

EMPLOYEES' RETIREMENT SYSTEM

of the
County of Milwaukee



2017 Annual Report of the Pension Board

as of and for the Years Ended
December 31, 2017 and 2016

CITIZEN MEMBERS

Patricia Van Kampen
Linda Bedford
Michael Harper
Daniel Byrne

RETIREE MEMBER

David Zepecki

EMPLOYEE MEMBERS

Norb Gedemer, Chairman
Laurie Braun, Vice Chairman
William Holton
Aimee Funck

Interim Director, Retirement Plan Services

Amy Pechacek

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Milwaukee, Wisconsin 53233

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Employees' Retirement System of the County of Milwaukee
2017 Annual Report of the Pension Board

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EMPLOYEES' RETIREMENT SYSTEM (ERS)

Milwaukee County

Pension Board

Norb Gedemer
Chairperson

Laurie Braun
Vice Chairperson

Linda Bedford
Aimee Funck
Michael Harper
David Zepecki
Patricia Van Kampen
William Holton
Daniel Byrne

Amy Pechacek, Interim Director
Retirement Plan Services

ERS Members:

We are pleased to present the 2017 Annual Report of your Pension Board. The Employees' Retirement System ("ERS") experienced a positive investment return for the year of 15.8%. Net plan position held in trust for pension benefits increased \$114.7 million. This increase was mainly due to investment returns above the requirement and a decrease in pension benefit payments. Total net position at the end of the year was \$1.79 billion. The management discussion and analysis, the financial statements, and the footnotes provide detailed information regarding ERS performance. The description of ERS included in this report highlights major plan provisions. County Ordinances, labor agreements, Pension Board Rules, and Governmental Accounting Standards Board (GASB) pronouncements prevail over the contents of this report. If you have any questions, please call (414) 278-4207.

Members who retire or otherwise leave County service have several options available with respect to pension benefits. To make informed decisions before terminating employment, members should fully understand and carefully consider the various options available.

Members considering retirement within the next few years are reminded to watch for announcements from the County for retirement information programs. Please check the Retirement website (<https://county.milwaukee.gov/EN/Human-Resources/Retirement-Services>) for further information regarding these programs. If you would like to meet with a Retirement Analyst to discuss retirement, please schedule an appointment by calling (414) 278-4207.

Remember to keep your beneficiary designations current by informing the Retirement office of any changes. Retired members should notify the Retirement office in writing of any address changes to insure benefit payments and year-end Form 1099-R statements are properly mailed.

Respectfully,

The Pension Board



INDEPENDENT AUDITORS' REPORT

To the Members of the Pension
Board of the Employees' Retirement System of the County of Milwaukee
Milwaukee, Wisconsin

Report on the Financial Statements

We have audited the accompanying statements of fiduciary net position of the Employees' Retirement System of the County of Milwaukee (the "Retirement System"), as of December 31, 2017 and 2016, the statements of changes in fiduciary net position for the years then ended, and the related notes to the financial statements, which collectively comprise the Retirement System's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

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

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the 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 auditors' 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 over financial reporting relevant to the Retirement System'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 Retirement System'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 the Retirement System as of December 31, 2017 and 2016, and the changes in fiduciary net position of the Retirement System for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, the Schedules of Changes in Net Pension Liability and Related Ratios, Contributions, and Investment Returns, and the notes to the required supplementary information as listed in the table of contents be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our 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 audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the Retirement System's basic financial statements. The Letter from the Pension Board, Ten-year Historical Trend and related information on pages 31 through 34 are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information has not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

Baker Tilly Virchow Krause, LLP

Milwaukee, Wisconsin
July 24, 2018

Management's Discussion & Analysis (Unaudited) **(In Thousands of Dollars)**

Management is pleased to provide this overview and analysis of the financial activities of the Employees' Retirement System of the County of Milwaukee ("ERS", or the "Retirement System") for the year ended December 31, 2017. Readers are encouraged to consider the information presented in conjunction with the Financial Statements.

