,405 |

Some investments are more sensitive to interest rate changes than others. Variable and floating rate collateralized mortgage obligations (CMOs), asset-backed securities (ABS), interest-only and principal-only securities are examples of investments whose fair values may be highly sensitive to interest rate changes.

*Credit Risk*

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The Fund maintains a highly diversified portfolio of debt securities encompassing a wide range of credit ratings. Each fixed income manager is given a specific set of guidelines to invest within, based on the mandate for which it was hired. The guidelines specify in which range of credit the manager may invest. These ranges include investment grade and high yield categories.

The following tables present the Fund's ratings as of December 31, 2018 and 2017 (expressed in thousands).

December 31, 2018

| S & P Credit Rating | Fair Value | Comm'l Mortgage Backed | Corporate Bonds | Gov't Agencies | Gov't Bonds | Asset Backed | Gov't Mortgage Backed | Index Linked Gov't Bonds | Non Gov't Backed CMO |
|---|---|---|---|---|---|---|---|---|---|
| AAA | $ 803 | $ 207 | $ 247 | $ 195 | $ - | $154 | $ - | $ - | $ - |
| AA | 2,219 | - | 1,333 | 778 | - | - | - | - | 108 |
| A | 4,594 | - | 4,508 | - | - | 86 | - | - | - |
| BBB | 9,324 | - | 9,125 | 199 | - | - | - | - | - |
| BB | 1,016 | - | 1,016 | - | - | - | - | - | - |
| B | 592 | - | 592 | - | - | - | - | - | - |
| NR | 9,886 | 9,637 | 2 | 198 | - | 49 | - | - | - |
| US Gov't Agency | 32,610 | 100 | - | - | 15,953 | - | 15,876 | 681 | - |
| Total | $61,044 | $9,944 | $16,823 | $1,370 | $15,953 | $289 | $15,876 | $681 | $108 |

## Notes to Financial Statements (Continued)

### Note 4 – Deposits and Investments (Continued)

December 31, 2017

| S & P Credit Rating | Fair Value | Comm'l Mortgage Backed | Corporate Bonds | Gov't Agencies | Gov't Bonds | Asset Backed | Gov't Mortgage Backed | Index Linked Gov't Bonds | Non Gov't Backed CMO |
|---|---|---|---|---|---|---|---|---|---|
| AAA | $ 795 | $ 220 | $ 380 | $ 195 | $ - | $ - | $ - | $ - | $ - |
| AA | 2,629 | - | 1,453 | 1,068 | - | - | - | - | 108 |
| A | 6,904 | - | 6,904 | - | - | - | - | - | - |
| BBB | 9,215 | - | 9,003 | 212 | - | - | - | - | - |
| BB | 1,926 | - | 1,926 | - | - | - | - | - | - |
| B | 270 | - | 270 | - | - | - | - | - | - |
| NR | 10,425 | 9,243 | 298 | 199 | 222 | - | 463 | - | - |
| US | 33,219 | - | - | - | 17,152 | - | 15,866 | 201 | - |
| Total | $65,383 | $9,463 | $20,234 | $1,674 | $17,374 | $ - | $16,329 | $201 | $108 |

*Custodial Credit Risk*

For an investment, custodial credit risk is the risk that, in the event of the failure of the counterparty, the pension fund will not be able to recover the value of its investments or collateral securities that are in the possession of an outside party. A review of the Fund's exposure to custodial credit risks reflects that there is none.

### Note 5 – Securities Lending

Under the provisions of state statutes, the Fund lends securities (both equity and fixed income) to qualified and Fund approved brokerage firms for collateral that will be returned for the same securities in the future. The Fund's custodian, the Northern Trust Co., manages the securities lending program, which includes the securities of the Fund as well as other lenders, and receives cash, U.S. Treasury securities or letters of credit as collateral. The collateral received cannot be pledged or sold by the Fund unless the borrower defaults. However, the Fund does have the right to close the loan at any time. All security loan agreements are initially collateralized at 102% of the loaned securities. Whenever adjustments are needed to reflect changes in the fair value of the securities loaned, the collateral is adjusted accordingly. Cash collateral is invested in the lending agent's short-term investment pool, which at year end has a weighted average maturity of 67 days. As of December 31, 2018 and 2017, the Fund had loaned to borrowers securities with a fair value of $23,681,541 and $33,152,044, respectively. As of December 31, 2018, the fair value of the collateral received by the Fund was $24,113,674 and the collateral invested by the Fund was $24,113,674. As of December 31, 2017, the fair value of the collateral received by the Fund was $33,992,926 and the collateral invested by the Fund was $33,992,926.

At year end, the Fund has no credit risk exposure to the borrowers because the amounts the Fund owes the borrowers exceed the amounts the borrowers owe the Fund.

## Notes to Financial Statements (Continued)

### 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 3-7 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. Maintenance and repairs are charged to expense. A summary of property and equipment at December 31, 2018 and 2017 is as follows:

| | 2018 | 2017 |
|---|---|---|
| Furniture and equipment | $ 73,865 | $ 72,426 |
| Computer software | 199,050 | 171,419 |
| Leasehold improvements | 2,271 | 2,271 |
| | 275,186 | 246,116 |
| Less accumulated depreciation and amortization | 136,631 | 135,577 |
| Net property and equipment | $138,555 | $110,539 |

Depreciation and amortization expense was $1,054 and $1,459 for 2018 and 2017, respectively.

### Note 7 – Operating Leases

The Fund has entered into an operating lease for office space through April 30, 2026. The lease provides that the lessee pay monthly base rent subject to annual increases, plus an escalation rent computed on costs incurred by the lessor. Upon executing the amendment, the Fund received rent abatements in the amount of $115,587 which are being amortized over the life of the lease. The unamortized portion was $55,136 and $63,108 at December 31, 2018 and 2017, respectively. The total rental expense was $192,269 and $182,774 for 2018 and 2017, respectively.

Following is a schedule of minimum future rental payments for each of the next five years and in the aggregate under the non-cancelable operating lease at December 31, 2018:

| Year ended December 31 | Amount |
|---|---|
| 2019 | $ 97,021 |
| 2020 | 99,349 |
| 2021 | 101,678 |
| 2022 | 104,006 |
| 2023 | 106,335 |
| 2024-2026 | 256,911 |
| | $ 765,300 |

The Fund leases office equipment under non-cancelable operating leases that expire at various dates through January, 2024. Total rent expense incurred under these operating leases was $27,059 and $24,518 for 2018 and 2017, respectively.

Minimum future rental payments under non-cancelable operating leases having remaining terms in excess of one year as of December 31, 2018 for each of the next six years and in the aggregate are:

| Year ended December 31 | Amount |
|---|---|
| 2019 | $ 19,912 |
| 2020 | 19,912 |
| 2021 | 19,912 |
| 2022 | 19,912 |
| 2023 | 7,941 |
| 2024 | 519 |
| | $ 88,108 |

## Notes to Financial Statements (Continued)

### Note 8 – Commitments

The Fund has committed to purchase $90,000,000 interest in private equity partnerships. At December 31, 2018 and 2017, the Fund had a remaining contractual obligation of $13,395,000 and $9,245,000, respectively, to purchase additional interest in the private equity partnerships.

### Note 9 – 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 Internal Revenue Service regulations. Total employee contributions were $36,200 and $36,125 for 2018 and 2017, respectively. Employer contributions are not allowed.

### Note 10 – Litigation

Public Act 098-0622, which took effect January 1, 2015, affected all stakeholders: the employer, employees and retirees and was to be phased in over a five-year period. The main objective of the amendment was to provide sustainable funding to secure the long-term health of the Fund.

Beginning in 2015, the multiplier for employer contributions increased to 1.70 times the total contribution by employees two years earlier. In addition to the increased multiplier, the Employer made supplemental contributions in 2015 and 2016 of $12.5 million.

Under Public Act 098-0622, employee contributions increased from 9% to 10%. Duty disability benefits decreased from 75% of salary to 74%.

On October 14, 2015, the Fund was served a summons and complaint, which challenges Public Act 098-0622, on the grounds that this amendment to the Illinois Pension Code diminishes and impairs the benefits of participants in the Fund. On March 1, 2018, the Court issued an opinion finding Public Act 098-0622 unconstitutional. Consequently, the court ordered the Fund to refund the additional 1% in employee contributions that were paid to the Fund since January 1, 2015 with prejudgment interest at 3%. In addition, the Fund will restore any reduced duty disability benefits retroactively, with prejudgment interest to any employees who received a reduced duty disability benefit.

At December 31, 2017 the Fund has recorded a liability of $4,069,355 consisting of the refunds of the additional 1% of employee contributions and the amounts due employees who received reduced duty disability benefits including prejudgment interest of approximately $209,000.

Increases in employer contributions due to changes in the multiplier and additional supplemental contributions in 2015 and 2016 were not affected by the ruling. The Court ruled the Fund is under no obligation to return those contributions to the District. The multiplier for 2018 was amended to revert back to 1.10 from 1.70.

## Required Supplementary Information (Unaudited)

**Schedule of Changes in Employer's Net Pension Liability**

| | 12/31/18 | 12/31/17 | 12/31/16 | 12/31/15 | 12/31/14 |
|---|---|---|---|---|---|
| ***Total pension liability*** | | | | | |
| Service Cost | $ 38,102,341 | $ 20,115,813 | $ 13,763,768 | $ 13,417,795 | $ 12,975,774 |
| Interest | 59,290,982 | 68,982,467 | 66,523,889 | 65,921,805 | 64,929,834 |
| Change of benefit term | - | 36,183,940 | 93,579,710 | - | - |
| Differences between expected and actual experience | 5,001,084 | 2,785,815 | (4,556,757) | 682,159 | 5,447,687 |
| Change of assumptions | (3,471,090) | 370,422,560 | 198,725,863 | - | - |
| Benefit payments, including refunds of employee contributions | (76,526,820) | (78,138,027) | (74,077,877) | (70,602,016) | (70,536,042) |
| **Net change in total pension liability** | **22,396,497** | **420,352,568** | **293,958,596** | **9,419,743** | **12,817,253** |
| **Total pension liability – beginning** | **1,624,571,524** | **1,204,218,956** | **910,260,360** | **900,840,617** | **888,023,364** |
| **Total pension liability – ending (a)** | **1,646,968,021** | **1,624,571,524** | **1,204,218,956** | **910,260,360** | **900,840,617** |
| ***Plan fiduciary net position*** | | | | | |
| Contributions – employer | 27,638,402 | 20,920,614 | 30,890,241 | 30,588,976 | 11,225,438 |
| Contributions – employee | 12,125,457 | 13,675,292 | 12,246,115 | 12,368,636 | 10,831,434 |
| Net investment income (loss) | (17,196,812) | 51,082,314 | 30,920,231 | 8,823,613 | 27,490,520 |
| Benefit payments, including refunds of employee contributions | (76,526,820) | (78,138,027) | (74,077,877) | (70,602,016) | (70,536,042) |
| Administrative expenses | (1,501,039) | (1,682,136) | (1,537,698) | (1,533,700) | (1,458,831) |
| Other | 67,927 | 91,779 | 102,572 | 88,113 | 100,518 |
| **Net change in plan fiduciary net position** | **(55,392,885)** | **5,949,836** | **(1,456,416)** | **(20,266,378)** | **22,346,963)** |
| **Plan fiduciary net position – beginning** | **397,648,758** | **391,698,922** | **393,155,338** | **413,421,716** | **435,768,679** |
| **Plan fiduciary net position – ending (b)** | **342,255,873** | **397,648,758** | **391,698,922** | **393,155,338** | **413,421,716** |
| **Employer's net pension liability ending (a)-(b)** | **$1,304,712,148** | **$1,226,922,766** | **$ 812,520,034** | **$517,105,022** | **$487,418,901** |

*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**

| | 12/31/18 | 12/31/17 | 12/31/16 | 12/31/15 | 12/31/14 |
|---|---|---|---|---|---|
| Total pension liability | $1,646,968,021 | $1,624,571,524 | $1,204,218,956 | $910,260,360 | $900,840,617 |
| Plan fiduciary net position | 342,255,873 | 397,648,758 | 391,698,922 | 393,155,338 | 413,421,716 |
| Employer's net pension liability | 1,304,712,148 | 1,226,922,766 | 812,520,034 | 517,105,022 | 487,418,901 |
| Plan fiduciary net position as a percentage of total pension liability | 20.78% | 24.48% | 32.53% | 43.19% | 45.89% |
| Covered-employee payroll | $ 133,112,100 | $ 135,315,008 | $ 121,126,918 | $122,382,584 | $118,987,507 |
| Employer's net pension liability as a percentage of covered-employee payroll | 980.16% | 906.72% | 670.80% | 422.53% | 409.64% |

*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.*

## Required Supplementary Information (Unaudited) (Continued)

### Schedule of Employer Contributions

| Period Ended | Actuarially Determined Contribution | Contributions in Relation to the Actuarially Determined Contributions | Contribution Deficiency | Covered Payroll | Contributions as a Percentage of Covered Payroll |
|---|---|---|---|---|---|
| December 31, 2018 | $50,929,734 | $27,638,402 | $23,291,332 | $133,112,100 | 20.76% |
| December 31, 2017 | 45,253,238 | 20,920,614 | 24,332,624 | 135,315,008 | 15.46 |
| December 31, 2016 | 37,130,268 | 30,890,241 | 6,240,027 | 121,126,918 | 25.50 |
| December 31, 2015 | 36,273,994 | 30,588,976 | 5,685,018 | 122,382,584 | 24.99 |
| December 31, 2014 | 35,307,186 | 11,225,438 | 24,081,748 | 118,987,507 | 9.43 |
| December 31, 2013 | 41,834,857 | 15,707,814 | 26,127,043 | 117,781,596 | 13.34 |
| December 31, 2012** | 16,786,671 | 5,268,363 | 11,518,308 | 58,231,511 | 9.05 |
| June 30, 2012 | 28,051,528 | 10,868,361 | 17,183,167 | 114,223,909 | 9.51 |
| June 30, 2011 | 25,319,145 | 10,981,419 | 14,337,726 | 107,686,693 | 10.20 |
| June 30, 2010 | 22,399,740 | 10,829,339 | 11,570,401 | 107,361,021 | 10.09 |
| June 30, 2009 | 18,285,474 | 9,667,765 | 8,617,709 | 108,882,742 | 8.88 |

** For the six months ended December 31, 2012, as a result of Public Act 097-0973, the Fund's year end was changed from June 30$^{th}$ to December 31$^{st}$.

### Schedule of Investment Returns

| Year ended December 31 | Annual Money-Weighted Rate of Return, net of investment expense |
|---|---|
| 2018 | 5.49% |
| 2017 | 5.58% |
| 2016 | 5.77% |
| 2015 | 5.61% |
| 2014 | 5.60% |

*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

| | |
|---|---|
| Valuation date | 12/31/18 |
| Actuarial cost method | Entry age |
| Amortization method | Level dollar |
| Amortization period | 25 years (closed period) |
| Asset valuation method | 5-year smoothed market |
| Actuarial assumptions: | |
| Investment rate of return | 7.50%, net of investment expense |
| Projected salary increases | 20% to 2.75% based on service |
| Inflation rate | 2.50% |

## Additional Information

### Tax Levies Receivable

| Levy Year (Calendar) | Tax Levy | Collections | Tax Levies Receivable | Allowance for Uncollectible Taxes | Allowance for Uncollectible Write-offs as a Percentage of Tax Levy | Net Tax Levies Receivable |
|---|---|---|---|---|---|---|
| At December 31, 2018: | | | | | | |
| 2018 | $13,194,114 | $ - | $13,194,114 | $ - | 0.00% | $13,194,114* |
| At December 31, 2017: | | | | | | |
| 2017 | $20,799,934 | $ - | $20,799,934 | $ - | 0.00% | $20,799,934 |

* collected in March 2019

## Additional Information (Continued)

### Administrative and General Expenses

| | 2018 | 2017 |
|---|---|---|
| Actuary expense | $ 70,750 | $ 48,500 |
| Auditing | 28,000 | 28,000 |
| IT consultant | 27,360 | 28,077 |
| Conference and convention expense | 16,503 | 21,669 |
| Contributions for annuities of Retirement Board employees | 65,588 | 104,863 |
| Depreciation | 1,054 | 1,459 |
| Equipment rental | 27,059 | 24,518 |
| Filing fee – State of Illinois | 8,000 | 8,000 |
| File storage expense | 6,977 | 6,275 |
| Hospitalization | 100,505 | 115,091 |
| Legal | 80,156 | 66,086 |
| Legislative consultant | 36,000 | 33,000 |
| Office supplies and expenses | 22,240 | 31,660 |
| Postage | 10,094 | 6,715 |
| Insurance - surety bond and other | 13,603 | 5,289 |
| Rent expense | 192,269 | 182,774 |
| Salaries | 737,688 | 705,972 |
| Payroll tax | 10,463 | 9,738 |
| Unemployment taxes | - | 158 |
| Bank fees | 21,018 | 21,025 |
| Telephone | 8,394 | 7,974 |
| Transportation | 3,699 | 3,770 |
| Prejudgment interest expense | 1,035 | 209,473 |
| Trustees' election expense | 12,584 | 12,050 |
| Total administrative and general expenses | $ 1,501,039 | $ 1,682,136 |

## Additional Information (Continued)

### Professional Expenses

| | 2018 | 2017 |
|---|---|---|
| Legal | $ 80,156 | $ 66,086 |
| Actuary | 70,750 | 48,500 |
| Auditing | 28,000 | 28,000 |
| IT consultant | 27,360 | 28,077 |
| Legislative consultant | 36,000 | 33,000 |
| Total | $242,266 | $203,663 |

## Additional Information (Continued)

### Investment Expenses

| | 2018 | 2017 |
|---|---|---|
| U.S. EQUITY | | |
| Great Lakes Advisors, LLC | $ 64,387 | $ 68,535 |
| Ariel Investments | 154,234 | 161,088 |
| RBC Global Asset Management | 99,453 | 109,727 |
| Northern Trust Quantitative Advisors | 9,436 | 8,286 |
| | 327,510 | 347,636 |
| NON - U.S. EQUITY | | |
| Ativo Capital | 35,076 | - |
| Lombardia Capital Partners | - | 31,876 |
| Northern Trust Quantitative Advisors | 22,391 | 22,121 |
| | 57,467 | 53,997 |
| FIXED INCOME | | |
| LM Capital Group, LLC | 28,734 | 30,142 |
| MacKay Shields, LLC | 74,053 | 75,329 |
| Chicago Equity Partners | 39,510 | 39,687 |
| ULLICO Investment Company | 63,327 | 61,439 |
| | 205,624 | 206,597 |
| HEDGED EQUITY | | |
| Entrust Capital, Inc. | - | 35,880 |
| Parametric | 85,972 | 63,695 |
| | 85,972 | 99,575 |
| RISK PARITY | | |
| Invesco | 43,786 | 53,896 |
| | 43,786 | 53,896 |
| REAL ESTATE | | |
| Principal Global Investors | 151,337 | 149,907 |
| UBS Realty Investors, LLC | 213,153 | 230,378 |
| | 364,490 | 380,285 |
| PRIVATE EQUITY | | |
| HarbourVest Partners, LLC | 101,480 | 133,125 |
| Mesirow Financial Capital Partners | 157,837 | 91,597 |
| GoldPoint Partners, LLC | 27,677 | 35,322 |
| | 286,994 | 260,044 |
| INFRASTRUCTURE | | |
| ULLICO Infrastructure | 209,505 | 195,182 |
| IFM Global Infra (US) L.P. | 85,371 | 88,450 |
| | 294,876 | 283,632 |
| OTHER | | |
| Custody – Northern Trust Co. | 70,000 | 70,000 |
| Investment consultant – Marquette Associates | 95,000 | 100,000 |
| | 165,000 | 170,000 |
| Total | $1,831,719 | $1,855,662 |

# INTRODUCTION

The Fund 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; collective investment funds; and private equity partnerships 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. Short term investments are reported at cost, which approximates fair value. Fair value for bonds and stocks are determined by quoted market prices and for investments for which market quotations are not readily available are valued at their fair values as determined by a bank administrator under the direction of the Board of Trustees, with the assistance of a valuation service.

The Investment Section was prepared by staff with assistance from Marquette Associates, Inc., the Fund's investment consultant and Northern Trust Company, the Fund's custodian. Return calculations were prepared using a time-weighted rate of return methodology in accordance with the performance presentation standards of the CFA Institute.

## Investment Recap

### Market Environment

The U.S. stock market fell 5.3% during the year ended December 31, 2018, as measured by the Dow Jones U.S. Total Stock Market Index. Within the U.S. stock market, there was some differentiation in returns between large-cap, mid-cap, and small-cap stocks over the year, with returns of -4.8%, -9.1%, and -11.0% for the Russell 1000, Russell Mid-Cap and Russell 2000, respectively. In addition, value stocks significantly underperformed growth stocks, with returns of -8.6% and -2.1% for the Russell 3000 Value and Russell 3000 Growth, respectively.

The non-U.S. equity markets, as measured by the MSCI ACWI ex US Index, significantly underperformed their U.S. counterparts, posting a return of -14.2% during the year. Emerging markets, as measured by the MSCI Emerging Markets Index, moderately underperformed non-U.S. developed markets, as measured by the MSCI EAFE Index, over the year with returns of -14.6% and -13.8%, respectively.

The broad bond market, as measured by the Barclays Aggregate Index, returned 0.0% during the year. The credit sector, as measured by the Barclays U.S. Credit Index, underperformed the government sector, as measured by the Barclays U.S. Government Index, over the year with returns of -2.1% and 0.9%, respectively.

The Federal Reserve increased the Fed Funds rate four times in 2018. The Fed raised rates by 0.25% each in March, June, September and December. Real GDP increased at a 2.2% annualized rate in the fourth quarter of 2018. This was below the 2.9% annualized rate in the fourth quarter of 2017 and in line with the 2.1% annualized rate in the fourth quarter of 2016. Inflation, as measured by the Core Consumer Price Index, posted an increase of 2.2% for the year ended December 31, 2018. The unemployment rate was 3.9% on December 31, 2018, an improvement from the 4.1% rate on December 31, 2017.