FINANCIAL HIGHLIGHTS

FIDUCIARY NET POSITION

- Fiduciary net position for ERS increased \$114,726 as of 12/31/17 vs. 12/31/16 following an decrease of (\$44,469) as of 12/31/16 vs. 12/31/15. All asset classes, with the exception of Fixed Income, have experienced positive returns in 2017, with International stocks and Private Equity leading the way. Real Estate and Private Equity have experienced positive returns in 2016. For the year 2017, the pension fund experienced an overall positive return of 15.8%.
- The 1 year, 3 year and 5 year rate of return on total assets of the pension fund, net of fees, was 15.8%, 8.2%, and 9.1%, respectively.
- Receivables decreased by (\$4,320) as of 12/31/17 vs. 12/31/16 due primarily to a decrease in receivables from the County of Milwaukee. Receivables decreased by (\$284) as of 12/31/16 vs. 12/31/15 due primarily to a decrease in receivables from sales of investments.
- Other assets decreased (\$10,524) as of 12/31/17 vs. 12/31/16 and decreased (\$5,462) as of 12/31/16 vs. 12/31/15 due largely to changes in securities lending – collateral of (\$9,712) and (\$4,656), respectively.
- Liabilities decreased (\$9,854) from 2017 to 2016. This decrease was due to a decrease in securities lending—collateral. Liabilities decreased (\$3,430) from 2016 to 2015, due to a slight decrease in securities lending—collateral.
- ERS buys and sells financial futures contracts to improve the performance of the fund. ERS purchases contracts that approximate the amount of cash held by US equity managers and cash used to pay benefits and expenses.

ADDITIONS AND DEDUCTIONS TO FIDUCIARY NET POSITION

- Total additions increased \$145,714 in 2017 vs. 2016 and increased \$85,248 in 2016 vs. 2015. The 2017 increase is primarily the result of increases in investment income, as well as an increase in contributions from the County of Milwaukee. The 2016 increase is primarily the result of increases in investment income and decreases in investment expense, as well as an increase in contributions from the County of Milwaukee.
- Benefits payments decreased (\$14,311) in 2017 and increased \$23,652 in 2016. The decrease in 2017 was due to an decrease in monthly benefits of (\$9,734), and an decrease of (\$4,577) in Lump Sum payments. The increase in 2016 was due to an increase in monthly benefits of \$4,878, an increase of \$4,623 in Lump Sum payments, and \$14,151 in VCP Lump Sum payments.
- 2017 saw a 15.5% decrease in retirements from 2017. 2016 saw a 5.5% increase in retirements from 2015. There were no significant changes to benefits in 2017 that would explain this decrease.
- Pursuant to Governmental Accounting Standards Board Statement No. 67, as of December 31, 2017, and December 31, 2016, the ERS funded ratio was 77.4% and 74.1% respectively. The funding ratio gives an indication of how well the liabilities of the pension plan are funded. The higher the funding ratio, the better the plan is funded. The ratio increases due to investment gains and pension contributions, and declines due to investment losses, increases in plan benefits, large pension payouts, and underpayment by the County of pension annual required contributions.

The Board of Trustees of ERS ("The Board") has the responsibility for the overall performance of the Retirement System. The Board's principal means to achieve this goal is by (a) determining an asset allocation policy which is expected to provide the long-term rate of return sufficient to fund benefits while minimizing the risk of loss through diversification, (b) selecting an appropriate number of investment managers to manage the assets within an asset class and monitoring the performance of such investment managers relative to specified benchmarks, and (c) implementing cost containment measures intended to reduce the investment fees and costs associated with investing the Retirement System's assets. The Board is the fiduciary of the Retirement System and is responsible for carrying out the investment functions solely in the interest of the members and benefit recipients.

OVERVIEW OF THE FINANCIAL STATEMENTS

The discussion and analysis is intended to serve as an introduction to the Retirement System's financial statements. The financial section is comprised of four components: (1) financial statements, (2) notes to the financial statements, (3) required supplementary information, and (4) other supplementary schedules.

Financial Statements – There are two financial statements presented for the plan. The Statements of Fiduciary Net Position as of December 31, 2017 and 2016 indicates the fiduciary net position available to pay future benefits and gives a snapshot of the financial assets available for pension benefits at a particular point in time. The Statements of Changes in Fiduciary Net Position for the years ended December 31, 2017 and 2016 provides a view of additions and deductions to the plan for the years presented.