### Performance Commentary

The Pension Fund posted a calendar year return of -5.1%, net of fees, underperforming the custom benchmark by 2.1%. The best performing asset class for the year was Infrastructure, which returned 15.3%, net of fees. The worst performing asset class for the year was International Equities, which returned -16.5%, net of fees.

The Fund posted a three-year annualized return of 5.6%, net of fees, underperforming the custom benchmark by 0.2%. On a five-year basis, the Fund returned 5.2%, net of fees, outperforming the custom benchmark by 0.1%.

The fixed income market, as measured by the Barclays Capital Aggregate Index, returned 0.0% during the year. The Fund's fixed income portfolio returned 0.0%, net of fees, over that period, performing in line with the benchmark. At the end of the year, the Fund's fixed income assets comprised 19.3% of the total Fund's assets.

## Investment Recap (Continued)

### Performance Commentary (Continued)

The broad U.S. stock market, as measured by the Dow Jones Total US Stock Index, returned -5.3% during the year. The Fund's U.S. Equity portfolio returned -11.5%, net of fees, over that period, underperforming the benchmark by 6.2%. The underperformance of the U.S. Equity portfolio was primarily the result of an overweight to both small-cap stocks and value stocks, which underperformed large-cap stocks and growth stocks respectively, and underperformance of active management. The U.S. Equity portfolio was led by the NTGI Wilshire 5000 Index portfolio, which returned -5.2%, net of fees, for the year, in line with its benchmark. At the end of the year, the Fund's U.S. stock market assets comprised 27.6% of the total Fund's assets.

The international stock market, as measured by the MSCI ACWI ex US Index, returned -14.2% during the year. The Fund's International Equity portfolio returned -16.5%, net of fees, over that period, underperforming the benchmark by 2.3%. The International portfolio was led by the NTGI ACWI Ex US Index portfolio, which returned -13.7%, net of fees, for the year, slightly above its benchmark. At the end of the year, the Fund's international stock market assets comprised 19.7% of the total Fund's assets.

The real estate market, as measured by the NCREIF Fund Index, returned 7.4% during the year. The Fund's real estate portfolio returned 7.5%, net of fees, over that period, outperforming the benchmark by 0.1%. At the end of the year, the Fund's real estate assets comprised 11.5% of the total Fund's assets.

The private equity market, as measured by the Cambridge All-Private Equity Index, returned 11.5% during the year. The Fund's private equity portfolio returned 7.0%, net of fees, over that period, underperforming the benchmark by 4.5%. At the end of the year, the Fund's private equity assets comprised 6.0% of the total Fund's assets.

## Summary of Investments

Years ended December 31, 2018 and December 31, 2017

| | December 31, 2018 | | | | December 31, 2017 | | | |
|---|---|---|---|---|---|---|---|---|
| Type of Investment | Fair Value | % | Book Value | % | Fair Value | % | Book Value | % |
| Fixed income | $ 61,043,992 | 19 | $ 59,651,165 | 20 | $ 65,382,838 | 17 | $ 63,232,765 | 21 |
| Domestic equities | 87,673,188 | 27 | 69,122,974 | 23 | 105,305,220 | 28 | 67,025,487 | 22 |
| International equities | 63,489,036 | 20 | 64,703,099 | 22 | 79,326,344 | 21 | 61,550,291 | 20 |
| Risk parity | 1,348,182 | - | 1,164,991 | - | 10,388,615 | 3 | 8,484,669 | 3 |
| Hedged equity | 24,437,510 | 8 | 23,200,000 | 8 | 25,160,062 | 7 | 23,200,000 | 7 |
| Private equity | 19,232,200 | 6 | 32,032,010 | 11 | 22,366,679 | 6 | 31,829,646 | 10 |
| Real estate | 37,225,201 | 11 | 24,595,797 | 9 | 36,104,891 | 10 | 24,518,248 | 8 |
| Infrastructure | 22,774,008 | 7 | 15,768,986 | 5 | 23,328,660 | 6 | 17,872,802 | 6 |
| Short-term | 6,181,608 | 2 | 6,181,608 | 2 | 8,939,984 | 2 | 8,939,984 | 3 |
| Total Assets | $323,404,925 | 100 | $296,420,630 | 100 | $376,303,293 | 100 | $306,653,892 | 100 |

***** Investment assets do not reflect the amounts due to or from brokers at year end. Net due to broker is $1,172,685 and $456,371 at December 31, 2018 and 2017, respectively.

# Statement of Investment Policy for the Park Employees' Annuity and Benefit Fund of Chicago

*ADOPTED 10/94*

*REVISED 8/1/98; 5/19/99; 2/16/00; 5/20/03; 2/29/08; 4/21/11; 7/16/15*

The purpose of this statement is to establish the investment policy for the management of the assets of the Park Employees' Annuity and Benefit Fund.

## Distinction of Responsibilities

The Trustees are responsible for establishing the investment policy that is to guide the investment of Fund assets. The target allocation that the Trustees deem appropriate for the Fund is displayed below. The Fund's investments are distributed to a number of asset classes to minimize investment risk through diversification and simultaneously provide enhanced investment performance. The Trustees review the investment policy every three to five years.

Investment managers appointed by the Trustees to execute the policy will invest Fund assets in accordance with established guidelines, but will apply their own judgments concerning relative investment values. In particular, the investment managers are accorded full discretion, within established guidelines and policy limits, to select individual investments and diversify their portfolios.

## Allocation of Assets

It is the Trustees' policy to invest the Fund's assets in the following proportions:

| | Board Approved Policy | | |
|---|---|---|---|
| **Asset Category** | **Target (%)** | **Range (%)** | |
| U.S. Equity | 28.5% | 18.5% | 38.5% |
| Non U.S. Equity | 20.0 | 10.0 | 30.0 |
| Private Equity | 7.0 | 0.0 | 14.0 |
| Long-Short Equity | 7.0 | 0.0 | 15.0 |
| Risk Parity | 3.0 | 0.0 | 6.0 |
| Real Estate | 9.0 | 4.0 | 14.0 |
| Infrastructure | 5.0 | 0.0 | 10.0 |
| U.S. Bonds | 20.5 | 15.5 | 25.5 |
| | 100.0% | | |

Normal cash flows (contributions and benefit payments) will be used to maintain the allocation as close as practical to the target allocation. If normal cash flows are insufficient to maintain the allocation within the permissible range as of any calendar quarter-end, the Trustees shall transfer balances as necessary between the asset types to bring the allocation back within the permissible ranges.

## Active and Passive Investments

The Board of Trustees has directed that a prescribed percentage of specific asset classes be invested passively through the use of index funds. The Board of Trustees has approved the following passive investment percentages:

| Asset Category | % Indexed |
|---|---|
| U.S. Equity | 54.4% |
| Non U.S. Equity | 45.0% |
| U.S. Bonds | 0.0% |

## Statement of Investment Policy for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

### Diversification

The portfolio is to be diversified within each asset class to reduce the impact of large losses in individual investments in a manner that is consistent with Retirement Board policy, and otherwise at the discretion of each investment manager.

### Liquidity

The cash flow needs of the Fund are approximately 15% of the total Fund assets annually.

### Individual Investment Management Performance Benchmark

Individual performance benchmarks will be established by the Board of Trustees and used to evaluate individual manager's performance.

### Investment Objective

The investment objective of the Fund is to equal or exceed the rate of return of a benchmark comprised of 32.5% Willshire 5000 Stock Index, 16.0% MSCI All Country World Ex-US Index, 25.5% BarCap Aggregate Index, 7% Cambridge All Private Equity Index, 10% HFRX Hedged Equity Index, and 9.0% NCREIF ODCE Index on a net-of-fee basis. As a secondary benchmark, the Fund is to achieve an above-median ranking in a universe of other public funds over a reasonable measurement period.

## Schedule of Investment Performance

| | Years ended December 31, 2018- 2013 | | | | | | Year ended December 31, 2018 | | |
|---|---|---|---|---|---|---|---|---|---|
| | 12/31/18 | 12/31/17 | 12/31/16 | 12/31/15 | 12/31/14 | 12/31/13 | 3 Years | 5 Years | 10 Years |
| **Total Fund** | -5.1% | 14.2% | 8.4% | 1.9% | 6.9% | 16.9% | 5.6% | 5.2% | 8.5% |
| Benchmark Portfolio | -3.0 | 13.8 | 6.7 | 1.4 | 6.7 | 13.8 | 5.8 | 5.1 | 7.8 |
| Public Funds Median Return | -4.4 | 14.7 | 7.4 | -0.4 | 5.5 | 14.9 | 5.6 | 4.5 | 8.0 |
| Actuarial Assumed Rate of Return | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 | 7.5 |
| Consumer Price Index | 1.9 | 2.2 | 2.1 | 0.8 | 0.8 | 1.5 | 2.0 | 1.5 | 1.8 |
| **Fixed Income** | 0.0% | 3.4% | 2.5% | 0.9% | 5.5% | -1.1% | 2.0% | 2.5% | 4.6% |
| BarCap Aggregate | 0.0 | 3.5 | 2.6 | 0.6 | 6.0 | -2.0 | 2.1 | 2.5 | 3.5 |
| Universe Median | -0.2 | 5.2 | 4.3 | 0.0 | 3.6 | -1.3 | 2.8 | 2.4 | 4.5 |
| **U.S. Equities** | -11.5% | 18.1% | 14.0% | -0.4% | 11.6% | 35.8% | 6.0% | 5.8% | 13.2% |
| Dow Jones Total US Stock Index | -5.3 | 21.2 | 12.6 | 0.4 | 12.5 | 33.1 | 8.9 | 7.9 | 13.2 |
| Universe Median | -6.1 | 20.2 | 12.7 | -0.1 | 11.0 | 34.1 | 8.5 | 7.1 | 12.8 |
| **Non U.S. Equities** | -16.5% | 28.4% | 9.7% | -4.9% | -4.9% | 17.7% | 5.6% | 1.2% | 7.3% |
| MSCI ACWI Ex US | -14.2 | 27.2 | 4.5 | -5.3 | -3.4 | 15.8 | 4.5 | 0.7 | 6.6 |
| Universe Median | -15.1 | 28.3 | 4.3 | -3.8 | -3.7 | 16.7 | 4.4 | 1.0 | 6.8 |
| **Long-Short Equities** | -2.9% | 10.1% | 2.9% | -4.4% | 4.9% | 17.4% | 3.3% | 2.0% | 4.9% |
| HFRX Hedged Equity | -9.4 | 10.0 | 0.1 | -2.3 | 1.4 | 11.1 | -0.1 | -0.3 | 1.4 |
| Universe Median | -2.1 | 5.8 | 2.0 | -0.5 | 4.2 | 12.2 | 2.1 | 1.7 | 4.1 |
| **Risk Parity** | -6.0% | 10.4% | 12.6% | -3.2% | n/a | n/a | 5.2% | n/a | n/a |
| 60% MSCI World/40% BarCap Agg | -5.1 | 14.5 | 5.7 | -0.1 | n/a | n/a | 4.7 | n/a | n/a |
| **Real Estate** | 7.5% | 6.4% | 9.1% | 14.3% | 11.5% | 12.0% | 7.6% | 9.7% | 6.2% |
| NCREIF-ODCE | 7.4 | 6.7 | 7.8 | 13.9 | 11.5 | 13.0 | 7.3 | 9.4 | 6.0 |
| Universe Median | 7.3 | 6.4 | 7.1 | 13.3 | 12.2 | 11.7 | 7.2 | 9.5 | 5.9 |
| **Infrastructure** | 15.3% | 10.9% | 9.2% | n/a | n/a | n/a | 11.8% | n/a | n/a |
| CPI+4% | 6.0 | 6.2 | 6.2 | n/a | n/a | n/a | 6.1 | n/a | n/a |
| **Private Equity** | 7.0% | 11.2% | 5.9% | 8.9% | 11.1% | 13.0% | 9.3% | 10.6% | 11.3% |
| Cambridge All Private Equity | 11.5 | 13.1 | 6.9 | 5.4 | 11.0 | 8.4 | 13.4 | 11.7 | 13.3 |

**NOTE: The basis for the calculations is a time-weighted rate of return based on the market rate of return.**

As of August 1, 2016, the Policy Benchmark consists of 28.5% Willshire 5000 Stock Index, 20.0% MSCI All Country World Ex-US Index, 25.5% BarCap Aggregate Index, 7% Venture Economics All Private Equity Index, 10% HFRX Hedged Equity Index, and 9.0% NCREIF ODCE Index. Prior to August 1, 2016, the Policy Benchmark consisted of 32.5% Willshire 5000 Stock Index, 16.0% MSCI All Country World Ex-US Index, 25.5% BarCap Aggregate Index, 7% Venture Economics All Private Equity Index, 10% HFRX Hedged Equity Index, and 9.0% NCREIF ODCE Index. Prior to December 1, 2013, the Policy Benchmark consisted of 27% BarCap Aggregate, 27% Wilshire 5000, 17% MSCI ACWI ex U.S., 12% NCREIF ODCE, 10% HFRX Hedged Equity, and 7% Venture Economics All Private Equity Index. Prior to April 1, 2011, the Policy Benchmark consists of 35% BarCap Aggregate, 38% Wilshire 5000, 12% MSCI ACWI ex U.S., 10% NCREIF Property Index, and 5% Venture Economics All Private Equity Index. Prior to February 29, 2008, the Policy Benchmark consisted of 35% BarCap Aggregate, 38% Wilshire 5000, 12% MSCI EAFE, 10% NCREIF Property Index, and 5% Venture Economics All Private Equity Index.

## Schedule of Ten Largest Stock and Bond Holdings

For the year ended
December 31, 2018

### U.S. Stocks*

| Shares | Holdings | Fair Value |
|---|---|---|
| 41,800 | MSG Network Inc | $ 984,808 |
| 5,700 | Zebra Technologies Corp | 907,611 |
| 44,300 | KKR & Co Inc | 869,609 |
| 22,300 | Lazard Ltd | 823,093 |
| 31,300 | Viacom Inc | 804,410 |
| 12,600 | Keysight Technologies Inc | 782,208 |
| 22,900 | Kennametal Inc | 762,112 |
| 68,400 | Tegna Inc | 743,508 |
| 7,500 | Royal Caribbean Cruises | 733,425 |
| 7,700 | Smucker J M Co | 719,873 |

### International Stocks*

| Shares | Holdings | Fair Value |
|---|---|---|
| 15,308 | Tencent Holdings Ltd | $ 613,900 |
| 3,474 | ADR Alibaba Group Holdings Ltd | 476,143 |
| 64,812 | Taiwan Semicon Man | 470,490 |
| 12,834 | Samsung Electronic | 447,455 |
| 3,734 | Nestle S.A. | 309,394 |
| 2,645 | Novartis | 231,507 |
| 857 | Roche Holdings Ltd | 216,694 |
| 24,299 | HSBC Holdings | 200,351 |
| 5,611 | Royal Dutch Shell | 165,459 |
| 2,779 | Toyota Motor Corp | 161,379 |

### Bonds*

| Holdings | Fair Value |
|---|---|
| United States Treasury Bond 3.0% due 8/15/2048 | $1,468,028 |
| United States Treasury Note 2.875% due 10/31/2020 | 1,147,125 |
| FNMA Pool 4.0% due 9/1/2048 | 692,900 |
| United States Treasury bond 2.75% due 8/15/2042 | 483,419 |
| United States Treasury Note 1.625% due 5/15/2026 | 471,583 |
| United States Treasury Note 2.875% due 10/31/2023 | 462,572 |
| United States Treasury Note 3.50% due 5/15/2020 | 430,296 |
| United States Treasury Note 1.875% due 12/15/2020 | 419,937 |
| United States Treasury Note 0.125% due 7/15/2026 | 396,144 |
| United States Treasury Note 2.0% due 2/15/2023 | 392,203 |

* A complete listing of all individual securities held is available for review upon request.

## Schedule of Investment Brokerage Commissions

| Broker Name | Shares* | Commission |
|---|---|---|
| Loop Capital Markets LLC | 248,247 | $ 9,180 |
| Drexel Hamilton LLC | 73,678 | 2,574 |
| Castleoak Sec / Cantor Clearing | 41,340 | 1,241 |
| Merrill Lynch, Pierce, Fenner & Smith Inc | 29,092 | 1,156 |
| Jefferies LLC | 27,446 | 1,096 |
| Academy Securities Inc | 36,800 | 818 |
| Fidelity Capital Markets | 18,958 | 756 |
| Cabrera Capital Markets LLC | 34,925 | 712 |
| The Williams Capital Group | 30,225 | 682 |
| CSFB New York | 16,071 | 643 |
| William Blair & Company LLC | 16,104 | 625 |
| Siebert Cisneros Shank & Co LLC | 27,400 | 569 |
| Broker commissions under $500 | 138,011 | 4,065 |
| Total Broker Commissions | 738,297 | $24,117 |

** Total shares traded at an average cost of $0.03 per share.*

Segal Consulting

101 North Wacker Drive, Suite 500 Chicago, IL 60606

T 312.984.8500 www.segalco.com

May 31, 2019

Board of Trustees
Park Employees' Annuity and Benefit Fund of Chicago
55 East Monroe Street, Suite 2720
Chicago, Illinois 60603

Dear Board Members:

We are pleased to submit this annual Actuarial Valuation and Review as of December 31, 2018. It summarizes the actuarial data used in the valuation, establishes the net pension liability under Governmental Accounting Standards Board (GASB) Statement No. 67 and the funding requirements for the fiscal year ending December 31, 2019, 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 Park Employees' Annuity and Benefit Fund of Chicago.

**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.

**Plan Changes**

The plan provisions are unchanged since the last actuarial valuation.

**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, 2018 actuarial valuation were based on an experience analysis covering the five-year period ending December 31, 2017 and were adopted by the Board, effective for the December 31, 2018 valuation. These actuarial assumptions and methods comply with the parameters set by the Actuarial Standards of Practice and the parameters for disclosure in GASB Statement No. 67. 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.

**Funding Adequacy**

The funding policy of the Fund, adopted by the Board, is to have contributions sufficient to amortize the unfunded liability over the 30-year period ending December 31, 2042. However, the actual amount of employer contributions each year is set by statue. For Fiscal 2019, actual employer contributions come from a property tax levied by the Chicago Park District equal to the total amount of contributions made by employees in the calendar year two years prior to the year of the levy, multiplied by 1.1. The 1.1 factor is known as the tax multiple.

**The employer contributions mandated by the Illinois Pension Code are insufficient to avoid insolvency, and without a change, the Fund is in imminent danger of insolvency and the assets are projected to be depleted in the next eight years (during 2026). Segal strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and 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 financial section 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 Changes in Employer's Net Pension Liability
    - Schedule of Employer's Net Pension Liability
    - 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; and changes in plan provisions or applicable law.

**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 Fund.

Sincerely,

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

By: Kim Nicholl ______________________________ Matthew A. Strom ______________________________

| Kim Nicholl, FSA, MAAA, EA, FCA | Matthew A. Strom, FSA, MAAA, EA |
|---|---|
| Senior Vice President and Actuary | Vice President and Actuary |

## SECTION 1: Valuation Summary for the Park Employees' Annuity and Benefit Fund of Chicago

**Purpose**

This report has been prepared by Segal Consulting to present a valuation of the Park Employees' Annuity and Benefit Fund of Chicago (the Fund) as of December 31, 2018. 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 5/12 and administered by the Board;
- The characteristics of covered active participants, inactive vested participants, and retired participants and beneficiaries as of December 31, 2018, provided by Fund staff;
- The assets of the Fund as of December 31, 2018, provided by Fund staff;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

**Valuation Highlights**

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

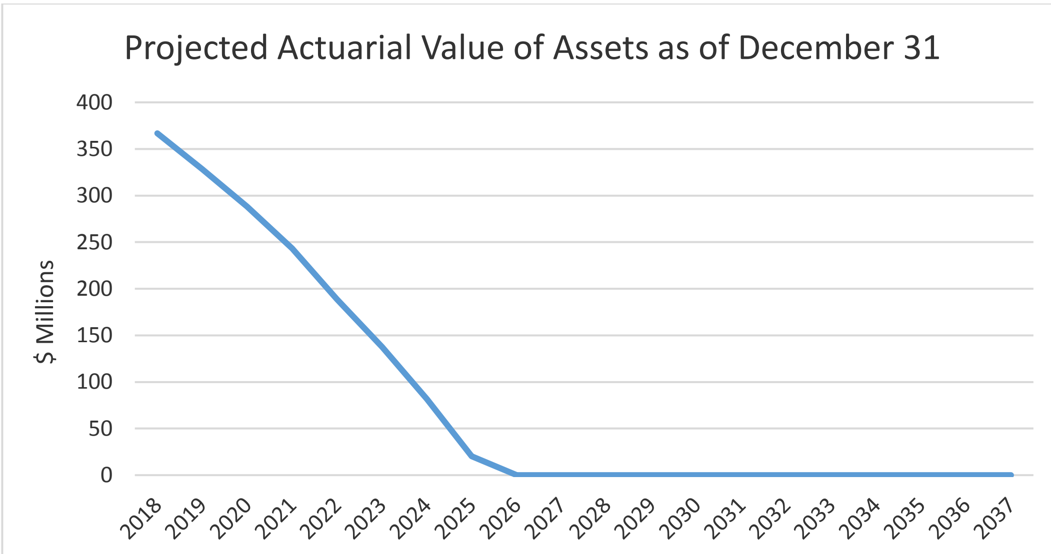
1. Since the last valuation, an experience analysis covering the five-year period ending December 31, 2017 has been performed. The proposed assumption changes were adopted by the Board. The following changes have been reflected, effective with this valuation:
    - Inflation decreased from 2.75% to 2.50%;
    - Tier 2 COLA and pay cap decreased from 1.375% to 1.250%;
    - Assumed rate of return on investments decreased from 7.50% to 7.25%;
    - Salary scale decreased due to merit/seniority rates as well as lower inflation;
    - Administrative expenses annual increase assumption decreased from 5.0% to 3.5% of prior year's expenses;
    - Mortality rates adjusted from RP-2000 with mortality improvements projected generationally from 2003 using Scale AA to 110% of PubG-2010 with mortality improvements projected generationally using MP-2017;
    - Assumed rates of termination from active employment increased for most ages;
    - Tier 1 rates of active retirement lowered at younger ages and raised at older ages;
    - No changes in Tier 2 rates of active retirement, incidence of disability, percent married assumption, or spousal age difference assumption were recommended.

    These changes increased the actuarial accrued liability by $84.0 million, decreased the funded ratio by 2.6%, and increased the actuarially determined contribution requirement by 13.7%.

## SECTION 1: Valuation Summary for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**Valuation Highlights (Continued)**

2. **The Fund is now projected to become insolvent during 2026. The graph below shows a 20-year projection of the actuarial value of assets. A 40-year projection of the Fund's financial status is shown in Exhibit V.**




3. **The funding methods mandated by the Illinois Pension Code are inadequate to appropriately fund the Park Employees' Annuity and Benefit Fund of Chicago. Segal strongly recommend an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and the principal balance.**

4. The funded ratio based on the actuarial value of assets over the actuarial accrued liability as of December 31, 2018, is 32.1%, compared to 37.1% as of December 31, 2017. Before reflecting the assumption changes, this year's funded ratio is 32.3%. This ratio is a measure of funding status, its history is a measure of funding progress. Using the fair value of assets, the funded ratio as of December 31, 2018, is 30.0%, compared to 38.3% as of December 31, 2017. These measurements are not necessarily appropriate for assessing the sufficiency of Fund assets to cover the estimated cost of settling the Fund's benefit obligation or the need for or the amount of future contributions.

5. Employer contributions to the Fund come from a tax levied upon all taxable property in the City of Chicago. The amount of tax that is levied is 1.1 times the amount of employee contributions made two years prior. The 1.1 factor is known as the tax multiple. As shown in Chart 13, for the fiscal year beginning January 1, 2019, the actuarially determined contribution amount (ADC) is $61,887,790. Based on the 1.1 tax multiple, and using the Fund's assumption of 3% loss on collections (the Park District has been absorbing this loss, however, the Park District is not guaranteed to do so in the future), we have estimated the employer contribution for the fiscal year beginning January 1, 2019, to be $14,135,549. **Compared to the ADC of $61,887,790, the contribution deficiency is $47,752,241 as of January 1, 2019. In the prior fiscal year, actual contributions were $23,291,332 less than the ADC. Each year of a contribution deficiency leads to an increased deficiency in all future years.**

6. The Park District has been making supplemental contributions since 2015 and has budgeted additional supplemental contributions for fiscal year 2019.

## SECTION 1: Valuation Summary for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**Valuation Highlights (Continued)**

7. For the year ended December 31, 2018, Segal has determined that the asset return on a fair value basis was -4.5%. After gradual recognition of investment gains and losses under the actuarial smoothing method, the actuarial rate of return was 5.4%. This represents an experience loss when compared to the assumed rate of 7.5%, effective for the year ending December 31, 2018. As of December 31, 2018, the actuarial value of assets ($366.8 million) represents 107.2% of the fair value ($342.3 million).

8. The portion of deferred investment gains and losses recognized in the calculation of the December 31, 2018, actuarial value of assets resulted in a loss of $7,820,631. Additionally, the demographic and liability experience resulted in a $3,635,253 net loss.

9. The total unrecognized investment loss as of December 31, 2018, is $24,551,862. This investment loss 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 gains derived from future experience. This implies that earning the assumed rate of investment return of 7.25% per year (net of expenses) on a **fair value** basis will result in investment losses on the actuarial value of assets in the next few years. Therefore, if the actual fair value return is equal to the assumed 7.25% rate and all other actuarial assumptions are met, the contribution requirements would increase over the next few years.

10. As mentioned above, the current method used to determine the actuarial value of assets yields an amount that is 107.2% of the fair value of assets as of December 31, 2018. Guidelines in Actuarial Standard 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 fair value. We believe the actuarial asset method currently complies with these guidelines.

11. When measuring pension liability for GASB purposes, the same actuarial cost method (Entry Age method) is used for funding purposes. However, as of December 31, 2018, the GASB blended discount rate calculation results in a lower discount rate (4.21%) than is used for funding purposes (7.25%). This means that the total pension liability (TPL) measure for financial reporting shown in this report will differ from the actuarial accrued liability (AAL) measure for funding. We note that the same is true for the normal cost component of the annual plan cost for funding and financial reporting.

12. The net pension liability (NPL) is equal to the difference between the Total Pension Liability (TPL) and the Plan's fiduciary net position. The Plan's fiduciary net position is equal to the fair value of assets. The NPL as of December 31, 2018, is $1,304,712,148.

13. This actuarial report as of December 31, 2018, is based on financial data as of that date. Changes in the value of assets subsequent to that date are not reflected. Declines in asset values will increases the cost of the plan, while increases in asset values (in excess of expected) will decrease the cost of the plan.

## SECTION 1: Valuation Summary for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**Summary of Key Valuation Results**

| | 2019 Pre-Assumption Changes | 2019 Post-Assumption Changes | 2018 |
|---|---|---|---|
| **Contributions for fiscal year beginning:** | | | |
| Actuarially determined contribution requirement | $54,437,797 | $61,887,790 | $50,929,734 |
| Estimated employer contributions (provided by the Fund, reflecting 3% loss on collections) | 14,135,549 | 14,135,549 | 12,798,291 |
| Actual employer contribution | -- | -- | 27,638,402 |
| **Funding elements for fiscal year beginning:** | | | |
| Employer normal cost, including administrative expenses | $4,378,491 | $5,750,766 | $4,640,403 |
| Fair value of assets | 342,255,873 | 342,255,873 | 397,648,758 |
| Actuarial value of assets | 366,806,612 | 366,806,612 | 385,419,506 |
| Actuarial accrued liability | 1,058,316,305 | 1,142,297,965 | 1,039,279,444 |
| Unfunded actuarial accrued liability | 691,509,693 | 775,491,353 | 653,859,938 |
| Funded ratio | 32.34% | 32.11% | 37.09% |
| **GASB Information:** | | | |
| Long-term expected rate of return | | 7.25% | 7.50% |
| Municipal bond index | | 4.10% | 3.44% |
| Single equivalent discount rate | | 4.21% | 3.65% |
| Total pension liability | | $1,646,968,021 | $1,624,571,524 |
| Plan fiduciary net position | | 342,255,873 | 397,648,758 |
| Net pension liability | | 1,304,712,418 | 1,226,922,766 |
| Plan fiduciary net position as a percentage of total pension liability | | 20.78% | 24.48% |
| **Demographic data for plan year beginning:** | | | |
| Number of retired participants and beneficiaries | | 2,854 | 2,876 |
| Number of vested former participants | | 145 | 150 |
| Number of active participants | | 3,187 | 3,543 |
| Total salary supplied by the Fund | | $129,923,175 | $134,258,328 |
| Average salary | | 40,767 | 37,894 |

**Important Information About Actuarial Valuations**

An actuarial valuation is a budgeting tool with respect to the financing of future projected benefit obligations. It is an estimated forecast – the actual long-term cost of the Fund will be determined by the actual benefits and expenses paid and the actual investment experience of the Fund.

## SECTION 1: Valuation Summary for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**Important Information About Actuarial Valuations (Continued)**

In order to prepare a valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for the Fund is based on data provided to the actuary by Fund staff. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** The valuation is based on the fair value of assets as of the valuation date, as provided by Fund staff, and uses an "actuarial value of assets" that differs from fair value to gradually reflect year-to-year changes in the fair value of assets in determining the contribution requirements.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan members for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each member for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the Fund's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The actuarial valuation is prepared at the request of the Board. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the Fund's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the Fund will be determined by the actual benefits and expenses paid and the actual investment experience of the Fund.
- If the Board is aware of any event or trend that was not considered in the valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the Fund's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.
- 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.

## SECTION 1: Valuation Summary for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**Important Information About Actuarial Valuations (Continued)**

As Segal has no discretionary authority with respect to the management or assets of the Fund, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Fund.

## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago

## A. MEMBER DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, inactive members, retirees, and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A, B, and C.

*A historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.*

**CHART 1**

**Member Population: 2010 – 2018**

| Census Date | Active Members | Vested Terminated Members* | Retirees and Beneficiaries** | Ratio of Actives to Retirees and Beneficiaries |
|---|---|---|---|---|
| June 30, 2010 | 2,816 | 160 | 2,956 | 0.95 |
| June 30, 2011 | 2,795 | 141 | 2,913 | 0.96 |
| June 30, 2012 | 2,977 | 153 | 2,921 | 1.02 |
| December 31, 2012 | 3,053 | 152 | 2,906 | 1.05 |
| December 31, 2013 | 3,076 | 148 | 2,904 | 1.06 |
| December 31, 2014 | 2,973 | 147 | 2,891 | 1.03 |
| December 31, 2015 | 3,063 | 145 | 2,876 | 1.07 |
| December 31, 2016 | 3,114 | 149 | 2,870 | 1.09 |
| December 31, 2017 | 3,543 | 150 | 2,876 | 1.23 |
| December 31, 2018 | 3,187 | 145 | 2,854 | 1.12 |

**Excludes terminated members due a refund of employee contributions.*

** Excludes QILDROs

## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

### A. MEMBER DATA (Continued)

**Active Members**

Plan costs are affected by the age, years of service and payroll of active members. In this year's valuation, there were 3,187 active members with an average age of 41.5, average years of service of 9.9 years and average salary of $40,767. The 3,543 active participants in the prior valuation had an average age of 41.0, average years of service of 9.8 years and average salary of $37,894.

**Inactive Participants**

In this year's valuation, there were 145 members with a vested right to a deferred or immediate vested benefit.

In addition, there were 4,634 members entitled to a return of their employee contributions.

*These graphs show a distribution of active members by age and by years of service.*

**CHART 2**

**Distribution of Active Members by Age as of December 31, 2018**

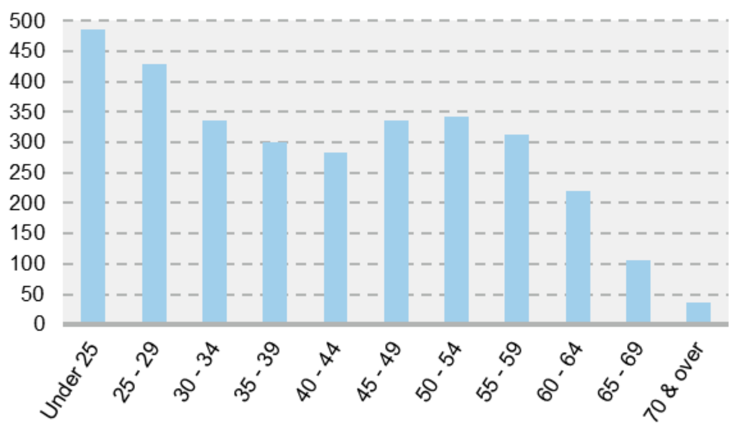
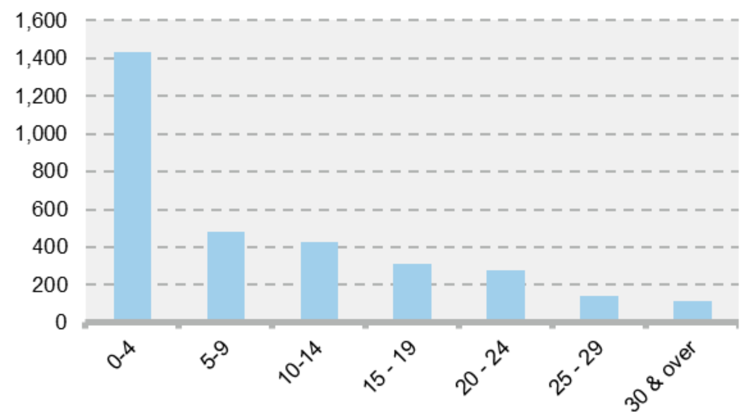



**CHART 3**

**Distribution of Active Members by Years of Service as of December 31, 2018**



## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

### A. MEMBER DATA (Continued)

**Retirees and Beneficiaries**

As of December 31, 2018, 2,136 retirees, 706 beneficiaries, and 12 dependent children were receiving total monthly benefits of $6,192,223. For comparison, in the previous valuation, there were 2,115 retirees, 745 beneficiaries, and 16 dependent children receiving total monthly benefits of $6,007,570.

*These graphs show a distribution of the current retirees based on their monthly amount and age.*

**CHART 4**

**Distribution of Retirees by Monthly Amount as of December 31, 2018**

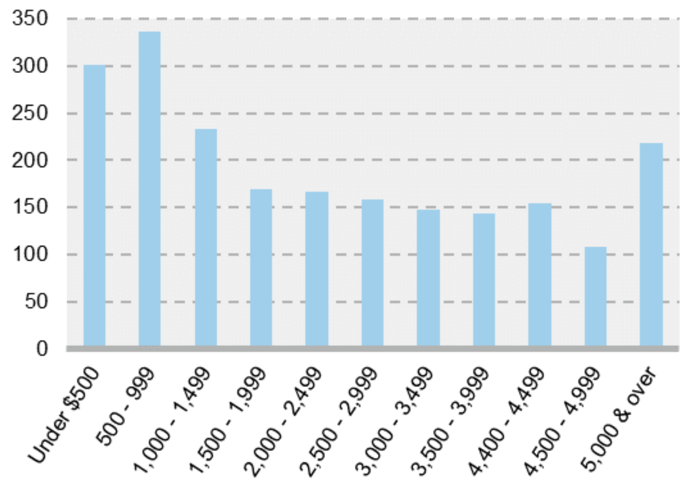
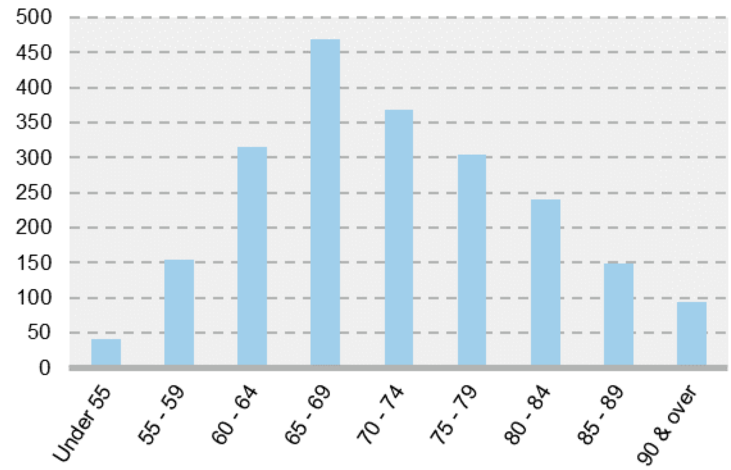



**CHART 5**

**Distribution of Retirees by Age as of December 31, 2018**



## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

### B. FINANCIAL INFORMATION

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to fair value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize fair value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

*The chart shows the determination of the actuarial value of assets as of the valuation date.*

**CHART 6**

**Determination of Actuarial Value of Assets for Fiscal Years Ended December 31**

| | | | | 2018 | | 2017 |
|---|---|---|---|---|---|---|
| 1. | Actuarial value of assets as of prior valuation date | | | $385,419,506 | | $393,604,997 |
| 2. | Employer and employee contributions and other income | | | 39,763,859 | | 34,599,674 |
| 3. | Benefits and expenses | | | 78,027,859 | | 79,820,163 |
| 4. | Expected investment income | | | 27,471,569 | | 27,824,606 |
| 5. | Total investment income, including income for securities lending | | | -17,129,052 | | 51,170,325 |
| 6. | Investment gain/(loss): (5) – (4) | | | -44,600,621 | | 23,345,719 |
| 7. | Expected actuarial value of assets: (1) + (2) - (3) + (4) | | | 374,627,243 | | 376,209,114 |
| 8. | Calculation of unrecognized return | Original Amount* | % Recognized | | % Recognized | |
| | (a) Year ended December 31, 2018 | -$44,600,621 | 20% | -$8,920,124 | -- | -- |
| | (b) Year ended December 31, 2017 | 23,345,719 | 20% | 4,669,144 | 20% | 4,669,144 |
| | (c) Year ended December 31, 2016 | 2,566,234 | 20% | 513,247 | 20% | 513,247 |
| | (d) Year ended December 31, 2015 | -19,526,450 | 20% | -3,905,290 | 20% | -3,905,290 |
| | (e) Year ended December 31, 2014 | -888,039 | 20% | -177,608 | 20% | -177,608 |
| | (f) Year ended December 31, 2013 | 36,656,285 | 0% | 0 | 20% | 7,331,257 |
| | (g) 6-month period ended December 31, 2012 | 7,796,423 | -- | -- | 10%** | 779,642 |
| | (h) Total recognized return | | | -7,820,631 | | 9,210,392 |
| 9. | Actuarial value of assets as of current valuation date: (7) + (8h) | | | $366,806,612 | | $385,419,506 |

* *Total return minus expected return on actuarial value*

** *10% was recognized, instead of 20%, due to the short fiscal year ended December 31, 2012 in order to maintain a 5-year smoothing period.*

## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

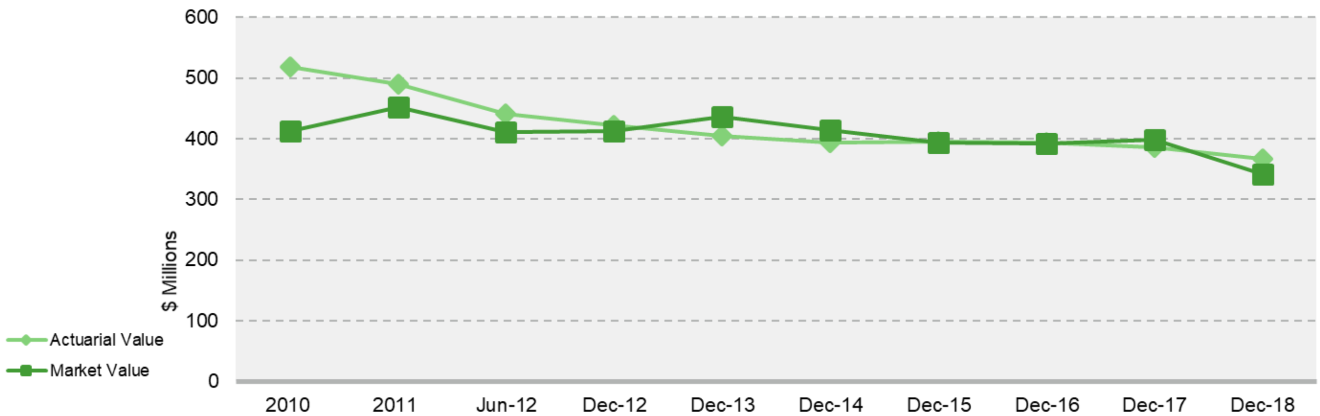
### B. FINANCIAL INFORMATION (Continued)

Both the actuarial value and fair value of assets are representations of the fund's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the fair value of assets. The actuarial asset value is significant because the Fund's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

*This chart shows the change in the actuarial value of assets versus the fair value over the past ten valuation dates.*

**CHART 7**

**Actuarial Value of Assets vs. Fair Value of Assets as of June 30, 2010 – December 31, 2018**



## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

### C. ACTUARIAL EXPERIENCE

To calculate the actuarially determined contribution requirement, 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. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's 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 loss is $11,175,327: $7,820,631 from investment losses and $3,354,696 in losses from all other sources. The net experience variation from individual sources other than investments was 0.3% of the actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

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

**CHART 8**

**Actuarial Experience for Year Ended December 31, 2018**

| | |
|---|---|
| 1. Net loss from investments* | ($7,820,631) |
| 2. Net gain from administrative expenses | 280,557 |
| 3. Net loss from other experience** | (3,635,253) |
| 4. Net experience gain: (1) + (2) + (3) | ($11,175,327) |

* *Details in Chart 9.*

** *Details in Chart 12.*

## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

### C. ACTUARIAL EXPERIENCE (Continued)

**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 Fund's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets for the year ended December 31, 2018 was 7.50%. The actual rate of return on an actuarial basis for the year ended December 31, 2018, was 5.36%.

Since the actual return for the year was less than the assumed return, the Fund experienced an actuarial loss during the fiscal year ended December 31, 2018, with regard to its investments.

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

**CHART 9**

**Actuarial Value Investment Experience for Year Ended December 31, 2018**

| | |
|---|---|
| 1. Actual return | $19,650,938 |
| 2. Average value of assets | 366,287,590 |
| 3. Actual rate of return: (1) ÷ (2) | 5.36% |
| 4. Assumed rate of return | 7.50% |
| 5. Expected return: (2) x (4) | $27,471,569 |
| 6. Actuarial loss: (1) – (5) | ($7,820,631) |

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the fair value investment return for the last ten valuation years, including five-year and ten-year averages.