Notes to financial statements – The notes provide additional information that is essential for a full understanding of the data provided in the financial statements.

Required supplementary information – The required supplementary information consists of a Schedule of Changes in the Net Pension Liability and Related Ratios, Schedule of Employer Contributions, Schedule of Investment Returns, and related notes concerning the funding status of the plan. These schedules provide historical trend information, that contribute to understanding the changes in the funded status of the plan over time.

(See independent auditors' report)

Management's Discussion & Analysis
(Unaudited)
(In Thousands of Dollars)

Other supplementary schedules – The additional schedules (Ten-Year Historical Trend Information, Fiduciary Net Position at Fair Value, Actual County and Participant Contributions, Active Membership Statistics, Retirements and Survivors Statistics) are presented for the purpose of additional analysis.

COMPARATIVE FINANCIAL STATEMENTS				2017 vs. 2016	
Retirement System's Fiduciary Net Position	12/31/2017	12/31/2016	12/31/2015	Difference	% Change
Assets					
Cash and cash equivalents	\$ 65,949	\$ 58,343	\$ 75,932	\$ 7,606	13.0%
Receivables	3,762	8,081	8,366	(4,319)	(53.4%)
Investments, at fair value	1,722,451	1,610,342	1,634,905	112,109	7.0%
Other assets	26,215	36,739	42,201	(10,524)	(28.6%)
Total Assets	1,818,377	1,713,505	1,761,404	104,872	6.1%
Liabilities					
Security lending obligations	24,491	34,203	38,859	(9,712)	(28.4%)
Other liabilities	7,477	7,619	6,393	(142)	(1.9%)
Total Liabilities	31,968	41,822	45,252	(9,854)	(23.6%)
Net position restricted for pensions	\$ 1,786,409	\$ 1,671,683	\$ 1,716,152	\$ 114,726	6.9%
				2017 vs. 2016	
Retirement System's Changes in Fiduciary Net Position	12/31/2017	12/31/2016	12/31/2015	Difference	% Change
Additions					
Employer contributions	\$ 53,661	\$ 50,625	\$ 39,081	\$ 3,036	6.0%
Member contributions	12,330	12,144	9,325	186	1.5%
Investment income	252,828	110,336	39,451	142,492	129.1%
Total Additions	318,819	173,105	87,857	145,714	84.2%
Deductions					
Benefit payments	(196,853)	(211,164)	(187,512)	14,311	(6.8%)
Administrative expenses	(5,502)	(4,912)	(5,465)	(590)	12.0%
Withdrawals	(1,738)	(1,498)	(1,308)	(240)	16.0%
Total Deductions	(204,093)	(217,574)	(194,285)	13,481	(6.2%)
Net increase (decrease) in net position	114,726	(44,469)	(106,428)	159,195	358.0%
Net position restricted for pensions:					
Beginning of year	1,671,683	1,716,152	1,822,580	(44,469)	(2.6%)
End of year	\$ 1,786,409	\$ 1,671,683	\$ 1,716,152	\$ 114,726	6.9%

Requests for financial information:

The financial report is designed to provide the Board, our membership, taxpayers, investment managers, and creditors with a general overview of ERS' finances and to demonstrate ERS' accountability for the funds under its stewardship. Please address any questions about this report or requests for additional financial information to:

Milwaukee County ERS
901 N. 9th Street Room 210C
Milwaukee, WI 53233

Email: ers@milwaukeecountywi.gov

(See Independent auditors' report)

EMPLOYEES' RETIREMENT SYSTEM OF THE COUNTY OF MILWAUKEE
STATEMENTS OF FIDUCIARY NET POSITION
AS OF:

December 31, 2017

December 31, 2016

ASSETS

CASH AND CASH EQUIVALENTS	\$ 65,949,193	\$ 58,342,501	
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RECEIVABLES

Due from sale of investments	509,822	628,945	
Accrued interest and dividends	1,431,426	1,413,835	
County of Milwaukee	169,695	4,414,873	
Plan Members	958,986	940,083	
Miscellaneous receivables	691,849	684,021	