**CHART 10**

**Investment Return**

| Fiscal Year Ended | Fair Value | Actuarial Value |
|---|---|---|
| June 30, 2010 | 11.3% | 1.5% |
| June 30, 2011 | 21.0% | 3.1% |
| June 30, 2012 | 0.9%* | -0.6%* |
| December 31, 2012 | 6.3%* | 1.0%* |
| December 31, 2013 | 16.9%** | 6.5%* |
| December 31, 2014 | 6.9%** | 10.4%* |
| December 31, 2015 | 1.9%** | 8.2%* |
| December 31, 2016 | 8.4%** | 8.0%* |
| December 31, 2017 | 14.2%** | 10.0%* |
| December 31, 2018 | -5.1%** | 5.4%* |
| Average Returns | | |
| Last 5 valuation years: | 5.1% | 8.4% |
| Last 10 valuation years: | 8.5% | 5.6% |

* As determined by Segal

** As determined by Investment Consultant

## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

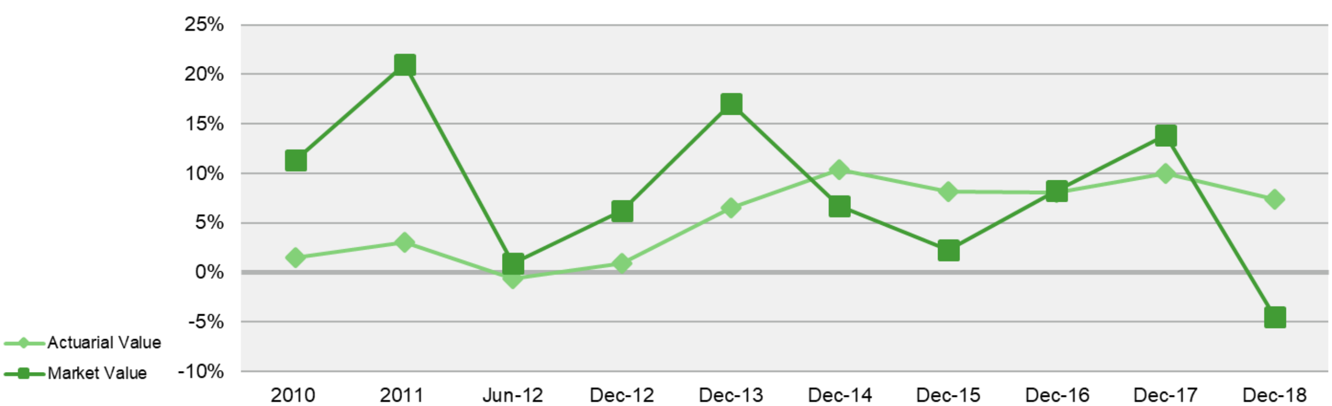
### C. ACTUARIAL EXPERIENCE (Continued)

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the fair value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling the actuarially required contribution.

**Administrative Expenses**
Administrative expenses for the year ended December 31, 2018 totaled $1,501,039 compared to the assumption of $1,709,027. This resulted in a gain of $280,557 for the year when adjusted for timing.

*This chart illustrates how this leveling effect has actually worked over the years 2010 - 2018.*

**CHART 11**
**Fair and Actuarial Rates of Return for Years Ended June 30, 2010 - December 31, 2018**



## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

### C. ACTUARIAL EXPERIENCE (Continued)

**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 loss from this other experience for the year ended December 31, 2018, amounted to $3,635,253, which is 0.3% of the actuarial accrued liability.

A brief summary of the demographic gain/(loss) experience of the Fund for the year ended December 31, 2018 is shown in the chart below.

*The chart shows elements of the experience gain/(loss) for the most recent year.*

**CHART 12**

**Experience Due to Changes in Demographics for Year Ended December 31, 2018**

| | | |
|---|---|---|
| 1. | Turnover | -$1,090,613 |
| 2. | Retirement | -2,107,249 |
| 3. | Experience among retired members and beneficiaries related to mortality | 1,570,611 |
| 4. | Salary/service increase for continuing actives | 595,216 |
| 5. | Other | -2,603,218 |
| 6. | Total | -$3,635,253 |

## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

### D. DEVELOPMENT OF EMPLOYER COSTS

At the discretion of the Board, the actuarial valuation includes the calculation of a funding policy benchmark contribution amount referred to as the actuarially determined contribution. 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 45.43% of payroll.

The actuarially determined contribution is calculated on a level percentage of pay basis and is based on a closed 30-year period, which ends on December 31, 2042. As of January 1, 2019, there are 24 years remaining on the amortization period.

*The chart compares this valuation's actuarially determined contribution with the prior valuation.*

**CHART 13**

**Actuarially Determined Contribution**

| | Year Beginning January 1 | | | |
|---|---|---|---|---|
| | 2019 | | 2018 | |
| | Amount | % of Payroll | Amount | % of Payroll |
| 1. Total normal cost | $16,447,693 | 12.07% | $15,544,766 | 11.08% |
| 2. Administrative expenses | 1,504,833 | 1.10% | 1,709,027 | 1.22% |
| 3. Expected employee contributions | -12,398,408 | -9.10% | -12,777,222 | -9.11% |
| 4. Employer normal cost: (1) + (2) + (3) | 5,554,118 | 4.08% | 4,476,571 | 3.19% |
| 5. Employer normal cost, adjusted for timing* | 5,750,767 | 4.22% | 4,640,403 | 3.31% |
| 6. Actuarial accrued liability | 1,142,297,965 | | 1,039,279,444 | |
| 7. Actuarial value of assets | 366,806,612 | | 385,419,506 | |
| 8. Unfunded actuarial accrued liability: (6) – (7) | 775,491,353 | | 653,859,938 | |
| 9. Payment on unfunded actuarial accrued liability | 56,137,023 | 41.21% | 46,289,331 | 33.00% |
| 10. Actuarially determined contribution, adjusted for timing*: (5) + (9) | 61,887,790 | 45.43% | 50,929,734 | 36.31% |
| 11. Projected payroll | $136,230,328 | | $140,268,490 | |

* *Recommended contributions are assumed to be paid at the middle of every month.*

## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

### D. DEVELOPMENT OF EMPLOYER COSTS (Continued)

The actuarially determined contribution as of January 1, 2019, is based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, 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.

*The chart reconciles the actuarially determined contribution from the prior valuation to the amount determined in this valuation.*

**CHART 14**

**Reconciliation of Actuarially Determined Contribution from January 1, 2018 to January 1, 2019**

| | |
|---|---|
| **Actuarially Determined Contribution as of January 1, 2018** | $50,929,734 |
| Effect of expected change in amortization payment due to payroll growth | 1,272,957 |
| Effect of change in administrative expense assumption | -211,423 |
| Effect of change in other actuarial assumptions | 7,442,098 |
| Effect of contributions less than recommended contribution | 1,760,200 |
| Effect of investment losses | 541,130 |
| Effect of other gains and losses on accrued liability | 232,120 |
| Effect of net other changes | -79,026 |
| **Total change** | $10,958,056 |
| **Actuarially Determined Contribution as of January 1, 2019** | $61,887,790 |

## SECTION 2: Valuation Results for the Park Employees' Annuity and Benefit of Chicago (Continued)

### E. RISK

Since the actuarial valuation results are dependent on a given set of assumptions and data as of a specific date, there is a risk that emerging results may differ significantly as actual experience differs from the assumptions.

This report does not contain a detailed analysis of the potential range of future measurements, but does include a brief discussion of some risks that may affect the Fund. Upon request, a more detailed assessment of the risks can be provided to enable a better understanding of the risks specific to this Fund.

**Investment Risk**

Since the Plan's assets are much larger than contributions, investment performance may create significant volatility in contribution requirements. For example, if the actual return on the market value of assets for the next Plan Year were 1% different from the assumed (either higher or lower), the projected unfunded actuarial liability would change by 0.1%, or about $0.6 million and the actuarially determined contribution requirements would increase or decrease by approximately $1.5 million. The market value rate of return over the last 10 years has ranged from a low of -5.1% to a high of 21.0%, with an average of 8.5%.

**Longevity Risk**

The actuarial valuation includes an expectation of future improvement in life expectancy. Emerging plan experience that does not match these expectations will result in either an increase or decrease in the Plan's funding policy and actuarially determined contribution requirement.

**Contribution Risk**

The Plan's funding policy contribution requires payment of the Employer's normal cost and an amortization payment according to a schedule sufficient to pay down unfunded actuarial liability over time. If the Plan's funding policy contribution were adhered to, contribution risk would be negligible.

However, Plan contributions are set by statute. The statutorily-required amount systematically underfunds the Plan. For Fiscal 2019, actual employer contributions come from a property tax levied by the Chicago Park District equal to the total amount of contributions made by employees in the calendar year two years prior to the year of the levy, multiplied by 1.1, the tax multiple.

If contributions remain at current level and future experience matches the current assumptions, we project the unfunded actuarial accrued liability will not be paid off and the Fund faces the risk of insolvency.

**Demographic Risk**

Examples of this risk include:

- Actual retirements occurring earlier or later than assumed. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply.
- More or less active participant turnover than assumed.
- Individual salary increases higher or lower than assumed.

**Actual Experience Over the Last 10 years and Implications for the Future**

Past experience can help demonstrate the sensitivity of key results to the Plan's actual experience. Over the past ten years:

- The investment gain/(loss) for a year has ranged from a gain of $45 million to a loss of $44 million.
- The non-investment gain/(loss) for a year has ranged from a gain of $5 million to a loss of $7 million.
- The funded percentage on the actuarial value of assets has ranged from a low of 32.11% to a high of 62.25%.

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago

**EXHIBIT A**

**Table of Fund Coverage**

| Category | December 31 2018 | December 31 2017 | Change From Prior Year |
|---|---|---|---|
| **Active members in valuation:** | | | |
| Number | 3,187 | 3,543 | -10.0% |
| Average age | 41.5 | 41.0 | +0.5 |
| Average years of service | 9.9 | 9.8 | +0.1 |
| Total salary | $129,923,175 | $134,258,328 | -3.2% |
| Average salary | $40,767 | $37,894 | +7.6% |
| Total active vested members with at least 10 years of service | 1,271 | 1,352 | -6.0% |
| **Vested terminated members** | 145 | 150 | -3.3% |
| **Non-vested terminated members eligible for a return of contributions** | 4,634 | 4,148 | +11.7% |
| **Service retirees:** | | | |
| Number in pay status | 2,136 | 2,115 | +1.0% |
| Average age | 72.2 | 72.1 | +0.1 |
| Average monthly benefit | $2,441 | $2,366 | +3.2% |
| **Beneficiaries (including children) in pay status:** | | | |
| Number in pay status | 718 | 761 | -5.7% |
| Average age | 78.0 | 77.9 | +0.1 |
| Average monthly benefit | $1,364 | $1,317 | +3.6% |
| **Total number of members** | 10,820 | 10,717 | +1.0% |

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT B**

**Participants in Active Service as of December 31, 2018**
**By Age, Years of Service, and Average Payroll**

| | | Years of Service | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Age** | **Total** | **0-4** | **5-9** | **10-14** | **15 - 19** | **20 - 24** | **25 - 29** | **30 - 34** | **35 - 39** | **40 & over** |
| Under 25 | 484 | 480 | 4 | - - | - - | - - | - - | - - | - - | - - |
| | $19,433 | $19,009 | $23,701 | - - | - - | - - | - - | - - | - - | - - |
| 25 - 29 | 429 | 291 | 129 | 9 | - - | - - | - - | - - | - - | - - |
| | 28,426 | 26,789 | 31,939 | $30,987 | - - | - - | - - | - - | - - | - - |
| 30 - 34 | 337 | 137 | 100 | 91 | 9 | - - | - - | - - | - - | - - |
| | 39,207 | 35,528 | 44,374 | 38,230 | $47,686 | - - | - - | - - | - - | - - |
| 35 - 39 | 300 | 100 | 52 | 73 | 68 | 7 | - - | - - | - - | - - |
| | 45,082 | 41,261 | 40,951 | 49,142 | 48,462 | $55,190 | - - | - - | - - | - - |
| 40 - 44 | 284 | 84 | 59 | 54 | 45 | 39 | 3 | - - | - - | - - |
| | 50,353 | 39,610 | 55,709 | 56,286 | 51,789 | 54,565 | $62,722 | - - | - - | - - |
| 45 - 49 | 335 | 79 | 41 | 69 | 66 | 58 | 21 | 1 | - - | - - |
| | 49,984 | 34,286 | 59,126 | 53,240 | 51,611 | 53,441 | 65,504 | $56,800 | - - | - - |
| 50 - 54 | 344 | 58 | 37 | 58 | 74 | 59 | 42 | 15 | 1 | - - |
| | 49,496 | 31,713 | 45,703 | 44,064 | 49,801 | 63,323 | 59,360 | 64,011 | $65,901 | - - |
| 55 - 59 | 313 | 60 | 32 | 48 | 57 | 59 | 30 | 19 | 8 | - - |
| | 50,799 | 38,828 | 44,281 | 42,752 | 52,068 | 55,760 | 67,106 | 70,214 | 62,065 | - - |
| 60 - 64 | 219 | 33 | 22 | 37 | 43 | 34 | 22 | 11 | 13 | 4 |
| | 47,636 | 30,173 | 40,343 | 45,093 | 49,315 | 49,276 | 58,892 | 54,097 | 70,801 | $68,375 |
| 65 - 69 | 105 | 9 | 9 | 19 | 17 | 24 | 16 | 5 | 5 | 1 |
| | 54,531 | 43,299 | 61,271 | 51,371 | 47,311 | 54,330 | 68,629 | 49,858 | 55,222 | 76,870 |
| 70 & over | 37 | 1 | 5 | 3 | 7 | 8 | 6 | 2 | 1 | 4 |
| | 44,380 | 9,771 | 22,595 | 22,487 | 49,219 | 48,088 | 56,703 | 68,092 | 42,440 | 50,941 |
| Total | 3,187 | 1,332 | 490 | 461 | 386 | 288 | 140 | 53 | 28 | 9 |
| | $40,767 | $28,163 | $43,169 | $46,373 | $50,218 | $55,569 | $62,885 | $62,860 | $64,335 | $61,571 |

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT C**

**History of Active Member Valuation Data**

| Actuarial Valuation Date | Active Members | Percent Increase | Annual Salaries | Percent Increase | Average Salary | Percent Increase |
|---|---|---|---|---|---|---|
| 06/30/2010 | 2,816 | (1.71%) | $107,361,021 | (1.40%) | 38,125 | 0.32% |
| 06/30/2011 | 2,795 | (0.75%) | 107,686,693 | 0.30% | 38,528 | 1.06% |
| 06/30/2012 | 2,977 | 6.51% | 109,798,508 | 1.96% | 36,882 | (4.27%) |
| 12/31/2012 | 3,053 | 2.55% | 113,934,756* | 3.77% | 37,319 | 1.18% |
| 12/31/2013 | 3,076 | 0.75% | 115,617,428 | 1.48% | 37,587 | 0.72% |
| 12/31/2014 | 2,973 | (3.35%) | 120,376,477 | 4.12% | 40,490 | 7.72% |
| 12/31/2015 | 3,063 | 3.03% | 126,294,812 | 4.92% | 41,232 | 1.83% |
| 12/31/2016 | 3,114 | 1.67% | 124,502,908 | (1.42%) | 39,982 | (3.03%) |
| 12/31/2017 | 3,543 | 13.78% | 134,258,328 | 7.84% | 37,894 | (5.22%) |
| 12/31/2018 | 3,187 | (10.05%) | 129,923,175 | (3.23%) | 40,767 | 7.58% |
| Average Increase/(Decrease) | | | | | | |
| Last 5 years | | 1.02% | | 2.45% | | 1.78% |
| Last 10 years | | 1.24% | | 1.83% | | 0.79% |

* *Annualized for short plan year.*

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT D**

**Reconciliation of Member Data**

| | Active Members | Inactive Members | Retirees | Beneficiaries | Total |
|---|---|---|---|---|---|
| Number as of December 31, 2017 | 3,543 | 4,298 | 2,115 | 761 | 10,717 |
| New participants | 417 | N/A | N/A | N/A | 417 |
| Terminations | (559) | 559 | 0 | 0 | 0 |
| Retirements | (74) | (26) | 100 | N/A | 0 |
| New disabilities | 0 | 0 | N/A | N/A | 0 |
| Died with beneficiary | (2) | 0 | (28) | 30 | 0 |
| Died without beneficiary | (1) | 0 | (52) | (73) | (126) |
| Refunds | (147) | (48) | 0 | 0 | (195) |
| Rehire | 10 | (10) | 0 | 0 | 0 |
| Certain period expired | N/A | N/A | 0 | 0 | 0 |
| Data adjustments | 0 | 6 | 1 | 0 | 7 |
| Number as of December 31, 2018 | 3,187 | 4,779 | 2,136 | 718 | 10,820 |

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT E**

**Schedule of Pensioners and Beneficiaries Added to and Removed from Rolls**

| | Added to Rolls | | Removed from Rolls | | Rolls – End of Year | | | |
|---|---|---|---|---|---|---|---|---|
| Fiscal Year | Number | Annual Allowances | Number | Annual Allowances | Number* | Annual Allowances | % Increase in Avg. Annual Allowances | Average Annual Allowances |
| 2010 | 113 | $3,442,389 | 167 | $2,903,979 | 2,942 | $61,189,590 | 2.7 | $20,799 |
| 2011 | 124 | 3,735,377 | 167 | 2,828,495 | 2,899 | 62,096,472 | 3.0 | 21,420 |
| 6/2012 | 167 | 4,681,195 | 158 | 2,797,326 | 2,908 | 63,980,341 | 2.7 | 22,001 |
| 12/2012 | 71 | 2,470,960 | 91** | 1,290,060 | 2,888 | 65,161,241 | 2.6 | 22,563 |
| 12/2013 | 147 | 4,594,883 | 147 | 2,788,285 | 2,888 | 66,967,839 | 2.8 | 23,188 |
| 12/2014 | 126 | 4,085,581 | 138 | 2,781,597 | 2,876 | 68,271,823 | 2.4 | 23,738 |
| 12/2015 | 94 | 1,823,238 | 106 | 2,271,591 | 2,864 | 67,823,470 | -0.7 | 23,681 |
| 12/2016 | 126 | 5,283,834 | 133 | 2,711,190 | 2,857 | 70,396,114 | 4.0 | 24,640 |
| 12/2017 | 107 | 3,628,199 | 104 | 1,952,677 | 2,860 | 72,071,636 | 2.3 | 25,200 |
| 12/2018 | 135 | 5,446,939 | 153 | 2,967,901 | 2,842 | 74,550,674 | 4.1 | 26,232 |

* *Does not include child beneficiaries receiving a pension.*

** *Includes removal of 20 QILDROs for participant count purposes.*

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT F**

**Summary Statement of Income and Expenses on a Fair Value Basis at Fiscal Year Ended December 31**

| | | 2018 | | 2017 |
|---|---|---|---|---|
| **Net position at fair value at the beginning of the year** | | $397,648,758 | | $391,698,922 |
| **Contribution income:** | | | | |
| Employer contributions | $27,638,402 | | $20,920,614 | |
| Employee contributions | 12,125,457 | | 13,675,292 | |
| Less administrative expenses | -1,501,039 | | -1,682,136 | |
| Net contribution income | | 38,262,820 | | 32,913,770 |
| **Securities lending income** | | 67,760 | | 88,011 |
| **Other income** | | 167 | | 3,768 |
| **Investment income:** | | | | |
| Interest, dividends and other income | $12,194,461 | | $13,095,788 | |
| Asset appreciation | -27,559,554 | | 39,842,188 | |
| Less investment and administrative fees | -1,831,719 | | -1,855,662 | |
| Net investment income | | -17,196,812 | | 51,082,314 |
| **Total income available for benefits** | | $21,133,935 | | $84,087,863 |
| **Less benefit payments:** | | | | |
| Annuity payments | -$73,303,464 | | -$71,756,876 | |
| Disability & death | -497,389 | | -495,464 | |
| Refund of contributions | -2,725,967 | | -2,025,805 | |
| Refund of excess contributions | 0 | | -3,859,882 | |
| Net benefit payments | | -$76,526,820 | | -$78,138,027 |
| **Change in reserve for future benefits** | | -$55,392,885 | | $5,949,836 |
| **Net position at fair value at the end of the year** | | $342,255,873 | | $397,648,758 |

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT G**

**Summary Statement of Fund Assets at Fiscal Year Ended December 31**

| | 2018 | | 2017 | |
|---|---|---|---|---|
| **Accounts receivable** | | $16,127,092 | | $23,268,082 |
| **Investments, at fair value:** | | | | |
| Collective investment funds | $72,315,985 | | $108,036,902 | |
| Risk parity | 1,348,182 | | 10,388,615 | |
| Bonds | 61,043,992 | | 65,382,838 | |
| Common and preferred stocks | 45,332,504 | | 56,254,103 | |
| Real estate | 37,225,201 | | 36,104,891 | |
| Private equity partnerships | 19,232,200 | | 22,366,679 | |
| Hedged equity | 24,437,510 | | 25,160,062 | |
| Infrastructure | 22,774,008 | | 23,328,660 | |
| Mutual funds | 15,420,085 | | 20,340,559 | |
| International equity | 18,093,650 | | -- | |
| Short-term investments | 6,181,608 | | 8,939,984 | |
| Total investments at fair value | | 323,404,925 | | 376,303,293 |
| **Invested securities lending collateral** | | 24,113,674 | | 33,992,926 |
| **Prepaid annuity benefits** | | 5,061,599 | | 4,777,637 |
| **Furniture and fixtures, net** | | 138,555 | | 110,539 |
| **Prepaid expenses** | | 80,359 | | 75,503 |
| **Total assets** | | $368,926,204 | | $438,527,980 |
| **Less accounts payable:** | | | | |
| Accounts payable | -$418,365 | | -$489,443 | |
| Accrued benefits and member contributions payable | -588,867 | | -4,567,550 | |
| Securities lending collateral | -24,113,674 | | -33,992,926 | |
| Due to broker | -1,494,289 | | -1,766,195 | |
| Deferred rent | -55,136 | | -63,108 | |
| Total accounts payable | | -$26,670,331 | | -$40,879,222 |
| **Net position at fair value** | | $342,255,873 | | $397,648,758 |
| **Net position at actuarial value** | | $366,806,612 | | $385,419,506 |

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT H**

**Development of the Fund Through December 31, 2018**

| Fiscal Year Ended | Employer Contributions | Employee Contributions | Net Investment Return* | Administrative Expenses | Benefit Payments | Actuarial Value of Assets at End of Year |
|---|---|---|---|---|---|---|
| June 30, 2010 | $10,829,339 | $9,829,998 | $8,194,551 | $1,465,562 | $62,560,242 | $518,582,601 |
| June 30, 2011 | 10,981,419 | 9,791,650 | 15,218,630 | 1,498,905 | 63,704,890 | 489,370,505 |
| June 30, 2012 | 10,868,361 | 10,404,827 | -2,804,426 | 1,644,603 | 65,502,658 | 440,692,006 |
| December 31, 2012 | 5,268,363 | 5,371,084 | 4,121,362 | 723,802 | 33,281,012 | 421,448,001 |
| December 31, 2013 | 15,707,814 | 10,732,730 | 26,107,300 | 1,367,443 | 68,335,967 | 404,292,435 |
| December 31, 2014 | 11,225,438 | 10,831,434 | 39,408,258 | 1,458,831 | 70,536,042 | 393,762,692 |
| December 31, 2015 | 30,588,976 | 12,368,636 | 31,067,518 | 1,533,700 | 70,602,016 | 395,652,106 |
| December 31, 2016 | 30,890,241 | 12,246,115 | 30,432,110 | 1,537,699 | 74,077,876 | 393,604,997 |
| December 31, 2017 | 20,920,614 | 13,675,292 | 37,038,766 | 1,682,136 | 78,138,027 | 385,419,506 |
| December 31, 2018 | 27,638,402 | 12,125,457 | 19,651,105 | 1,501,039 | 76,526,820 | 366,806,612 |

** On an actuarial basis, net of investment fees, and includes other income.*

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT I**

**Development of Unfunded Actuarial Accrued Liability**

| | Plan Year Ended December 31 | | | |
|---|---|---|---|---|
| | | 2018 | | 2017 |
| 1. Unfunded actuarial accrued liability at beginning of year | | $653,859,938 | | $611,888,096 |
| 2. Normal cost (including administrative expenses) at beginning of year | | 17,253,792 | | 15,850,168 |
| 3. Total contributions | | 39,763,859 | | 34,595,906 |
| 4. Interest | | | | |
| (a) Unfunded actuarial accrued liability and normal cost | $50,333,530 | | $47,080,370 | |
| (b) Total contributions | 1,349,035 | | 1,173,707 | |
| (c) Total interest: (4a) – (4b) | | 48,984,495 | | 45,906,663 |
| 5. Expected unfunded actuarial accrued liability: (1) + (2) – (3) + (4c) | | $680,334,366 | | $639,049,021 |
| 6. Changes due to (gain)/loss from: | | | | |
| (a) Investments | $7,820,631 | | -$9,210,392 | |
| (b) Demographics and other | 3,354,696 | | 3,115,773 | |
| (c) Total changes due to (gain)/loss: (6a) + (6b) | | $11,175,327 | | -$6,094,619 |
| 7. Assumption changes | | 83,981,660 | | 0 |
| 8. Change due to remaining portions of Public Act 098-0622 being declared unconstitutional | | 0 | | 20,905,536 |
| 9. Unfunded accrued liability at end of year: (5) + (6c) + (7) + (8) | | $775,491,353 | | $653,859,938 |

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT J**

**Definitions of Pension Terms**

The following list defines certain technical terms for the convenience of the reader:

**Actuarial Accrued Liability For Actives:** The equivalent of the accumulated normal costs allocated to the years before the valuation date.

**Actuarial Accrued Liability For Pensioners:** The single-sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

**Actuarial Cost Method:** A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.

**Actuarial Gain or Actuarial Loss:** A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the Fund's assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield in actuarial liabilities that are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

**Actuarially Equivalent:** Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.

**Actuarial Present Value (APV):** The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is:

a. Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.)
b. Multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and
c. Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT J**

**Definitions of Pension Terms (Continued)**

**Actuarial Present Value of Future Plan Benefits:** The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would be provide sufficient assets to pay all projected benefits and expenses when due.

**Actuarial Valuation:** The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial Valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB, such as the Actuarially Determined Contribution (ADC) and the Net Pension Liability (NPL).

**Actuarial Value of Assets:** The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.

**Actuarially Determined:** Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

**Actuarially Determined Contribution (ADC):** The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Fund's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.

**Amortization Method:** A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.

**Amortization Payment:** The portion of the pension plan contribution, or ADC, that is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT J**

**Definitions of Pension Terms (Continued)**

**Assumptions or Actuarial Assumptions:** The estimates on which the cost of the Fund is calculated including:

(a) Investment return - the rate of investment yield that the Fund will earn over the long-term future;

(b) Mortality rates - the death rates of employees and pensioners; life expectancy is based on these rates;

(c) Retirement rates - the rate or probability of retirement at a given age;

(d) Turnover rates - the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement;

(e) Salary increase rates - the rates of salary increase due to inflation and productivity growth.

**Closed Amortization Period:** A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Open Amortization Period.

**Decrements:** Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.

**Defined Benefit Plan:** A retirement plan in which benefits are defined by a formula applied to the member's compensation and/or years of service.

**Defined Contribution Plan:** A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.

**Employer Normal Cost:** The portion of the Normal Cost to be paid by the employers. This is equal to the Normal Cost less expected member contributions.

**Experience Study:** A periodic review and analysis of the actual experience of the Fund that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

**Funded Ratio:** The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the fair value of assets (MVA), rather than the AVA.

**GASB:** Governmental Accounting Standards Board.

## SECTION 3: Supplemental Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT J**

**Definitions of Pension Terms (Continued)**

| | |
|---|---|
| **GASB 67 and GASB 68:** | Governmental Accounting Standards Board Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves. |
| **Investment Return:** | The rate of earnings of the Fund from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next. |
| **Net Pension Liability (NPL):** | The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position. |
| **Normal Cost:** | That portion of the Actuarial Present Value of pension plan benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated. |
| **Open Amortization Period:** | An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period with level percentage of payroll is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never decrease, but will become smaller each year, in relation to covered payroll, if the actuarial assumptions are realized. |
| **Plan Fiduciary Net Position:** | Fair value of assets. |
| **Total Pension Liability (TPL):** | The actuarially accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68. |
| **Unfunded Actuarial Accrued Liability:** | The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus. |
| **Valuation Date or Actuarial Valuation Date:** | The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date. |

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago

**EXHIBIT I**

**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 706 beneficiaries and 12 dependent children) | | 2,854 |
| 2. | Members inactive as of the valuation date with vested rights | | 145 |
| 3. | Members active as of the valuation date | | 3,187 |
| | Fully vested | 1,271 | |
| | Not vested | 1,916 | |
| 4. | Other non-vested inactive members as of the valuation date | | 4,634 |

The actuarial factors as of the valuation date are as follows:

| | | | |
|---|---|---|---|
| 1. | Employer normal cost, including administrative expenses | | $ 5,750,766 |
| 2. | Actuarial accrued liability | | 1,142,297,965 |
| | Retirees and beneficiaries | $778,565,525 | |
| | Inactive members with vested rights | 22,122,226 | |
| | Active members | 341,610,214 | |
| 3. | Actuarial value of assets ($342,255,873 at fair value) | | 366,806,612 |
| 4. | Unfunded actuarial accrued liability | | $775,491,353 |
| 5. | Funded ratio: (3) ÷ (2) | | 32.1% |

The determination of the actuarially determined contribution is as follows:

| | | |
|---|---|---|
| 1. | Total normal cost | $ 16,447,693 |
| 2. | Administrative expenses | 1,504,833 |
| 3. | Expected employee contributions | -12,398,408 |
| 4. | Employer normal cost: (1) + (2) + (3) | $ 5,554,118 |
| 5. | Employer normal cost projected, adjusted for timing | 5,750,767 |
| 6. | Payment on projected unfunded/(overfunded) actuarial accrued liability, adjusted for timing | 56,137,023 |
| 7. | Total actuarially determined contributions: (5) + (6) | $ 61,887,790 |
| 8. | Estimated employer contributions provided by the Fund, reflecting 3% loss on collections* | $ 14,135,549 |
| 9. | Projected payroll | 136,230,328 |
| 10. | Total actuarially determined contribution as a percentage of projected payroll: (7) ÷ (9) | 45.43% |

* The Park District has been absorbing the 3% loss on collections, however, the Park District is not guaranteed to do so in the future.

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT II**

**Comparison of Employer Contribution to Actuarially Determined Contribution**

| Fiscal Year Ended | Actuarially Determined Contribution (ADC)* | Actual Contributions | Percentage Contributed |
|---|---|---|---|
| June 30, 2010 | $22,399,740 | $10,829,339 | 48.3% |
| June 30, 2011 | 25,319,145 | 10,981,419 | 43.4% |
| June 30, 2012 | 28,051,528 | 10,868,361 | 38.7% |
| December 31, 2012 | 16,786,671 | 5,268,636 | 31.4% |
| December 31, 2013 | 41,834,857 | 15,707,814 | 37.5% |
| December 31, 2014 | 35,307,186 | 11,225,438 | 31.8% |
| December 31, 2015 | 36,273,994 | 30,588,976 | 84.3% |
| December 31, 2016 | 37,130,268 | 30,890,241 | 83.2% |
| December 31, 2017 | 45,253,238 | 20,920,614 | 46.2% |
| December 31, 2018 | 50,929,734 | 27,638,402 | 54.3% |
| December 31, 2019 | 61,887,790 | - - | - - |

* *Prior to 2015, this amount was the Annual Required Contribution (ARC)*

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT III**

**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) |
|---|---|---|---|---|---|---|
| 06/30/2010 | $518,582,601 | $833,025,948 | $314,443,347 | 62.25% | $107,361,021 | 292.88% |
| 06/30/2011 | 489,370,505 | 843,943,240 | 354,572,735 | 57.99% | 107,686,693 | 329.26% |
| 06/30/2012 | 440,692,006 | 866,370,565 | 425,678,559 | 50.87% | 114,223,909 | 372.67% |
| 12/31/2012 | 421,448,001 | 971,807,222 | 550,359,221 | 43.37% | 58,231,511 | 472.56%** |
| 12/31/2013 | 404,292,435 | 888,023,364 | 483,730,929 | 45.53% | 117,781,596 | 410.70% |
| 12/31/2014 | 393,762,692 | 900,840,617 | 507,077,925 | 43.71% | 118,987,507 | 426.16% |
| 12/31/2015 | 395,652,106 | 910,260,360 | 514,608,254 | 43.47% | 122,382,584 | 420.49% |
| 12/31/2016 | 393,604,997 | 1,005,493,093 | 611,888,096 | 39.15% | 121,126,918 | 505.16% |
| 12/31/2017 | 385,419,506 | 1,039,279,444 | 653,859,938 | 37.09% | 135,315,008 | 483.21% |
| 12/31/2018 | 366,806,612 | 1,142,297,965 | 775,491,353 | 32.11% | 133,112,100 | 582.59% |

* *Not less than zero*

** *Adjusted for annualized covered payroll*

**EXHIBIT IV**

**Solvency Test at December 31**

| | 12/31/2018 | 12/31/2017 | 12/31/2016 | 12/31/2015 | 12/31/2014 | 12/31/2013 |
|---|---|---|---|---|---|---|
| 1. Actuarial accrued liability (AAL) | | | | | | |
| a. Active member contributions | $ 164,316,381 | $ 173,903,043 | $ 172,808,623 | $173,241,768 | $169,952,178 | $171,065,449 |
| b. Retirees and beneficiaries | 778,565,525 | 706,084,520 | 694,881,116 | 625,396,307 | 625,641,580 | 621,827,982 |
| c. Active and inactive members (employer financed) | 199,416,059 | 159,291,881 | 137,803,354 | 111,622,285 | 105,246,859 | 95,129,933 |
| d. Total | $1,142,297,965 | $1,039,279,444 | $1,005,493,093 | $910,260,360 | $900,840,617 | $888,023,364 |
| 2. Actuarial value of assets | 366,806,612 | 385,419,506 | 393,604,997 | 395,652,106 | 393,762,692 | 404,292,435 |
| 3. Cumulative portion of AAL covered | | | | | | |
| a. Active member contribution | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| b. Retirees and beneficiaries | 26.0% | 30.0% | 31.8% | 35.6% | 35.8% | 37.5% |
| c. Active and inactive members (employer financed) | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT V**

**Projection of Contributions, Liabilities, and Assets**

Based on the results of the December 31, 2018, actuarial valuation, we have projected valuation results for a 40-year period commencing with Fiscal Year 2019.

For purposes of the projections, all assets, contributions, and benefit payments have been included. Our projections of contributions, liabilities, and assets are based on the actuarial assumptions, membership data and benefit provisions that were used for the regular actuarial valuation.

In order to determine projected contributions, liabilities, and assets, certain calculations needed to be made that are not normally required in a regular actuarial valuation. Benefit payout requirements, actuarial liabilities, and payroll were estimated over the 40-year period from 2019 through 2057 by projecting the membership of the Fund over the 40-year period, taking into account the impact of new entrants into the Fund over the 40-year period.

To make the required projections, assumptions needed to be made regarding the age and salary distribution of new entrants as well as the size of the active membership of the Fund. The assumptions regarding the profile of new entrants to the Fund were based on the recent experience of the Fund with regard to new entrants. The size of the active membership of the Fund was assumed to remain constant over the 40-year projection period. The results of our projections are shown on the following pages.

For purposes of this projection, we have assumed that all available assets, including accumulated contributions made by existing active members, will be used to pay benefits until insolvency; at that point, request for refund of contributions from terminating active members will be treated as benefit payments that must be funded by employer contributions. However, the legality of this situation is undetermined at this time, and if it is determined that the reserve for accumulated active member contributions cannot be paid to existing annuitants, the Fund would become insolvent earlier than 2026.

The fair value of assets is assumed to earn the assumption of 7.25% each year of the projection until the projected date of insolvency. In reality, as the insolvency date approaches, invested assets will likely be rebalanced into more liquid, lower return assets in order to pay the benefits that are due. To the extent that actual returns are less than the 7.25% assumption as a result of this rebalancing, the Fund would become insolvent earlier than 2026.

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT V (Continued)**

**Projection of Contributions, Liabilities, and Assets (Continued)**

| Fiscal Year | Employee Contributions | Employer Contributions | Payroll | Normal Cost | Benefit Payouts | Estimated Expenses | Total Actuarial Liability | Actuarial Value of Assets | Unfunded Actuarial Liability | Funded Ratio |
|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | | | | | | | 1,142,298.0 | 366,806.6 | 775,491.4 | 32.1% |
| 2019 | 12,398.4 | 14,135.5 | 136,230.3 | 16,447.7 | 80,011.6 | 1,553.6 | 1,159,842.7 | 328,376.2 | 831,466.5 | 28.3% |
| 2020 | 12,222.8 | 12,937.9 | 134,278.8 | 16,188.7 | 81,148.9 | 1,608.0 | 1,177,203.1 | 288,140.0 | 889,063.1 | 24.5% |
| 2021 | 12,141.2 | 13,229.1 | 133,372.5 | 16,055.3 | 82,256.7 | 1,664.2 | 1,194,531.1 | 243,262.4 | 951,268.7 | 20.4% |
| 2022 | 12,096.4 | 13,041.7 | 132,874.6 | 15,964.5 | 83,422.7 | 1,722.5 | 1,211,809.8 | 188,788.7 | 1,023,021.1 | 15.6% |
| 2023 | 12,066.3 | 12,954.7 | 132,540.1 | 15,868.4 | 84,703.3 | 1,782.8 | 1,228,911.1 | 137,742.8 | 1,091,168.3 | 11.2% |
| 2024 | 12,050.9 | 12,906.9 | 132,369.2 | 15,760.2 | 86,106.4 | 1,845.2 | 1,245,682.2 | 81,748.7 | 1,163,933.5 | 6.6% |
| 2025 | 12,047.8 | 12,874.7 | 132,334.3 | 15,659.3 | 87,566.0 | 1,909.7 | 1,262,048.5 | 20,334.4 | 1,241,714.1 | 1.6% |
| 2026 | 12,049.6 | 49,151.8 | 132,354.5 | 15,534.7 | 89,019.9 | 1,976.6 | 1,277,961.1 | 0.0 | 1,277,961.1 | 0.0% |
| 2027 | 12,048.6 | 79,735.5 | 132,343.7 | 15,387.9 | 90,681.0 | 2,045.8 | 1,293,148.6 | 0.0 | 1,293,148.6 | 0.0% |
| 2028 | 12,050.7 | 81,453.4 | 132,367.0 | 15,250.2 | 92,329.3 | 2,117.4 | 1,307,581.5 | 0.0 | 1,307,581.5 | 0.0% |
| 2029 | 12,054.1 | 83,205.2 | 132,404.4 | 15,098.7 | 94,010.4 | 2,191.5 | 1,321,156.2 | 0.0 | 1,321,156.2 | 0.0% |
| 2030 | 12,073.9 | 85,059.5 | 132,624.5 | 14,965.1 | 95,807.8 | 2,268.2 | 1,333,709.2 | 0.0 | 1,333,709.2 | 0.0% |
| 2031 | 12,089.1 | 86,921.5 | 132,794.1 | 14,811.3 | 97,605.7 | 2,347.6 | 1,345,144.3 | 0.0 | 1,345,144.3 | 0.0% |
| 2032 | 12,115.5 | 88,659.0 | 133,087.4 | 14,662.4 | 99,287.4 | 2,429.7 | 1,355,506.1 | 0.0 | 1,355,506.1 | 0.0% |
| 2033 | 12,155.3 | 90,312.7 | 133,529.3 | 14,526.5 | 100,895.9 | 2,514.8 | 1,364,806.6 | 0.0 | 1,364,806.6 | 0.0% |
| 2034 | 12,210.9 | 91,969.3 | 134,146.8 | 14,408.1 | 102,520.0 | 2,602.8 | 1,372,971.4 | 0.0 | 1,372,971.4 | 0.0% |
| 2035 | 12,264.0 | 93,310.7 | 134,736.4 | 14,269.7 | 103,823.4 | 2,693.9 | 1,380,229.0 | 0.0 | 1,380,229.0 | 0.0% |
| 2036 | 12,340.7 | 94,804.6 | 135,588.7 | 14,160.5 | 105,299.7 | 2,788.2 | 1,386,365.9 | 0.0 | 1,386,365.9 | 0.0% |
| 2037 | 12,406.8 | 94,789.6 | 136,323.3 | 14,027.4 | 104,310.6 | 2,885.7 | 1,393,830.0 | 0.0 | 1,393,830.0 | 0.0% |
| 2038 | 12,492.3 | 95,849.2 | 137,273.4 | 13,917.6 | 105,354.8 | 2,986.8 | 1,400,635.4 | 0.0 | 1,400,635.4 | 0.0% |
| 2039 | 12,586.6 | 96,551.5 | 138,321.8 | 13,815.1 | 106,046.9 | 3,091.3 | 1,407,107.1 | 0.0 | 1,407,107.1 | 0.0% |
| 2040 | 12,704.8 | 97,017.7 | 139,634.2 | 13,739.8 | 106,522.9 | 3,199.5 | 1,413,474.0 | 0.0 | 1,413,474.0 | 0.0% |
| 2041 | 12,838.5 | 97,221.0 | 141,120.7 | 13,686.6 | 106,748.1 | 3,311.5 | 1,420,012.0 | 0.0 | 1,420,012.0 | 0.0% |
| 2042 | 12,991.6 | 97,117.4 | 142,821.3 | 13,667.7 | 106,681.6 | 3,427.4 | 1,427,072.7 | 0.0 | 1,427,072.7 | 0.0% |
| 2043 | 13,164.3 | 96,603.1 | 144,740.5 | 13,680.4 | 106,220.1 | 3,547.3 | 1,435,137.1 | 0.0 | 1,435,137.1 | 0.0% |
| 2044 | 13,360.7 | 95,811.6 | 146,921.9 | 13,721.3 | 105,500.7 | 3,671.5 | 1,444,575.5 | 0.0 | 1,444,575.5 | 0.0% |
| 2045 | 13,580.7 | 94,814.2 | 149,367.4 | 13,811.0 | 104,594.9 | 3,800.0 | 1,455,733.0 | 0.0 | 1,455,733.0 | 0.0% |
| 2046 | 13,815.9 | 93,623.6 | 151,980.6 | 13,919.4 | 103,506.5 | 3,933.0 | 1,468,943.6 | 0.0 | 1,468,943.6 | 0.0% |
| 2047 | 14,066.8 | 92,392.4 | 154,767.7 | 14,054.8 | 102,388.6 | 4,070.6 | 1,484,415.7 | 0.0 | 1,484,415.7 | 0.0% |
| 2048 | 14,325.9 | 91,054.6 | 157,646.4 | 14,202.8 | 101,167.4 | 4,213.1 | 1,502,433.6 | 0.0 | 1,502,433.6 | 0.0% |
| 2049 | 14,600.2 | 89,611.3 | 160,694.6 | 14,371.1 | 99,850.9 | 4,360.6 | 1,523,302.5 | 0.0 | 1,523,302.5 | 0.0% |
| 2050 | 14,885.6 | 88,116.1 | 163,866.3 | 14,556.1 | 98,488.5 | 4,513.2 | 1,547,294.6 | 0.0 | 1,547,294.6 | 0.0% |
| 2051 | 15,186.0 | 86,667.4 | 167,203.7 | 14,751.5 | 97,182.3 | 4,671.1 | 1,574,589.4 | 0.0 | 1,574,589.4 | 0.0% |
| 2052 | 15,498.5 | 85,361.4 | 170,675.6 | 14,973.2 | 96,025.2 | 4,834.6 | 1,605,299.7 | 0.0 | 1,605,299.7 | 0.0% |
| 2053 | 15,814.8 | 84,013.0 | 174,190.7 | 15,180.5 | 94,824.0 | 5,003.8 | 1,639,703.6 | 0.0 | 1,639,703.6 | 0.0% |
| 2054 | 16,149.6 | 82,657.6 | 177,910.5 | 15,422.4 | 93,628.2 | 5,179.0 | 1,678,100.5 | 0.0 | 1,678,100.5 | 0.0% |
| 2055 | 16,498.2 | 81,488.8 | 181,783.8 | 15,672.7 | 92,626.8 | 5,360.2 | 1,720,587.2 | 0.0 | 1,720,587.2 | 0.0% |
| 2056 | 16,863.6 | 80,369.3 | 185,843.4 | 15,951.3 | 91,685.0 | 5,547.9 | 1,767,428.9 | 0.0 | 1,767,428.9 | 0.0% |
| 2057 | 17,245.9 | 79,185.4 | 190,091.5 | 16,252.1 | 90,689.3 | 5,742.0 | 1,819,021.1 | 0.0 | 1,819,021.1 | 0.0% |

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT VI**
**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 October 25, 2018. Current data is reviewed in conjunction with each annual valuation.