TOTAL RECEIVABLES	3,761,778	8,081,757	
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INVESTMENTS AT FAIR VALUE

Domestic common and preferred stocks	498,883,645	485,244,749	
Futures	359,044	(171,817)	
Long/Short hedge funds	166,441,628	148,310,784	
Fixed income	253,867,013	267,441,880	
International common and preferred stocks	302,188,231	266,029,194	
Real estate and REIT's	177,650,646	171,919,953	
Infrastructure	166,716,333	149,511,052	
Private equity	156,344,279	122,055,655	

TOTAL INVESTMENTS	1,722,450,819	1,610,341,450	
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OTHER ASSETS

Software development costs, net (See Note 2)	1,724,065	2,535,808	
Securities lending - collateral (See Note 6)	24,490,712	34,203,175	

TOTAL OTHER ASSETS	26,214,777	36,738,983	
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TOTAL ASSETS	\$ 1,818,376,567	\$ 1,713,504,691	
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LIABILITIES

Securities lending - collateral (See Note 6)	24,490,712	34,203,175	
Miscellaneous payables	4,730,037	4,708,963	
Payable for securities purchased	599,154	1,472,683	
Payable to OBRA retirement plan	2,148,099	1,437,539	

TOTAL LIABILITIES	31,968,002	41,822,360	
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NET POSITION RESTRICTED

FOR PENSIONS	\$ 1,786,408,565	\$ 1,671,682,331	
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The accompanying notes are an integral part of these financial statements

EMPLOYEES' RETIREMENT SYSTEM OF THE COUNTY OF MILWAUKEE
STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEARS ENDED:

	<u>December 31, 2017</u>	<u>December 31, 2016</u>
ADDITIONS:		
CONTRIBUTIONS		
County of Milwaukee	\$ 53,660,695	\$ 50,625,672
Plan participants	<u>12,330,305</u>	<u>12,143,510</u>
TOTAL CONTRIBUTIONS	<u>65,991,000</u>	<u>62,769,182</u>
INVESTMENT INCOME		
Net appreciation in fair value	239,131,483	88,313,917
Interest and dividends	9,768,581	11,755,419
Securities lending income	392,261	269,690
Other income	<u>7,036,199</u>	<u>12,725,409</u>
TOTAL INVESTMENT INCOME	256,328,524	113,064,435
Less: Securities lending rebates and fees, net	(314,119)	(147,027)
Less: Investment expense	<u>(3,186,226)</u>	<u>(2,581,408)</u>
Net investment income	<u>252,828,178</u>	<u>110,336,000</u>
TOTAL ADDITIONS	<u>318,819,178</u>	<u>173,105,182</u>
DEDUCTIONS:		
Benefits paid to retirees & beneficiaries	(196,852,807)	(211,163,822)
Administrative expenses	(5,502,195)	(4,912,501)
Withdrawal of membership accounts	<u>(1,737,942)</u>	<u>(1,498,291)</u>
TOTAL DEDUCTIONS	<u>(204,092,944)</u>	<u>(217,574,614)</u>
NET INCREASE (DECREASE) IN NET POSITION	114,726,234	(44,469,432)
NET POSITION RESTRICTED FOR PENSIONS		
Beginning of year	<u>1,671,682,331</u>	<u>1,716,151,763</u>
End of year	<u>\$ 1,786,408,565</u>	<u>\$ 1,671,682,331</u>

The accompanying notes are an integral part of these financial statements

Employees' Retirement System of the County of Milwaukee
Notes to the Financial Statements
For the Years Ended December 31, 2017 and 2016

(1) Description of Retirement System –

The following brief description of the provisions of the Employees' Retirement System of the County of Milwaukee ("ERS" or the "Retirement System") is provided for financial statement purposes only. Members should refer to Section 201.24 of the General Ordinances of Milwaukee County and their respective bargaining agreements for more complete information.

The Retirement System is a single-employer defined benefit plan that was created to encourage qualified personnel to enter and remain in the service of the County of Milwaukee (the "County") by providing for a system of retirement, disability and death benefits to or on behalf of its employees. Under Chapter 201 of the Laws of Wisconsin for 1937, the County was mandated to create the Retirement System as a separate legal entity. The County did so by passing Section 201.24 of the General Ordinances of Milwaukee County. The authority to manage and control the Retirement System is vested in the Pension Board of ERS (the "Board"). The Board consists of a maximum of ten members – three members appointed by the County Executive (subject to confirmation by the County Board of Supervisors), three employee members elected by active employee members, two members appointed by the County Board chairperson, one employee member appointed by the Milwaukee Deputy Sheriffs' Association, and one retiree member elected by retirees.

The Board created two (2) committees to assist in the administration of the Board's duties. The Investment Committee reviews the investment portfolio on a periodic basis, endorses strategies, and submits investment recommendations to the full Board. The Audit Committee reviews legal issues, Ordinance adherence, and submits recommendations to the full Board regarding the annual audit and the Annual Report of the Pension Board. The Pension Board, with the assistance of its actuarial professionals, determines and recommends how much the County should contribute to ERS based on what the Pension Board believes is necessary to properly fund the current and future payment of benefits. The Pension Board oversees the tax qualification of ERS and oversees the administration of ERS in accordance with adopted County Ordinances (the "Ordinances"), any amendments to the Ordinances, and ERS Rules. The Pension Board oversees the benefit payment process from ERS to determine whether these payments are made in accordance with the Ordinances and ERS Rules.

Pension Plan membership, which is open to new members, consisted of the following:

Members	As of December 31	
	2017	2016
Inactive plan members currently receiving benefits	8,063	7,991
Inactive plan members entitled to but not yet receiving benefits	1,394	1,387
Current employees	3,488	3,619
Total participants	12,945	12,997

Membership data above is as of January 1, 2017, the date of the actuary report used to determine the total pension liability for each year, and reasonably approximates membership data through December 31, 2017.

Contributions –

The Retirement System had been substantially noncontributory. However, starting in 2011, certain members began making mandatory contributions. Most full-time, regularly-appointed employees were required to make contributions starting in 2012. The employee contributions varied from 6.5% of compensation to 8.1% for 2017, and 6.5% of compensation to 7.4% for 2016. These percentages may change from year to year based on an analysis performed by the Retirement System's actuary.

Employees who terminate County employment and are not eligible for an immediate pension payment may request a refund of all accumulated contributions made, with simple interest at 5% per annum. Effective December 19, 2013, employees, who terminate employment with the County, must request a refund of accumulated contributions within one hundred eighty (180) days of terminating County employment. Prior to December 19, 2013, terminated employees had sixty (60) days to request a refund of their contributions. The Retirement System will send an employee who terminates a written notice of the refund option. Any employee receiving this refund will forfeit his or her service credit and will no longer be a member of ERS.

Contributions due from the County to the Retirement System consist of actuarially determined amounts sufficient to fund the annual service cost and interest on and amortization of the net pension liability less the expected contributions from the participants.

In 2012, the County of Milwaukee started receiving contributions from the State of Wisconsin for members who were transferred from Milwaukee County to the State of Wisconsin for future service. As a result of the agreement between the State and the County, non-vested members of the Retirement System were able to continue to accrue pension benefits with ERS, while they were employed with the State. Once the member is vested, they are transferred to the state retirement plan, unless they remained in the same position and opted to remain in the Milwaukee County ERS plan. There are currently 2 employees that have opted to remain in the Milwaukee County ERS plan. The state employees were required to contribute 6.5% of their wages to ERS in 2017 and 6.5% of their wages to ERS in 2016, and the state contributed the same percentages to the County for 2017 and 2016.

The County makes contributions to the Retirement System based upon Actuarially Determined Contributions and legal requirements, at the discretion of the County Board. Data used in the determination of the contribution is based upon the prior fiscal year's demographics. The actual contribution made to the pension plan is set during the County's budget process and may differ from the Actuarially Determined Contribution as a result of changes in plan provisions implemented subsequent to establishment of the Actuarially Determined Contribution and budgetary restraints. During the year, the Retirement System accrues those contributions that the County has included in its current year's budget. The County contribution recorded by the Retirement System was \$191,549 greater than, and \$298,214 less than, the Actuarially Determined Contribution for 2017 and 2016, respectively.

The Actuarially Determined Contribution is calculated by the Retirement System's actuary, hired by the Pension Board, using census data, following plan guidelines, and compared to current net assets. The objective is to calculate a contribution that allows the Retirement System to fulfill its obligations to its members.