**Mortality Rates:**

Healthy Post-Retirement Mortality: 110% of PubG-2010 Healthy Annuitant Table, with mortality improvements projected generationally using scale MP-2017

Active Mortality: 110% of PubG-2010 Healthy Employee Table, with mortality improvements projected generationally using scale MP-2017

The mortality tables specified above were determined to contain provisions appropriate to reasonably reflect future mortality improvements, based on a review of mortality experience as of the most recent experience study rate.

**Termination:** Select and ultimate termination rates are based on recent experience of the Fund. Ultimate rates applicable for members with eight or more years of service are shown for sample ages in the table below. Select rates are as follows:

| Years of Service | Rate (%) |
|---|---|
| 0 - 0.99 | 17.5 |
| 1 - 1.99 | 13.0 |
| 2 - 2.99 | 13.0 |
| 3 - 3.99 | 12.5 |
| 4 - 4.99 | 12.5 |
| 5 - 5.99 | 10.0 |
| 6 - 6.99 | 10.0 |
| 7 - 7.99 | 10.0 |

Ultimate rates:

| Age | Rate (%) |
|---|---|
| 20 | 7.0 |
| 25 | 7.0 |
| 30 | 6.0 |
| 35 | 4.0 |
| 40 | 4.0 |
| 45 | 4.0 |
| 50 | 3.0 |
| 55 | 3.0 |

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT VI (Continued)**
**Actuarial Assumptions and Actuarial Cost Method (Continued)**

**Retirement Rates:**

For employees first hired prior to January 1, 2011, rates of retirement for each age from 50 to 75 based on the recent experience of the Fund were used. Sample rates are shown below.

| | Rate (%) | |
|---|---|---|
| **Age** | **<30 Years of Service** | **30+ Years of Service** |
| 50 | 2.5 | 30.0 |
| 55 | 2.5 | 20.0 |
| 60 | 5.0 | 5.0 |
| 65 | 15.0 | 15.0 |
| 70 | 20.0 | 20.0 |
| 75 | 100.0 | 100.0 |

For employees first hired on or after January 1, 2011, rates of retirement for each age from 62 to 75 were used. Sample rates are shown below.

| Age | Rate (%) |
|---|---|
| 62 | 50.0 |
| 65 | 20.0 |
| 67 | 50.0 |
| 70 | 20.0 |
| 75 | 100.0 |

**Salary Increases:**

Assumed salary increases are based on the recent experience of the Fund were used. Rates are shown below.

| Years of Service | Rate (%) |
|---|---|
| 0 - 0.99 | 20.00 |
| 1 - 1.99 | 7.50 |
| 2 - 2.99 | 5.00 |
| 3 - 3.99 | 3.50 |
| 4 – 4.99 | 3.50 |
| 5+ | 2.75 |

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT VI (Continued)**
**Actuarial Assumptions and Actuarial Cost Method (Continued)**

**Valuation of Inactive Vested Participants:** The liability for an inactive member is equal to his or her existing account balance, or, if the participant has at least 10 years of service, twice the existing account balance.

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

**Spouses:** 75% of participants were assumed to be married and females are assumed to be 2 years younger than males.

**Disability Benefit Valuation:** Disability benefits are valued in normal cost by annualizing the actual monthly disability payment amounts for the month prior to the valuation date.

**Investment Return:** 7.25% per year, net of investment expenses

**Inflation:** 2.50% per year

**Payroll Growth:** 2.50% per year

**Administrative Expenses:** Equal to actual expenses for the prior year, increased by 3.5%.

**Actuarial Value of Assets:** The actuarial value of assets was determined by smoothing unexpected gains and losses over a period of 5 years. The gain or loss for a year is calculated as the total investment income on the fair value of assets, minus expected investment return on the prior actuarial value of assets. The final actuarial value is equal to the expected actuarial value plus (or minus) 20% of the calculated gain (or loss) in the prior 5 years.

**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.

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT VII**

**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 person employed by the Chicago Park District in a position requiring service for 6 months or more in a calendar year is required to become a member of the Fund as a condition of employment.

**Employee Contributions:** All members of the Fund are required to contribute 9% of salary to the Fund as follows: 7% for the retirement pension, 1% for the spouse's pension, and 1% for the automatic increases in the retirement pension. In addition, employees are required to contribute $3.60 per month toward the cost of the single sum death benefit.

**Tiers:** Tier 1: First hired before January 1, 2011.
Tier 2: First hired on or after January 1, 2011.

**Retirement Pension:** a. Eligibility – An employee may retire at age 50 with at least 10 years of service or at age 60 with 4 years of service. If retirement occurs before age 60, the retirement pension is reduced ¼ of 1% of each month that the age of the member is below 60. However, there is no reduction if the employee has at least 30 years of service.

b. Amount – The retirement pension is based on the average of the 4 highest consecutive years of salary within the last 10 years. For an employee who withdraws from service on or after December 31, 2003, the amount of the retirement pension is 2.4% of highest average salary for each year of service.

The maximum pension payable is 80% of the highest annual salary.

An employee who was a participant before July 1, 1971 is entitled to the pension provided under the money purchase formula if it provides a greater pension than that provided under the above fixed benefit formula.

An employee who first becomes a participant on or after January 1, 2011 is subject to the following provisions:

1. The highest salary for annuity purposes is equal to the average monthly salary obtained by dividing the participant's total salary during the 96 consecutive months of service within the last 120 months of service in which the total compensation was the highest by the number of months in that period.

2. For 2019, the annual salary is limited to $113,644.91. Limitations for future years shall automatically be increased by the lesser of 3% or one-half the percentage change in the Consumer Price Index-U during the preceding calendar year.

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT VII (Continued)**

**Summary of Plan Provisions (Continued)**

**Retirement Pension: (Continued)**

3. A participant is eligible to retire with unreduced benefits after attainment of age 67 with at least 10 years of service credit. However, a participant may elect to retire at age 62 with at least 10 years of service credit and receive a retirement annuity reduced by ½ of 1% for each month that the age of the member is below 67.

**Post-Retirement Increase:**

An employee retiring at age 60 or over, or an employee with 30 or more years of service, is entitled to automatic annual increases of 3% of the originally granted pension following one year's receipt of pension payments. In the case of an employee with less than 30 years of service who retires before age 60, the increases begin following the later of attainment of age 60 and receipt of one year's pension payments.

Automatic annual increases (AAI) in the retirement annuity for employees who first became a participant on or after January 1, 2011 are equal to the lesser of 3% or one-half the annual change in the Consumer Price Index-U, whichever is less, based on the originally granted retirement annuity.

**Surviving Spouse's Pension:**

A surviving spouse is entitled to a pension upon the death of an employee while in service or on retirement. If the surviving spouse is age 60 or over and the employee or retiree had at least 20 years of service, the minimum surviving spouse's pension is 50% of the deceased employee's or retired employee's pension at the date of death. If the age of the surviving spouse is less than 60, the pension is reduced ½ of 1% for each month the surviving spouse is under age 60. If the employee had less than 20 years of service, the surviving spouse is entitled to a pension under the money purchase formula, taking into account employee and employer contributions toward the surviving spouse's pension.

Surviving spouse's pensions are subject to annual increases of 3% per year based on the current amount of pension.

For employees who first become a participant on or after January 1, 2011, the initial survivor's annuity is equal to 66 2/3% of the participant's earned retirement annuity at the date of death, subject to automatic annual increases of the lesser of 3% or one-half of the increase in the Consumer Price Index-U during the preceding calendar year, based on the originally granted survivor's annuity.

**Children's Pension:**

Unmarried children of a deceased employee under the age of 18 are entitled to a children's pension. If either parent is living, the pension is $100.00 per month. If no parent survives, the pension for each child is $150.00 per month. The total amount payable to a spouse or children may not exceed 60% of the employee's final salary.

## SECTION 4: Reporting Information for the Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT VII (Continued)**

**Summary of Plan Provisions (Continued)**

**Single Sum Death Benefit:** A death benefit is payable upon the death of an employee in service in addition to any other benefits payable to the surviving spouse or minor children. The death benefit payable is as follows:

$3,000 benefit during the first year of service,
$4,000 benefit during the second year of service,
$5,000 benefit during the third year of service,
$6,000 benefit during the fourth through ninth year of service, and
$10,000 benefit if death occurs after ten or more years of service.

Upon the death of a retired member with ten or more years of service, the $10,000 maximum benefit is reduced to $6,000 if death occurs during the first year of retirement. Thereafter, it is reduced by $1,500 for each year or fraction of a year while on retirement, but shall not be less than $3,000.

**Ordinary Disability Benefit:** An ordinary disability benefit is payable after eight consecutive days of absence for illness without pay. The amount of the benefit is 45% of salary. The benefit is payable for a period not to exceed ¼ of the length of service or five years, whichever is less.

**Occupational Disability Benefit:** Upon disability resulting from an injury incurred while on duty, an employee is entitled to a disability benefit of 75% of salary from the first day of absence without pay. The benefit is payable during the period of disability until the employee attains age 65 if disability is incurred before age 60, or for a period of five years if disability is incurred after age 60.

**Occupational Death Benefit:** Upon the death of an employee resulting from an accident incurred in the performance of duty, the surviving spouse is entitled to an occupational death benefit of 50% of salary. Each unmarried child under the age of 18 is entitled to a benefit of $100 per month. The combined payments to a family may not exceed 75% of the employee's final salary. The total payments are reduced by Workmen's Compensation benefits.

**Refunds:** An employee who terminates employment before qualifying for a pension is entitled to a refund of employee contributions. The refund is payable to any employee who withdraws before age 55, regardless of the length of service. It is also payable to an employee who withdraws between age 55 and 60 with less than 10 years of service, and to an employee who withdraws after age 60 with less than 5 years of service. An employee who is unmarried at date of retirement is entitled to a refund of the full amount contributed for the spouse's pension, without interest.

**Plan Year:** January 1 through December 31. Prior to December 31, 2012, the plan year was July 1 through June 30.

**Employer Contributions:** The tax multiple is 1.1 for 2019 and thereafter.

## SECTION 5: GASB Information for Park Employees' Annuity and Benefit Fund of Chicago

**EXHIBIT 1**

**Net Pension Liability**

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

| | |
|---|---|
| Total pension liability | $1,646,968,021 |
| Plan fiduciary net position | 342,255,873 |
| Net pension liability | 1,304,712,148 |
| Plan fiduciary net position as a percentage of the total pension liability | 20.78% |

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

| | |
|---|---|
| Inflation | 2.50% |
| Salary increases | Service-based ranging from 20% to 2.75% |
| Single equivalent discount rate | 4.21%, net of pension plan investment expense, including inflation |
| Cost of living adjustments | 3% of original benefit for employees who first became a participant before January 1, 2011; the lesser of 3% and ½ of CPI of original benefit for employees and beneficiaries of employees who first became a participant on or after January 1, 2011; 3% compounded for beneficiaries of employees who first became a participant by January 1, 2011. |

For healthy annuitants, mortality rates were based on the 110% of PubG-2010 Healthy Annuitant Table, with mortality improvements projected generationally using scale MP-2017. For active participants, mortality rates were based on 110% of PubG-2010 Healthy Employee Table, with mortality improvements projected generationally using scale MP-2017.

The actuarial assumptions used in the December 31, 2018, valuation were based on the results of an experience study for the five-year period ending December 31, 2018.

*Discount rate:* The discount rate used to measure the total pension liability was 4.21%. The projection of cash flows used to determine the discount rate assumed member contributions will be made at the 9% contribution rate for 2019 and thereafter. Employer contributions will be made at the 1.1 multiple of member contributions from two years prior for 2019 and thereafter. 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 costs 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. The projected benefit payments through 2024 were discounted at the expected long-term rate of return (7.25%). Starting in 2025, the projected benefit payments were discounted at the municipal bond index (4.10%). Therefore, a single equivalent, blended discount rate of 4.21% 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 of the Fund, calculated using the discount rate of 4.21%, as well as what the Fund's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (3.21%) or 1-percentage-point higher (5.21%) than the current rate:

| | **1% Decrease (3.21%)** | **Current Discount Rate (4.21%)** | **1% Increase (5.21%)** |
|---|---|---|---|
| Net pension liability as of December 31, 2018 | $1,551,957,537 | $1,304,712,148 | $1,104,251,891 |

## SECTION 5: GASB Information for Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT 2**

**Schedule of Changes in Net Pension Liability**

| | 2018 | 2017 |
|---|---|---|
| **Total pension liability** | | |
| Service cost | $38,102,341 | $20,115,813 |
| Interest | 59,290,982 | 68,982,467 |
| Change of benefit term | 0 | 36,183,940 |
| Differences between expected and actual experience | 5,001,084 | 2,785,815 |
| Changes of assumptions | -3,471,090 | 370,422,560 |
| Benefit payments, including refunds of employee contributions | -76,526,820 | -78,138,027 |
| **Net change in total pension liability** | 22,396,497 | 420,352,568 |
| **Total pension liability – beginning** | 1,624,571,524 | 1,204,218,956 |
| **Total pension liability – ending (a)** | 1,646,968,021 | 1,624,571,524 |
| **Plan fiduciary net position** | | |
| Contributions – employer | 27,638,402 | 20,920,614 |
| Contributions – employee | 12,125,457 | 13,675,292 |
| Net investment income | -17,196,812 | 51,082,314 |
| Benefit payments, including refunds of employee contributions | -76,526,820 | -78,138,027 |
| Administrative expense | -1,501,039 | -1,682,136 |
| Other | 67,927 | 91,779 |
| **Net change in plan fiduciary net position** | -55,392,885 | 5,949,836 |
| **Plan fiduciary net position – beginning** | 397,648,758 | 391,698,922 |
| **Plan fiduciary net position – ending (b)** | 342,255,873 | 397,648,758 |
| **Fund's net pension liability – ending (a) – (b)** | 1,304,712,148 | 1,226,922,766 |
| **Plan fiduciary net position as a percentage of the total pension liability** | 20.78% | 24.48% |
| **Covered employee payroll** | $133,112,100 | $135,315,008 |
| **Fund's net pension liability as percentage of covered employee payroll** | 980.16% | 906.72% |

## SECTION 5: GASB Information for Park Employees' Annuity and Benefit Fund of Chicago (Continued)

**EXHIBIT 3**

**Schedule of Employer Contribution – Last Ten Fiscal Years**

| Fiscal Year Ended | Actuarially Determined Contributions | Contributions in Relation to the Actuarially Determined Contributions | Contribution Deficiency (Excess) | Covered-Employee Payroll | Contributions as a Percentage of Covered Employee Payroll |
|---|---|---|---|---|---|
| June 30, 2010 | $22,399,740 | $10,829,339 | $11,570,401 | $107,361,021 | 10.09% |
| June 30, 2011 | 25,319,145 | 10,981,419 | 14,337,726 | 107,686,693 | 10.20% |
| June 30, 2012 | 28,051,528 | 10,868,361 | 17,183,167 | 114,223,909 | 9.51% |
| December 31, 2012 | 16,786,671 | 5,268,363 | 11,518,308 | 58,231,511 | 9.05% |
| December 31, 2013 | 41,834,857 | 15,707,814 | 26,127,043 | 117,781,596 | 13.34% |
| December 31, 2014 | 35,307,186 | 11,225,438 | 24,081,748 | 118,987,507 | 9.43% |
| December 31, 2015 | 36,273,994 | 30,588,976 | 5,685,018 | 122,382,584 | 24.99% |
| December 31, 2016 | 37,130,268 | 30,890,241 | 6,240,027 | 121,126,918 | 25.50% |
| December 31, 2017 | 45,253,238 | 20,920,614 | 24,332,624 | 135,315,008 | 15.46% |
| December 31, 2018 | 50,929,734 | 27,638,402 | 23,291,332 | 133,112,100 | 20.76% |

**Notes to EXHIBIT 3**

| | |
|---|---|
| **Valuation date** | Actuarially determined contribution amount is determined as of December 31, with appropriate interest to the middle of the year. |
| **Methods and assumptions used to establish "actuarially determined contribution" for the fiscal year ended December 31, 2018:** | |
| Actuarial cost method | Entry Age Actuarial cost method |
| Amortization method | 25-year closed, level percentage of payroll amortization |
| Asset valuation method | 5-year smoothed market |
| **Actuarial assumptions**: | |
| Investment rate of return | 7.50%, net of investment expense |
| Projected salary increases | Service-based ranging from 15% to 2.75% |
| Mortality | Post-retirement mortality rates were based on the RP-2000 Combined Healthy Mortality Tables set forward 1 year for females with generational projection from 2003 using scale AA for mortality improvements. Pre-retirement mortality rates are the same as post-retirement rates. |
| Cost of living adjustments | 3% of original benefit for employees who first became a participant before January 1, 2011; the lesser of 3% and ½ of CPI of original benefit for employees and beneficiaries of employees who first became a participant on or after January 1, 2011; 3% compounded for beneficiaries who first became a participant by January 1, 2011. |
| **Other assumptions:** | Same as those used in the December 31, 2017, actuarial funding valuations. |

## Statistical Section Overview

The information in this section is not covered by the Independent Auditor's Report but is presented as supplemental data for the benefit of the readers of the Comprehensive Annual Financial Report. The objectives of the statistical section information are to provide financial statement users with additional historical perspective, context, and detail to assist in using the financial statements, notes to financial statements, and required supplementary information, to better understand and assess the Fund's overall financial health.

## Contents

## MEMBERSHIP STATISTICS

| | December 31, 2018 | December 31, 2017 |
|---|---|---|
| Active participants | 3,187 | 3,543 |
| Retired employees' - annuities | 2,136 | 2,115 |
| Surviving spouses' - annuities | 706 | 745 |
| Children - annuities | 12 | 16 |
| Retirements granted during the year | 102 | 98 |
| Retirement deductions due to deaths and pension terminations | 150 | 143 |
| New members | 421 | 796 |
| Withdrawals with refund | 182 | 168 |

The above schedule provides details about the changes in the number of active participants, as well as the changes in the number and type of annuitants for the year.

**Active Members and Total Annual Salaries by Age** **Table I**
**for the year ended December 31, 2018**

| | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| Age at 12/31/18 | Number | Annual Salaries | Number | Annual Salaries | Number | Annual Salaries |
| 18 | 1 | $ 2,060 | 4 | $ 12,323 | 5 | $ 14,383 |
| 19 | 17 | 173,566 | 17 | 162,161 | 34 | 335,727 |
| 20 | 36 | 471,876 | 37 | 408,225 | 73 | 880,101 |
| 21 | 32 | 465,818 | 24 | 292,052 | 56 | 757,870 |
| 22 | 36 | 533,981 | 42 | 572,698 | 78 | 1,106,679 |
| 23 | 57 | 1,030,822 | 48 | 742,606 | 105 | 1,773,428 |
| 24 | 43 | 827,930 | 45 | 782,230 | 88 | 1,610,160 |
| 25 | 53 | 1,184,548 | 42 | 814,013 | 95 | 1,998,561 |
| 26 | 48 | 1,061,819 | 42 | 958,385 | 90 | 2,020,204 |
| 27 | 47 | 1,304,956 | 35 | 896,992 | 82 | 2,201,948 |
| 28 | 49 | 1,345,390 | 46 | 1,302,640 | 95 | 2,648,030 |
| 29 | 37 | 1,161,761 | 35 | 1,267,536 | 72 | 2,429,297 |
| 30 | 36 | 1,078,877 | 38 | 1,096,530 | 74 | 2,175,407 |
| 31 | 33 | 1,277,273 | 27 | 870,086 | 60 | 2,147,359 |
| 32 | 37 | 1,522,464 | 25 | 784,695 | 62 | 2,307,159 |
| 33 | 47 | 1,726,414 | 37 | 1,260,826 | 84 | 2,987,240 |
| 34 | 45 | 1,761,645 | 18 | 666,453 | 63 | 2,428,098 |
| 35 | 32 | 1,340,072 | 33 | 1,392,588 | 65 | 2,732,660 |
| 36 | 47 | 1,817,384 | 19 | 755,367 | 66 | 2,572,751 |
| 37 | 35 | 1,686,326 | 23 | 830,132 | 58 | 2,516,458 |
| 38 | 37 | 1,533,532 | 22 | 1,013,557 | 59 | 2,547,089 |
| 39 | 37 | 1,822,616 | 21 | 813,756 | 58 | 2,636,372 |
| 40 | 40 | 2,197,107 | 20 | 827,088 | 60 | 3,024,195 |
| 41 | 26 | 1,211,630 | 27 | 1,052,700 | 53 | 2,264,330 |
| 42 | 34 | 1,693,586 | 17 | 784,845 | 51 | 2,478,431 |
| 43 | 35 | 1,560,533 | 20 | 967,911 | 55 | 2,528,444 |
| 44 | 32 | 1,546,674 | 28 | 1,327,511 | 60 | 2,874,185 |
| 45 | 29 | 1,658,095 | 27 | 1,511,962 | 56 | 3,170,057 |
| 46 | 38 | 1,922,273 | 21 | 801,581 | 59 | 2,723,854 |
| 47 | 32 | 1,973,360 | 26 | 1,263,018 | 58 | 3,236,378 |
| 48 | 34 | 1,707,226 | 35 | 1,548,387 | 69 | 3,255,613 |
| 49 | 58 | 2,560,697 | 23 | 1,103,132 | 81 | 3,663,829 |
| 50 | 45 | 2,091,537 | 27 | 1,173,434 | 72 | 3,264,971 |
| 51 | 55 | 2,468,573 | 24 | 1,111,484 | 79 | 3,580,057 |
| 52 | 41 | 2,004,711 | 30 | 1,477,148 | 71 | 3,481,859 |

## Active Members and Total Annual Salaries by Age for the year ended December 31, 2018

**Table I**
(continued)

| | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| **Age at 12/31/18** | **Number** | **Annual Salaries** | **Number** | **Annual Salaries** | **Number** | **Annual Salaries** |
| 53 | 32 | $ 1,793,387 | 24 | $ 966,293 | 56 | $ 2,759,680 |
| 54 | 46 | 2,251,451 | 40 | 2,019,188 | 86 | 4,270,639 |
| 55 | 37 | 1,889,580 | 28 | 1,196,133 | 65 | 3,085,713 |
| 56 | 40 | 1,911,275 | 18 | 1,005,703 | 58 | 2,916,978 |
| 57 | 34 | 1,803,805 | 26 | 1,030,394 | 60 | 2,834,199 |
| 58 | 37 | 2,153,692 | 31 | 1,563,480 | 68 | 3,717,172 |
| 59 | 40 | 1,940,697 | 23 | 999,611 | 63 | 2,940,308 |
| 60 | 41 | 1,987,029 | 20 | 1,089,043 | 61 | 3,076,072 |
| 61 | 37 | 1,660,795 | 18 | 721,378 | 55 | 2,382,173 |
| 62 | 25 | 1,278,076 | 13 | 537,650 | 38 | 1,815,726 |
| 63 | 25 | 1,480,228 | 13 | 635,490 | 38 | 2,115,718 |
| 64 | 30 | 1,192,703 | 9 | 490,347 | 39 | 1,683,050 |
| 65 | 15 | 803,365 | 15 | 620,584 | 30 | 1,423,949 |
| 66 | 13 | 875,663 | 12 | 547,379 | 25 | 1,423,042 |
| 67 | 17 | 833,061 | 6 | 270,922 | 23 | 1,103,983 |
| 68 | 14 | 909,600 | 3 | 152,833 | 17 | 1,062,433 |
| 69 | 14 | 665,004 | 4 | 161,191 | 18 | 826,195 |
| 70 | 5 | 251,396 | 2 | 97,853 | 7 | 349,249 |
| 71 | 9 | 323,386 | - | - | 9 | 323,386 |
| 72 | 2 | 52,386 | 1 | 9,771 | 3 | 62,157 |
| 73 | 4 | 104,204 | - | - | 4 | 104,204 |
| 74 | 4 | 135,639 | 1 | 41,813 | 5 | 177,452 |
| 75 | 2 | 116,145 | - | - | 2 | 116,145 |
| 76 | 2 | 205,199 | 1 | 97,827 | 3 | 303,026 |
| 77 | - | - | 1 | 43,145 | 1 | 43,145 |
| 78 | 1 | 42,442 | 1 | 42,818 | 2 | 85,260 |
| 79 | 1 | 106,204 | - | - | 1 | 106,204 |
| 81 | 2 | 75,159 | - | - | 2 | 75,159 |
| 82 | 1 | 91,435 | - | - | 1 | 91,435 |
| 85 | - | - | 1 | 9,772 | 1 | 9,772 |
| | 1,871 | $76,660,138 | 1,316 | $46,996,670 | 3,187 | $123,656,808 |

| | Male | Female | Both |
|---|---|---|---|
| Average Age: | 42.6 | 39.9 | 41.5 |
| Average Salary: | $40,973 | $35,712 | $38,800 |

Note: The average salary reported by The Segal Company is annualized in order to take a conservative approach in reporting. The variances are immaterial in nature.