Benefits -

The normal retirement benefit is a monthly pension for the life of the member beginning at normal retirement age. The pension amount is determined by the following formula:

Multiplier x Creditable Service x Final Average Salary

For most members, the normal retirement age is either 60 or 64 depending on ERS enrollment date and collective bargaining agreement. A few labor agreements also require a minimum of 5 years creditable service in addition to the age requirement. For deputy sheriff members, the normal retirement age is 57 or age 55 with 15 years of creditable service. Depending on enrollment date and collective bargaining agreement, some active members are eligible to retire when their age added to their years of creditable service equals 75 (the "Rule of 75"). The multiplier is determined by Ordinance, collective bargaining agreements, and ERS enrollment date. At this time, the multiplier percentage can be 1.5%, 1.6%, 2% or 2.5%. A member's three or five consecutive years of highest earnings are used to calculate their final average salary as defined by the Ordinance and labor agreements. Annually after retirement, the monthly benefit is increased by 2% of the benefit paid for the first full month of retirement, subject to IRS limits. By Ordinance, the maximum benefit (excluding post-retirement increases) payable to a member cannot exceed the sum of 80% of the member's final average monthly salary.

For some members, depending on enrollment date and collective bargaining agreement, the member may elect to receive a backdrop benefit. This benefit permits an employee to receive a lump-sum payment plus a monthly pension benefit upon retirement. The lump-sum payment is the total of the monthly pension amounts, adjusted for post retirement increases that a member would be entitled to from a prior date ("backdrop date") to the date that the member terminates employment plus compounded interest. The backdrop date must be at least one calendar year prior to the termination date and the member must have been eligible to retire as of that date. The member will be entitled to a post retirement increase based on the backdrop date once the member terminates employment.

In 2012, the County Board passed an ordinance limiting the amount of backdrop benefit for most eligible employees who choose a backdrop date after April 1, 2013. If the member chooses a backdrop date after April 1, 2013, then the monthly backdrop benefit is calculated using the member's final average salary, service credit, and applicable multipliers as of April 1, 2013. This plan change does not apply to Elected Officials, Skilled Trades, Machinists, Federated Nurses, and Firefighters.

A member who meets the requirements for an accidental disability retirement benefit is entitled to an amount computed in the same manner as a normal pension but not less than 60% of the member's final average salary for accidental disability (75% for a represented deputy sheriff). The ordinary disability pension will not be less than 25% of the member's final average salary. A total of 15 years of creditable service is required to apply for ordinary disability.

Most members are immediately vested upon attaining age 60 or 64. A vested member is eligible for a deferred pension beginning as of the member's normal retirement date.

A member who is 55 years of age and has 15 years of credited service may elect to receive early reduced retirement benefits. The member would be entitled to a benefit equal to the normal retirement benefit with a lifetime reduction of 5% for each year prior to the normal retirement date.

Upon the death of a member (generally after 1 year of service and depending on collective bargaining agreements), a spouse with a dependent child as defined by Ordinance will receive 40% of the deceased member's salary, reduced by Social Security benefits payable to the spouse. An additional 10% of salary, reduced by Social Security benefits, is paid for each dependent child. Generally, the total benefit, including Social Security benefits, cannot exceed 90% of the prior salary level of the member. At age 60, the spouse will receive 50% of the normal retirement benefit based on the member's projected service to age 60. If there is no spouse or child, the death benefit payable to a designated beneficiary is equal to 50% of the deceased member's final average salary, but not to exceed \$2,000.

A member who becomes eligible for normal retirement, but continues to work may elect a Protective Survivorship Option ("PSO") designating a person to receive a pension (100% option) in the event of their death while in active service. Previously there had been a 50% option for PSOs; however, on December 17, 2015 the County Board of Supervisors amended Ordinance section 201.24(7.1) and removed that option. The PSO election must be filed in writing on an approved form. In the absence of an election, a surviving spouse will be paid a 100% survivorship pension.

Currently, members may choose among several benefit payment options when retiring. The available pension options are:

-Maximum Option

Benefit payable for the member's lifetime and ceases upon member's death.