**Active Members and Total Annual Salaries by Length of Service** **Table II**
**for the year ended December 31, 2018**

| | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| Years of Service | Number | Annual Salaries | Number | Annual Salaries | Number | Annual Salaries |
| < 1 | 246 | $1,857,719 | 198 | $1,410,825 | 444 | $3,268,544 |
| 1 | 209 | 5,168,540 | 125 | 2,804,270 | 334 | 7,972,810 |
| 2 | 156 | 4,664,769 | 128 | 3,339,752 | 284 | 8,004,521 |
| 3 | 131 | 5,987,710 | 98 | 2,844,566 | 229 | 8,832,276 |
| 4 | 82 | 3,434,750 | 61 | 2,151,864 | 143 | 5,586,614 |
| 5 | 92 | 4,000,363 | 53 | 1,975,291 | 145 | 5,975,654 |
| 6 | 63 | 2,584,130 | 44 | 1,820,207 | 107 | 4,404,337 |
| 7 | 74 | 3,780,608 | 59 | 2,412,386 | 133 | 6,192,994 |
| 8 | 35 | 1,666,633 | 19 | 706,022 | 54 | 2,372,655 |
| 9 | 26 | 974,534 | 17 | 676,103 | 43 | 1,650,637 |
| 10 | 41 | 1,966,271 | 17 | 646,406 | 58 | 2,612,677 |
| 11 | 59 | 2,349,976 | 43 | 1,675,469 | 102 | 4,025,445 |
| 12 | 44 | 2,218,535 | 44 | 1,854,659 | 88 | 4,073,194 |
| 13 | 74 | 3,620,740 | 43 | 1,890,998 | 117 | 5,511,738 |
| 14 | 42 | 2,897,778 | 19 | 1,124,280 | 61 | 4,022,058 |
| 15 | 30 | 1,199,961 | 14 | 714,766 | 44 | 1,914,727 |
| 16 | 21 | 1,439,943 | 10 | 631,929 | 31 | 2,071,872 |
| 17 | 42 | 2,207,761 | 34 | 1,503,184 | 76 | 3,710,945 |
| 18 | 40 | 2,203,995 | 28 | 1,515,682 | 68 | 3,719,677 |
| 19 | 55 | 3,373,593 | 37 | 2,063,404 | 92 | 5,436,997 |
| 20 | 46 | 2,563,542 | 23 | 1,235,549 | 69 | 3,799,091 |
| 21 | 34 | 1,945,690 | 32 | 1,664,815 | 66 | 3,610,505 |
| 22 | 34 | 1,974,224 | 35 | 1,999,589 | 69 | 3,973,813 |
| 23 | 21 | 1,022,387 | 24 | 1,480,105 | 45 | 2,502,492 |
| 24 | 15 | 981,949 | 16 | 984,572 | 31 | 1,966,521 |
| 25 | 9 | 532,910 | 10 | 635,999 | 19 | 1,168,909 |
| 26 | 14 | 872,271 | 11 | 741,193 | 25 | 1,613,464 |
| 27 | 27 | 1,855,263 | 16 | 945,863 | 43 | 2,801,126 |
| 28 | 16 | 1,129,561 | 9 | 465,899 | 25 | 1,595,460 |
| 29 | 14 | 1,007,944 | 15 | 965,040 | 29 | 1,972,984 |
| 30 | 8 | 620,923 | 5 | 286,035 | 13 | 906,958 |
| 31 | 3 | 214,246 | 6 | 355,775 | 9 | 570,021 |
| 32 | 17 | 1,025,385 | 5 | 340,748 | 22 | 1,366,133 |
| 33 | 13 | 839,287 | 6 | 404,414 | 19 | 1,243,701 |
| 34 | 6 | 382,756 | 1 | 58,911 | 7 | 441,667 |

## Active Members and Total Annual Salaries by Length of Service for the year ended December 31, 2018

**Table II**
(continued)

| | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| Years of Service | Number | Annual Salaries | Number | Annual Salaries | Number | Annual Salaries |
| 35 | 3 | $ 238,948 | 1 | $ 43,262 | 4 | $ 282,210 |
| 36 | 5 | 286,933 | 4 | 254,654 | 9 | 541,587 |
| 37 | 6 | 499,599 | 1 | 75,589 | 7 | 575,188 |
| 38 | 6 | 386,881 | 1 | 75,836 | 7 | 462,717 |
| 39 | 3 | 156,430 | 1 | 46,455 | 4 | 202,885 |
| 40 | 4 | 230,624 | 1 | 59,803 | 5 | 290,427 |
| 41 | 1 | 56,259 | - | - | 1 | 56,259 |
| 44 | 1 | 42,441 | - | - | 1 | 42,441 |
| 45 | 2 | 118,506 | 1 | 71,683 | 3 | 190,189 |
| 46 | 1 | 76,870 | - | - | 1 | 76,870 |
| 49 | - | - | 1 | 42,818 | 1 | 42,818 |
| | 1,871 | $76,660,138 | 1,316 | $46,996,670 | 3,187 | $123,656,808 |

| | Male | Female | Both |
|---|---|---|---|
| Average Service: | 9.8 | 9.5 | 9.7 |
| Average Salary: | $40,973 | $35,712 | $38,800 |

Note: The average salary reported by The Segal Company is annualized in order to take a conservative approach in reporting. The variances are immaterial in nature.

## Retirement Pensions by Age and Annual Payments for the year ended December 31, 2018

**Table III**

| | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| Age at 12/31/18 | Number | Annual Salaries | Number | Annual Salaries | Number | Annual Salaries |
| 50 | 1 | $ 21,112 | - | $ - | 1 | $ 21,112 |
| 51 | 4 | 98,743 | 5 | 139,666 | 9 | 238,409 |
| 52 | 7 | 174,364 | - | - | 7 | 174,364 |
| 53 | 4 | 88,684 | 7 | 227,189 | 11 | 315,873 |
| 54 | 9 | 417,106 | 3 | 73,119 | 12 | 490,225 |
| 55 | 15 | 561,192 | 3 | 104,673 | 18 | 665,865 |
| 56 | 14 | 446,079 | 6 | 122,809 | 20 | 568,888 |
| 57 | 19 | 682,838 | 14 | 390,103 | 33 | 1,072,941 |
| 58 | 21 | 585,859 | 11 | 291,894 | 32 | 877,753 |
| 59 | 37 | 1,355,501 | 15 | 357,355 | 52 | 1,712,856 |
| 60 | 39 | 1,448,483 | 9 | 285,242 | 48 | 1,733,725 |
| 61 | 31 | 1,284,091 | 13 | 316,349 | 44 | 1,600,440 |
| 62 | 46 | 1,376,698 | 17 | 622,734 | 63 | 1,999,432 |
| 63 | 54 | 1,962,625 | 22 | 705,742 | 76 | 2,668,367 |
| 64 | 64 | 2,261,538 | 21 | 670,650 | 85 | 2,932,188 |
| 65 | 66 | 2,104,065 | 25 | 652,136 | 91 | 2,756,201 |
| 66 | 55 | 1,660,098 | 32 | 708,141 | 87 | 2,368,239 |
| 67 | 73 | 2,594,321 | 31 | 837,356 | 104 | 3,431,677 |
| 68 | 77 | 2,203,616 | 31 | 881,391 | 108 | 3,085,007 |
| 69 | 60 | 2,244,471 | 20 | 535,926 | 80 | 2,780,397 |
| 70 | 58 | 1,708,814 | 19 | 498,001 | 77 | 2,206,815 |
| 71 | 74 | 2,235,962 | 20 | 501,191 | 94 | 2,737,153 |
| 72 | 50 | 1,346,798 | 18 | 349,654 | 68 | 1,696,452 |
| 73 | 56 | 1,417,060 | 14 | 325,654 | 70 | 1,742,714 |
| 74 | 36 | 1,186,209 | 23 | 476,244 | 59 | 1,662,453 |
| 75 | 58 | 1,860,781 | 17 | 377,396 | 75 | 2,238,177 |
| 76 | 54 | 1,542,095 | 23 | 336,314 | 77 | 1,878,409 |
| 77 | 37 | 1,150,495 | 15 | 385,548 | 52 | 1,536,043 |
| 78 | 39 | 1,398,453 | 16 | 224,508 | 55 | 1,622,961 |
| 79 | 30 | 969,412 | 15 | 282,623 | 45 | 1,252,035 |
| 80 | 54 | 1,514,357 | 10 | 193,073 | 64 | 1,707,430 |
| 81 | 38 | 1,133,685 | 8 | 64,006 | 46 | 1,197,691 |
| 82 | 31 | 784,181 | 13 | 340,421 | 44 | 1,124,602 |
| 83 | 34 | 1,003,298 | 7 | 166,976 | 41 | 1,170,274 |
| 84 | 32 | 1,181,814 | 14 | 161,624 | 46 | 1,343,438 |
| 85 | 27 | 910,421 | 6 | 164,513 | 33 | 1,074,934 |

## Retirement Pensions by Age and Annual Payments for the year ended December 31, 2018

**Table III**
(continued)

| | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| Age at 12/31/18 | Number | Annual Salaries | Number | Annual Salaries | Number | Annual Salaries |
| 86 | 27 | $ 688,868 | 15 | $ 177,613 | 42 | $ 866,481 |
| 87 | 27 | 553,649 | 4 | 80,088 | 31 | 633,737 |
| 88 | 13 | 473,145 | 6 | 135,042 | 19 | 608,187 |
| 89 | 18 | 666,578 | 5 | 98,132 | 23 | 764,710 |
| 90 | 17 | 510,203 | 4 | 50,295 | 21 | 560,498 |
| 91 | 15 | 489,396 | 7 | 102,261 | 22 | 591,657 |
| 92 | 7 | 253,278 | 5 | 104,975 | 12 | 358,253 |
| 93 | 5 | 133,263 | 2 | 32,222 | 7 | 165,485 |
| 94 | 4 | 212,281 | 4 | 101,895 | 8 | 314,176 |
| 95 | 4 | 116,833 | 3 | 43,271 | 7 | 160,104 |
| 96 | 4 | 78,069 | 2 | 18,861 | 6 | 96,930 |
| 97 | 6 | 256,863 | 2 | 8,105 | 8 | 264,968 |
| 99 | 2 | 20,782 | - | - | 2 | 20,782 |
| 100 | 1 | 72,947 | - | - | 1 | 72,947 |
| | 1,554 | $49,441,474 | 582 | $13,722,981 | 2,136 | $63,164,455 |

| | Male | Female | Both |
|---|---|---|---|
| Average Age: | 71.9 | 71.3 | 71.7 |
| Average Annual Payments: | $ 31,816 | $ 23,579 | $ 29,571 |

## Retirement Pensions by Age at Time of Retirement for the year ended December 31, 2018

**Table IV**

| | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| Age at 12/31/18 | Number | Annual Salaries | Number | Annual Salaries | Number | Annual Salaries |
| 50 | 153 | $4,620,474 | 44 | $1,211,758 | 197 | $5,832,232 |
| 51 | 104 | 4,217,925 | 24 | 992,046 | 128 | 5,209,971 |
| 52 | 85 | 3,184,757 | 26 | 726,520 | 111 | 3,911,277 |
| 53 | 76 | 2,947,017 | 24 | 774,419 | 100 | 3,721,436 |
| 54 | 84 | 3,375,869 | 31 | 1,138,511 | 115 | 4,514,380 |
| 55 | 106 | 3,229,550 | 50 | 1,141,334 | 156 | 4,370,884 |
| 56 | 99 | 2,850,229 | 33 | 678,141 | 132 | 3,528,370 |
| 57 | 79 | 2,601,223 | 25 | 708,499 | 104 | 3,309,722 |
| 58 | 75 | 2,241,245 | 27 | 591,577 | 102 | 2,832,822 |
| 59 | 61 | 2,092,668 | 29 | 639,714 | 90 | 2,732,382 |
| 60 | 104 | 3,096,909 | 50 | 840,355 | 154 | 3,937,264 |
| 61 | 67 | 2,038,693 | 31 | 504,291 | 98 | 2,542,984 |
| 62 | 89 | 2,182,170 | 38 | 794,130 | 127 | 2,976,300 |
| 63 | 56 | 1,503,934 | 21 | 463,049 | 77 | 1,966,983 |
| 64 | 43 | 1,286,924 | 17 | 280,222 | 60 | 1,567,146 |
| 65 | 68 | 2,015,359 | 28 | 518,619 | 96 | 2,533,978 |
| 66 | 48 | 1,323,300 | 20 | 491,110 | 68 | 1,814,410 |
| 67 | 45 | 1,384,462 | 19 | 356,580 | 64 | 1,741,042 |
| 68 | 22 | 675,319 | 17 | 284,800 | 39 | 960,119 |
| 69 | 19 | 737,594 | 6 | 81,179 | 25 | 818,773 |
| 70 | 20 | 382,398 | 6 | 110,397 | 26 | 492,795 |
| 71 | 12 | 423,656 | 3 | 85,328 | 15 | 508,984 |
| 72 | 7 | 185,977 | 3 | 87,717 | 10 | 273,694 |
| 73 | 2 | 30,761 | 1 | 7,774 | 3 | 38,535 |
| 74 | 7 | 153,022 | 2 | 23,961 | 9 | 176,983 |
| 75 | 8 | 263,102 | 1 | 26,972 | 9 | 290,074 |
| 76 | 4 | 115,551 | 1 | 4,466 | 5 | 120,017 |
| 77 | 1 | 5,383 | 4 | 147,157 | 5 | 152,540 |
| 78 | 2 | 85,493 | - | - | 2 | 85,493 |
| 79 | 3 | 39,461 | 1 | 12,355 | 4 | 51,816 |
| 80 | 2 | 105,794 | - | - | 2 | 105,794 |
| 81 | 1 | 34,357 | - | - | 1 | 34,357 |

**Retirement Pensions by Age at Time of Retirement**
**for the year ended December 31, 2018**

**Table IV**
(continued)

| | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| **Age at 12/31/18** | **Number** | **Annual Salaries** | **Number** | **Annual Salaries** | **Number** | **Annual Salaries** |
| 82 | 1 | $ 4,261 | - | $ - | 1 | $ 4,261 |
| 85 | 1 | 6,637 | - | - | 1 | 6,637 |
| | 1,554 | $49,441,474 | 582 | $13,722,981 | 2,136 | $63,164,455 |

| | Male | Female | Both |
|---|---|---|---|
| Average Age: | 58.2 | 58.9 | 58.4 |
| Average Annual Payments: | $ 31,816 | $ 23,579 | $ 29,571 |

**Surviving Spouses' Pension by Age and Annual Payments**
**for the year ended December 31, 2018**

**Table V**

| Age at 12/31/18 | Number | Annual Payments | Age at 12/31/18 | Number | Annual Payments |
|---|---|---|---|---|---|
| 40 | 1 | $ 3,730 | 76 | 23 | $ 433,994 |
| 45 | 1 | 19,955 | 77 | 17 | 261,719 |
| 47 | 2 | 6,168 | 78 | 22 | 402,579 |
| 49 | 1 | 34,557 | 79 | 23 | 364,275 |
| 50 | 2 | 11,119 | 80 | 34 | 519,022 |
| 51 | 2 | 40,704 | 81 | 20 | 349,822 |
| 52 | 2 | 44,263 | 82 | 23 | 384,603 |
| 54 | 3 | 33,435 | 83 | 21 | 323,084 |
| 55 | 5 | 42,054 | 84 | 26 | 440,114 |
| 56 | 3 | 21,048 | 85 | 23 | 329,309 |
| 57 | 4 | 64,373 | 86 | 29 | 509,825 |
| 58 | 4 | 82,716 | 87 | 23 | 399,628 |
| 59 | 10 | 154,079 | 88 | 22 | 444,470 |
| 60 | 5 | 142,266 | 89 | 23 | 411,946 |
| 61 | 5 | 91,225 | 90 | 19 | 302,008 |
| 62 | 7 | 157,271 | 91 | 28 | 379,061 |
| 63 | 10 | 316,329 | 92 | 11 | 151,841 |
| 64 | 12 | 175,639 | 93 | 16 | 207,728 |
| 65 | 12 | 287,667 | 94 | 10 | 133,807 |
| 66 | 10 | 194,965 | 95 | 13 | 142,646 |
| 67 | 17 | 285,593 | 96 | 5 | 88,780 |
| 68 | 19 | 377,577 | 97 | 7 | 76,058 |
| 69 | 10 | 167,454 | 98 | 5 | 57,942 |
| 70 | 15 | 301,121 | 101 | 2 | 28,070 |
| 71 | 21 | 397,199 | 102 | 1 | 12,401 |
| 72 | 24 | 423,166 | | 706 | $12,073,263 |
| 73 | 10 | 193,494 | | | |
| 74 | 18 | 352,269 | | | |
| 75 | 25 | 497,095 | | | |

Average Age: 78.5
Average Annual Payments: $ 17,101

**Surviving Spouses' Pension by Age at Commencement** **Table VI**
**for the year ended December 31, 2018**

| Age at Commencement | Number | Annual Payments | Age at Commencement | Number | Annual Payments |
|---|---|---|---|---|---|
| 27 | 1 | $ 4,194 | 61 | 16 | $ 208,973 |
| 28 | 2 | 12,382 | 62 | 15 | 256,486 |
| 29 | 2 | 5,825 | 63 | 15 | 305,069 |
| 30 | 1 | 15,639 | 64 | 27 | 418,408 |
| 31 | 2 | 12,083 | 65 | 18 | 342,351 |
| 32 | 1 | 792 | 66 | 17 | 297,569 |
| 33 | 2 | 24,859 | 67 | 27 | 467,709 |
| 34 | 1 | 8,064 | 68 | 22 | 436,251 |
| 35 | 2 | 5,023 | 69 | 27 | 515,424 |
| 36 | 5 | 43,863 | 70 | 25 | 420,793 |
| 37 | 3 | 26,290 | 71 | 19 | 377,160 |
| 38 | 3 | 21,136 | 72 | 20 | 274,165 |
| 39 | 6 | 102,434 | 73 | 13 | 204,280 |
| 40 | 2 | 44,872 | 74 | 21 | 314,202 |
| 41 | 5 | 80,800 | 75 | 16 | 238,243 |
| 42 | 7 | 126,125 | 76 | 25 | 407,114 |
| 43 | 5 | 75,117 | 77 | 15 | 330,068 |
| 44 | 9 | 102,069 | 78 | 20 | 305,394 |
| 45 | 9 | 134,853 | 79 | 17 | 212,700 |
| 46 | 5 | 82,184 | 80 | 13 | 159,674 |
| 47 | 4 | 81,333 | 81 | 9 | 163,849 |
| 48 | 9 | 181,249 | 82 | 6 | 109,116 |
| 49 | 11 | 236,674 | 83 | 6 | 70,101 |
| 50 | 16 | 266,633 | 84 | 12 | 213,842 |
| 51 | 10 | 189,515 | 85 | 8 | 103,518 |
| 52 | 5 | 95,424 | 86 | 4 | 45,278 |
| 53 | 15 | 282,050 | 87 | 6 | 104,261 |
| 54 | 14 | 343,547 | 88 | 5 | 81,303 |
| 55 | 18 | 401,826 | 89 | 1 | 1,354 |
| 56 | 12 | 244,830 | 90 | 4 | 50,861 |
| 57 | 16 | 314,427 | 91 | 1 | 1,200 |
| 58 | 17 | 377,631 | 92 | 4 | 49,120 |
| 59 | 19 | 374,312 | | 706 | $12,073,263 |
| 60 | 13 | 269,372 | | | |

Average Age: 64.5
Average Annual Payments: $ 17,101

## Annuities and Refunds by Type **Table VII**

Last Ten Years

| Year Ended | Retirement | Surviving Spouse | Children | Refunds Employees' | Refunds Pensioners' |
|---|---|---|---|---|---|
| June 30, 2010 | $50,528,497 | $10,083,124 | $ 17,400 | $ 1,368,903 | $ - |
| June 30, 2011 | 50,950,848 | 10,374,674 | 18,519 | 1,524,460 | 137,898 |
| June 30, 2012 | 52,051,852 | 10,801,985 | 14,719 | 1,786,275 | 201,878 |
| December 31, 2012 | 26,428,994 | 5,529,729 | 10,859 | 789,406 | 188,506 |
| December 31, 2013 | 54,256,588 | 11,319,614 | 21,619 | 2,033,334 | 82,829 |
| December 31, 2014 | 55,519,537 | 11,665,763 | 20,800 | 2,427,646 | 301,745 |
| December 31, 2015 | 56,094,931 | 11,823,316 | 17,100 | 1,493,229 | 554,946 |
| December 31, 2016 | 58,967,909 | 12,043,511 | 18,000 | 2,228,079 | 281,414 |
| December 31, 2017 | 59,488,303 | 12,252,673 | 15,900 | 1,834,626 | 191,179 |
| December 31, 2018 | 61,178,336 | 12,108,228 | 16,900 | 2,589,760 | 136,207 |

## Death and Disability Benefits **Table VIII**

Last Ten Years

| Year Ended | Death Benefit | Ordinary Disability | Duty Disability | Total |
|---|---|---|---|---|
| June 30, 2010 | $ 249,500 | $ 290,747 | $ 22,071 | $ 562,318 |
| June 30, 2011 | 307,000 | 339,197 | 52,294 | 698,491 |
| June 30, 2012 | 371,225 | 366,541 | (91,817) (a) | 645,949 |
| December 31, 2012 | 136,775 | 187,808 | 8,935 | 333,518 |
| December 31, 2013 | 266,000 | 302,316 | 53,667 | 621,983 |
| December 31, 2014 | 279,500 | 281,640 | 39,411 | 600,551 |
| December 31, 2015 | 317,000 | 207,846 | 93,648 | 618,494 |
| December 31, 2016 | 255,000 | 184,173 | 99,790 | 538,963 |
| December 31, 2017 | 305,000 | 217,423 | (26,959) (a) | 495,464 |
| December 31, 2018 | 229,000 | 219,793 | 48,596 | 497,389 |

(a) Reflects net of recoveries of prior duty disability payments in accordance with state statute.