-25% Joint & Survivor

This option is an actuarially reduced pension benefit that is payable over the life of the member. Upon the member's death, 25% of the pension benefit is payable over the life of a named beneficiary, if living;

-50% Joint & Survivor

This option is an actuarially reduced pension benefit that is payable over the life of the member. Upon the member's death, 50% of the pension benefit is payable over the life of a named beneficiary, if living;

-75% Joint & Survivor

This option is an actuarially reduced pension benefit that is payable over the life of the member. Upon the member's death, 75% of the pension benefit is payable over the life of a named beneficiary, if living;

-100% Joint & Survivor

This option is an actuarially reduced pension benefit that is payable over the life of the member. Upon the member's death, 100% of the pension benefit is payable over the life of a named beneficiary, if living;

-10 Year Certain and Life

This option is an actuarially reduced pension benefit payable over the member's life but is guaranteed for a period of 10 years. In the event the member should die within 10 years after the retirement date, the benefit continues to the named beneficiary for the balance of the 10 years.

Benefits of \$196.9 million and \$211.2 million were paid in 2017 and 2016, respectively, including periodic pension payments of \$177.0 million and \$186.8 million, respectively, and backdrop lump sum pension payments of \$19.9 million and \$24.4 million in 2017 and 2016, respectively.

(2) Summary of Significant Accounting Policies

Basis of Accounting –

The accompanying financial statements are prepared using the accrual basis of accounting. Employee and employer contributions are recognized as revenues in the period in which employee services are performed and expenses are recorded when the corresponding liabilities are incurred. Benefit payments to members are recognized in the period in which the payment was due to the member.

Reporting Entity –

As defined by accounting standards generally accepted in the United States of America (“U.S. GAAP”), the financial reporting entity consists of a primary government, as well as its component units, which are legally separate organizations for which the elected officials of the primary government are financially accountable. Based upon required criteria, the Retirement System has no component units and is not a component unit of any other government. These basic financial statements cover all of the defined benefits and operations administered by the Board for the ERS and the OBRA 1990 Retirement System of the County of Milwaukee.

Contributions –

The Retirement System records employee contributions as earned. Contributions earned but not yet received from the County are reflected as contributions receivable.

Investments –

Investments, primarily stocks, bonds, certain government loans and mortgage-backed certificates, are stated at quoted fair value. Temporary cash investments are valued at cost, which approximates fair value. Investments in venture capital partnerships, real estate, long/short hedge and infrastructure are valued at estimated fair value, as provided by the Retirement System’s investment managers. Investment transactions are recorded on the trade date. Dividends and interest are recorded as earned. Realized gains and losses are computed based on the average cost method. Unrealized gains and losses in the fair value of investments represent the net change in the fair value of the investments held during the period.

Investment securities, in general, are exposed to various risks, such as interest, credit, and overall market volatility. Due to the level of risk associated with certain investment securities, it is reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect amounts reported in the Statements of Fiduciary Net Position.

A summary of cash and investments at cost is as follows:

	<u>As of December 31,</u>	
	<u>2017</u>	<u>2016</u>
Fixed income	\$ 242,338,187	\$ 255,365,152
Domestic common and preferred stocks	346,799,800	363,650,268
International common and preferred stocks	227,480,848	255,951,570
Long/Short hedge funds	124,470,098	124,368,363
Infrastructure	119,663,703	124,447,956
Real estate and REIT's	119,591,302	119,591,302
Private equity	134,433,992	114,136,781
Cash & cash equivalents	60,895,627	55,393,514
Total investments at cost	\$ 1,375,673,557	\$ 1,412,904,906

Valuation of International Securities –

Securities and other assets and liabilities denominated in foreign currencies are translated into U.S. dollar amounts on the date of valuation. Purchases and sales of securities and income items denominated in foreign currencies are translated into U.S. dollar amounts on the respective dates of such transactions.

Software Development Costs –

Capitalized software development costs represent direct costs related to the development and implementation of software programs utilized in the Retirement System. The amounts are being amortized over ten years using the straight-line method. Amortization expense is included in Administrative Expenses in the accompanying Statements of Changes in Fiduciary Net Position.