## Number of Active Participants — Table IX
Last Ten Years

| Year Ended | Male Participants | Female Participants | Total |
|---|---|---|---|
| June 30, 2010 | 1,714 | 1,102 | 2,816 |
| June 30, 2011 | 1,674 | 1,121 | 2,795 |
| June 30, 2012 | 1,804 | 1,173 | 2,977 |
| December 31, 2012 | 1,829 | 1,224 | 3,053 |
| December 31, 2013 | 1,819 | 1,257 | 3,076 |
| December 31, 2014 | 1,742 | 1,231 | 2,973 |
| December 31, 2015 | 1,796 | 1,267 | 3,063 |
| December 31, 2016 | 1,800 | 1,314 | 3,114 |
| December 31, 2017 | 2,114 | 1,429 | 3,543 |
| December 31, 2018 | 1,871 | 1,316 | 3,187 |

## Active Participants Statistical Averages — Table X
Last Ten Years

| | Male | | | Female | | | Combined | | |
|---|---|---|---|---|---|---|---|---|---|
| Year Ended | Annual Salary | Age | Service | Annual Salary | Age | Service | Annual Salary | Age | Service |
| June 30, 2010 | $38,131 | 43.2 | 10.5 | $32,393 | 39.5 | 9.0 | $35,886 | 41.8 | 9.9 |
| June 30, 2011 | 38,680 | 43.5 | 10.9 | 32,873 | 39.9 | 9.3 | 36,351 | 42.1 | 10.3 |
| June 30, 2012 | 36,623 | 42.9 | 10.2 | 32,585 | 39.7 | 9.1 | 35,032 | 41.6 | 9.8 |
| December 31, 2012 | 19,201 | 43.3 | 10.1 | 16,829 | 39.7 | 8.9 | 18,250 | 41.9 | 9.6 |
| December 31, 2013 | 37,809 | 43.1 | 10.0 | 32,664 | 39.5 | 8.9 | 35,706 | 41.6 | 9.6 |
| December 31, 2014 | 41,199 | 43.4 | 10.7 | 35,245 | 39.8 | 9.6 | 38,734 | 41.9 | 10.3 |
| December 31, 2015 | 40,361 | 43.0 | 10.5 | 34,578 | 40.0 | 9.6 | 37,969 | 41.8 | 10.1 |
| December 31, 2016 | 41,248 | 42.7 | 10.4 | 34,041 | 39.5 | 9.3 | 38,207 | 41.3 | 9.9 |
| December 31, 2017 | 35,986 | 41.9 | 8.9 | 32,383 | 39.6 | 8.7 | 34,532 | 41.0 | 8.8 |
| December 31, 2018 | 40,973 | 42.6 | 9.8 | 35,712 | 39.9 | 9.5 | 38,800 | 41.5 | 9.7 |

## Retirees and Beneficiaries Receiving Benefits — Table XI

Last Ten Years

| Year Ended | Retirees | Surviving Spouses | Children | Total |
|---|---|---|---|---|
| June 30, 2010 | 2,125 | 817 | 14 | 2,956 |
| June 30, 2011 | 2,096 | 803 | 14 | 2,913 |
| June 30, 2012 | 2,104 | 804 | 13 | 2,921 |
| December 31, 2012 | 2,090 | 798 | 18 | 2,906 |
| December 31, 2013 | 2,102 | 786 | 16 | 2,904 |
| December 31, 2014 | 2,101 | 773 | 17 | 2,891 |
| December 31, 2015 | 2,097 | 767 | 12 | 2,876 |
| December 31, 2016 | 2,113 | 744 | 13 | 2,870 |
| December 31, 2017 | 2,115 | 745 | 16 | 2,876 |
| December 31, 2018 | 2,136 | 706 | 12 | 2,854 |

## Average Annual Retirees/Surviving Spouses' Benefit Payments — Table XII

Last Ten Years

| | Average Annual Payments | |
|---|---|---|
| Year Ended | Retiree | Spouse |
| June 30, 2010 | $ 23,997 | $ 12,481 |
| June 30, 2011 | 24,668 | 12,941 |
| June 30, 2012 | 25,367 | 13,544 |
| December 31, 2012 | 25,747 | 14,018 |
| December 31, 2013 | 26,330 | 14,500 |
| December 31, 2014 | 26,855 | 15,062 |
| December 31, 2015 | 26,683 | 15,525 |
| December 31, 2016 | 28,048 | 16,119 |
| December 31, 2017 | 28,678 | 16,577 |
| December 31, 2018 | 29,571 | 17,101 |

**Funded Ratio** **Table I**

Last Ten Years

| Year Ended | (1) Actuarial Value of Assets | (2) Unfunded Accrued Liabilities | (3) Statutory Reserve Requirements (1) + (2) | (4) % Percent Funded (1) / (3) |
|---|---|---|---|---|
| June 30, 2010 | $ 518,582,601 | $ 314,443,347 | $ 833,025,948 | 62.3% |
| June 30, 2011 | 489,370,505 | 354,572,735 | 843,943,240 | 58.0 |
| June 30, 2012 | 440,692,006 | 425,678,559 | 866,370,565 | 50.9 |
| December 31, 2012 | 421,448,001 | 550,359,221 | 971,807,222 | 43.4 |
| December 31, 2013 | 404,292,435 | 483,730,929 | 888,023,364 | 45.5 |
| December 31, 2014 | 393,762,692 | 507,077,925 | 900,840,617 | 43.7 |
| December 31, 2015 | 395,652,106 | 514,608,254 | 910,260,360 | 43.5 |
| December 31, 2016 | 393,604,997 | 611,888,096 | 1,005,493,093 | 39.1 |
| December 31, 2017 | 385,419,506 | 653,859,938 | 1,039,279,444 | 37.1 |
| December 31, 2018 | 366,806,612 | 775,491,353 | 1,142,297,965 | 32.1 |

**Ratio of Unfunded Liability to Payroll** **Table II**

Last Ten Years

| Year Ended | Covered Payroll | Unfunded Liability | Liability % of Payroll |
|---|---|---|---|
| June 30, 2010 | $ 107,361,021 | $ 314,443,347 | 292.9% |
| June 30, 2011 | 107,686,693 | 354,572,735 | 329.3 |
| June 30, 2012 | 114,223,909 | 425,678,559 | 372.6 |
| December 31, 2012 | 58,231,511 | 550,359,221 | 472.6 |
| December 31, 2013 | 117,781,596 | 483,730,929 | 410.7 |
| December 31, 2014 | 118,987,507 | 507,077,925 | 426.2 |
| December 31, 2015 | 122,382,584 | 514,608,254 | 420.5 |
| December 31, 2016 | 121,126,918 | 611,888,096 | 505.2 |
| December 31, 2017 | 135,315,008 | 653,859,938 | 483.2 |
| December 31, 2018 | 133,112,100 | 775,491,353 | 582.6 |

## Revenue by Sources

**Table III**

Last Ten Years

| Year Ended | Employer Contributions | Employee Contributions | Net Investment Income/(Loss) (a) | Total |
|---|---|---|---|---|
| June 30, 2010 | $ 10,829,339 | $ 9,829,998 | $ 41,419,975 | $ 62,079,312 |
| June 30, 2011 | 10,981,419 | 9,791,650 | 84,890,838 | 105,663,907 |
| June 30, 2012 | 10,868,361 | 10,404,827 | 3,861,173 | 25,134,361 |
| December 31, 2012 | 5,268,363 | 5,371,084 | 24,956,796 | 35,596,243 |
| December 31, 2013 | 15,804,452 | 10,732,730 | 66,642,528 | 93,179,710 |
| December 31, 2014 | 11,225,438 | 10,831,434 | 27,591,038 | 49,647,910 |
| December 31, 2015 | 30,588,976 | 12,368,636 | 8,911,726 | 51,869,338 |
| December 31, 2016 | 30,890,241 | 12,246,115 | 31,022,803 | 74,159,159 |
| December 31, 2017 | 20,920,614 | 13,675,292 | 51,174,093 | 85,769,999 |
| December 31, 2018 | 27,638,402 | 12,125,457 | (17,128,885) | 22,634,974 |

(a) includes income from securities lending

Required Schedules (GASB No. 44)

## Average Benefit Payments

**Table I**

Last Ten Years

(Dollars in Thousands)

| | Years of Credited Service | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0 – 5 | 5 – 10 | 10 – 15 | 15 – 20 | 20 – 25 | 25 – 30 | 30+ |
| Period 7/1/09 to 6/30/10 | | | | | | | |
| Average monthly benefit | $ 389 | $ 970 | $ 1,287 | $ 1,046 | $ 3,302 | $ 3,552 | $ 4,039 |
| Average final average salary | $ 5,923 | $ 6,512 | $ 4,078 | $ 2,892 | $ 6,083 | $ 5,668 | $ 5,222 |
| Number of retired members | 13 | 6 | 8 | 12 | 5 | 9 | 8 |
| Period 7/1/10 to 6/30/11 | | | | | | | |
| Average monthly benefit | $ 475 | $ 1,001 | $ 665 | $ 1,244 | $ 1,893 | $ 2,800 | $ 4,406 |
| Average final average salary | $ 7,516 | $ 5,633 | $ 2,288 | $ 3,216 | $ 3,728 | $ 4,484 | $ 5,911 |
| Number of retired members | 19 | 7 | 12 | 5 | 11 | 8 | 16 |
| Period 7/1/11 to 6/30/12 | | | | | | | |
| Average monthly benefit | $ 572 | $ 871 | $ 995 | $ 1,419 | $ 1,999 | $ 3,222 | $ 3,909 |
| Average final average salary | $ 7,210 | $ 4,957 | $ 3,198 | $ 4,088 | $ 4,339 | $ 5,175 | $ 4,633 |
| Number of retired members | 21 | 14 | 7 | 9 | 14 | 13 | 22 |
| Period 7/1/12 to 12/31/12 | | | | | | | |
| Average monthly benefit | $ 444 | $ 1,040 | $ 687 | $ 1,245 | $ 2,199 | $ 3,727 | $ 4,432 |
| Average final average salary | $ 6,780 | $ 5,896 | $ 2,590 | $ 3,180 | $ 4,638 | $ 5,510 | $ 5,677 |
| Number of retired members | 9 | 5 | 6 | 7 | 4 | 4 | 16 |
| Period 1/1/13 to 12/31/13 | | | | | | | |
| Average monthly benefit | $ 581 | $ 822 | $ 1,311 | $ 1,288 | $ 2,221 | $ 3,234 | $ 3,877 |
| Average final average salary | $ 7,186 | $ 4,677 | $ 4,797 | $ 3,344 | $ 4,428 | $ 4,780 | $ 5,076 |
| Number of retired members | 10 | 17 | 21 | 12 | 16 | 14 | 20 |
| Period 1/1/14 to 12/31/14 | | | | | | | |
| Average monthly benefit | $ 299 | $ 736 | $ 941 | $ 1,364 | $ 2,615 | $ 3,762 | $ 4,608 |
| Average final average salary | $ 5,274 | $ 4,072 | $ 3,198 | $ 3,320 | $ 4,844 | $ 5,705 | $ 5,893 |
| Number of retired members | 13 | 8 | 11 | 15 | 13 | 9 | 21 |
| Period 1/1/15 to 12/31/15 | | | | | | | |
| Average monthly benefit | $ 466 | $ 914 | $ 1,019 | $ 1,623 | $ 2,323 | $ 3,478 | $ 3,740 |
| Average final average salary | $ 7,554 | $ 5,306 | $ 3,671 | $ 3,652 | $ 4,401 | $ 5,433 | $ 4,752 |
| Number of retired members | 8 | 10 | 16 | 14 | 7 | 7 | 22 |
| Period 1/1/16 to 12/31/16 | | | | | | | |
| Average monthly benefit | $ 391 | $ 869 | $ 1,087 | $ 1,546 | $ 1,984 | $ 3,249 | $ 3,973 |
| Average final average salary | $ 6,774 | $ 5,489 | $ 3,956 | $ 3,407 | $ 3,949 | $ 4,619 | $ 4,838 |
| Number of retired members | 13 | 13 | 11 | 12 | 11 | 12 | 27 |
| Period 1/1/17 to 12/31/17 | | | | | | | |
| Average monthly benefit | $ 608 | $ 1,113 | $ 1,168 | $ 1,554 | $ 2,414 | $ 3,041 | $ 4,732 |
| Average final average salary | $ 7,626 | $ 6,255 | $ 4,107 | $ 3,824 | $ 4,909 | $ 4,502 | $ 5,605 |
| Number of retired members | 12 | 13 | 16 | 18 | 8 | 9 | 22 |
| Period 1/1/18 to 12/31/18 | | | | | | | |
| Average monthly benefit | $ 445 | $ 992 | $ 1,091 | $ 2,184 | $ 2,033 | $ 3,543 | $ 4,438 |
| Average final average salary | $ 5,497 | $ 5,913 | $ 4,057 | $ 5,639 | $ 3,948 | $ 5,185 | $ 5,641 |
| Number of retired members | 5 | 7 | 19 | 14 | 17 | 9 | 31 |

Required Schedules (GASB No. 44)

## Principal Participating Employers **Table II**

Current Year and Nine Years Ago

| Participating Government | December 31, 2018 Covered Employees' | Rank | Percentage of Total System | June 30, 2010 Covered Employees' | Rank | Percentage of Total System |
|---|---|---|---|---|---|---|
| Chicago Park District | 3,177 | 1 | 99.69% | 2,804 | 1 | 99.57% |
| Retirement Board of the Park Employees' Annuity and Benefit Fund | 10 | 2 | 0.31 | 12 | 2 | 0.43 |
| City of Chicago | - | 3 | 0.00 | - | 3 | 0.00 |
| Total (3 Governments) | 3,187 | | 100.00% | 2,816 | | 100.00% |

## Changes in Fiduciary Net Position **Table III**

Last Ten Years

(Dollars in Thousands)

| | Years ended 2018 | 2017 | 2016 | 2015 | 2014 | 2013 | Six Months Ended 12/31/12 | Fiscal years ended June 30 2012 | 2011 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|
| ADDITIONS | | | | | | | | | | |
| Employer Contributions | $27,638 | $20,921 | $30,890 | $30,589 | $11,226 | $15,804 | $ 5,268 | $10,868 | $10,981 | $ 10,829 |
| Employee Contributions | 12,126 | 13,675 | 12,246 | 12,369 | 10,831 | 10,733 | 5,371 | 10,405 | 9,792 | 9,830 |
| Investment Income (Loss) | (17,129) | 51,174 | 31,023 | 8,912 | 27,591 | 66,643 | 24,957 | 3,861 | 84,891 | 41,420 |
| Total Additions | 22,635 | 85,770 | 74,159 | 51,870 | 49,648 | 93,180 | 35,596 | 25,134 | 105,664 | 62,079 |
| DEDUCTIONS (see Table IV) | | | | | | | | | | |
| Benefit Payments | 73,801 | 72,252 | 71,568 | 68,554 | 67,807 | 66,220 | 32,303 | 63,514 | 62,043 | 61,191 |
| Refunds | 2,726 | 5,886* | 2,509 | 2,048 | 2,729 | 2,116 | 978 | 1,988 | 1,662 | 1,369 |
| Administrative Expenses | 1,501 | 1,682 | 1,538 | 1,534 | 1,459 | 1,464 | 724 | 1,645 | 1,522 | 1,466 |
| Total Deductions | 78,028 | 79,820 | 75,615 | 72,136 | 71,995 | 69,800 | 34,005 | 67,147 | 65,227 | 64,026 |
| Changes in Fiduciary Net Position | $(55,393) | $ 5,950 | $( 1,456) | $(20,266) | $(22,347) | $23,380 | $ 1,591 | $(42,013) | $40,437 | $( 1,947) |

*Includes refund of increased contributions and reduced disability benefits per court order.

Required Schedules (GASB No. 44)

## Benefit and Refund Deductions from Fiduciary Net Position by Type — Table IV

Last Ten Years

(Dollars in Thousands)

| | | Years ended | | | | | Six Months Ended | Fiscal years ended June 30, | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 | 12/31/12 | 2012 | 2011 | 2010 |
| TYPE OF BENEFIT | | | | | | | | | | |
| Age and Service Benefits | | | | | | | | | | |
| Retirees | $61,178 | $59,488 | $58,968 | $56,095 | $55,520 | $54,256 | $26,429 | $52,052 | $50,951 | $50,528 |
| Spousal | 12,108 | 12,253 | 12,044 | 11,823 | 11,666 | 11,320 | 5,529 | 10,802 | 10,375 | 10,083 |
| Children | 17 | 16 | 18 | 17 | 21 | 22 | 11 | 15 | 19 | 17 |
| Death Benefits | 229 | 305 | 255 | 317 | 280 | 266 | 137 | 371 | 307 | 250 |
| Disability Benefits | | | | | | | | | | |
| Member-Duty | 49 | (27) | 99 | 94 | 39 | 54 | 9 | (92) | 52 | 22 |
| Member-Non-Duty | 220 | 217 | 184 | 208 | 281 | 302 | 188 | 366 | 339 | 291 |
| Total Benefits | $73,801 | $72,252 | $71,568 | $68,554 | $67,807 | $66,220 | $32,303 | $63,514 | $62,043 | $61,191 |
| TYPE OF REFUND | | | | | | | | | | |
| Separation | $ 2,590 | $ 1,835 | $ 2,228 | $ 1,493 | $ 2,427 | $ 2,033 | $ 789 | $ 1,786 | $ 1,524 | $ 1,369 |
| Death | 136 | 191 | 281 | 555 | 302 | 83 | 189 | 202 | 138 | - |
| Refund of increased contributions and reduced disability benefits | - | 3,860 | - | - | - | - | - | - | - | - |
| Total Refunds | $ 2,726 | $ 5,886 | $ 2,509 | $ 2,048 | $ 2,729 | $ 2,116 | $ 978 | $ 1,988 | $ 1,662 | $ 1,369 |

## Retired Members by Type of Benefit — Table V

| Amount of Monthly Benefit | Number of Retired Members | Type of Retirement 1 | 2 | 3 |
|---|---|---|---|---|
| $ 1 - $ 250 | 183 | 108 | 63 | 12 |
| 251 - 500 | 280 | 195 | 85 | - |
| 501 - 750 | 253 | 179 | 74 | - |
| 751 - 1,000 | 222 | 155 | 67 | - |
| 1,001 - 1,250 | 192 | 132 | 60 | - |
| 1,251 - 1,500 | 155 | 101 | 54 | - |
| 1,501 - 1,750 | 150 | 84 | 66 | - |
| 1,751 - 2,000 | 152 | 86 | 66 | - |
| Over 2,000 | 1,267 | 1,096 | 171 | - |
| Total | 2,854 | 2,136 | 706 | 12 |

Type of Retirement

1 Normal Retirement for age and service, including incentive retirements
2 Beneficiary payment, normal surviving spouse
3 Beneficiary payments, child(ren)