	As of December 31,	
	(in thousands of dollars)	
	<u>2017</u>	<u>2016</u>
Software development costs		
Beginning balance	\$ 8,490	\$ 8,473
Acquisitions	7	17
Ending Balance	<u>\$ 8,497</u>	<u>\$ 8,490</u>
Accumulated amortization		
Beginning balance	\$ 5,954	\$ 5,131
Amortization expense.....	819	823
Ending Balance	<u>\$ 6,773</u>	<u>\$ 5,954</u>
Software development costs, net	<u>\$ 1,724</u>	<u>\$ 2,536</u>

Expenses –

Administrative expenses incurred by the County related to the Retirement System are payable by the Retirement System to the County. Such expenses totaled \$1,677,304 and \$1,554,742 in 2017 and 2016, respectively.

Rate of Return –

For the year ended December 31, 2017, and December 31, 2016, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 15.8 percent and 6.9 percent, respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Use of Estimates –

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Contingencies –

Claims and judgments are recorded as liabilities if all conditions of Governmental Accounting Standards Board (“GASB”) pronouncements are met. Claims and judgments are recorded as expenses when the related liabilities are incurred.

New Accounting Standards –

In February 2015, the GASB issued Statement No. 72— *Fair Value Measure and Application*. This statement addresses accounting and financial reporting issues related to fair value measurements. It defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. This Standard was implemented January 1, 2016.

Statement No. 79, *Certain External Investment Pools and Pool Participants*. This statement addresses accounting and financial reporting for certain external investment pools and pool participants. Specifically, it establishes criteria for an external investment pool to qualify for making the election to measure all of its investments at amortized cost for financial reporting purposes. This Statement establishes additional note disclosure requirements for qualifying external investment pools that measure all of their investments at amortized cost for financial reporting purposes and for governments that participate in those pools. This Standard was implemented January 1, 2016.

Statement No. 82, *Pension Issues (an amendment of GASB Statements No. 67, No. 68, and No. 73)*. The objective of this Standard is to improve consistency in the application of pension accounting and financial reporting requirements. The requirements of this Statement will improve financial reporting by enhancing consistency in the application of financial reporting requirements to certain pension issues. ERS adopted the guidance for the 2017 fiscal year and the adoption of the standard had no impact on the basic financial statements or note disclosures.

3) Fair Value Measurements

The GASB Board issued Statement 72 to update the existing standards on fair value (primarily Statement 31). A review of existing standards by the Board, found opportunities to improve the measurement of resources available to governments, and to increase comparability and accountability. Statement 72 was implemented January 1, 2016.

Three input categories are used to assist in the process:

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities, most reliable.

Level 2: Quoted prices for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in markets that are not active, or other than quoted prices that are observable.

Level 3: Unobservable inputs, least reliable.

U.S. treasury securities, equity securities, real estate investment trusts, and exchange traded funds classified as Level 1 are valued using active market pricing. These investments trade in robust markets where buyers and sellers can transact quickly and easily, making these investments highly liquid in nature. Additionally, futures contracts are considered in Level 1 valuations. These are defined as future contracts traded on an organized exchange based on an agreement to buy or sell at a fixed price on a future date.

Debt and debt derivative securities classified in Level 2 (including corporate securities, asset backed securities, foreign securities, SWAPS, etc.) are valued using either a bid evaluation or a matrix pricing technique. Bid evaluations may include market quotations, yields, maturities, call features and ratings. Matrix pricing is used to value securities based on the securities relationship to benchmark quoted prices. Index linked debt securities are valued by multiplying the external market price feed by the applicable day's index ratio. Level 2 debt securities also have nonproprietary information from multiple independent sources that are readily available to market participants who are known to be actively involved in the market.

U.S. equity, international equity and equity derivative securities classified in Level 2 are securities whose values are derived daily from associated traded securities. They include pooled investments that give access to diversified portfolios of equity securities whose performance is tracked as a change in the total market cap of the associated fund. These investments can be purchased and sold daily based on the funds closing net asset value.

The system assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability. When inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation.

Valuation techniques should be applied consistently, though a change might be appropriate in certain circumstances. There were no changes to the methodologies during the years ended December 31, 2017 and December 31, 2016.

- *Real estate investments* consist of three core open-end real estate funds and two value-added open-end real estate funds that primarily invest in U.S. commercial real estate. The fair values of these investments have been determined using the NAV per share of the System's ownership interest in partners' capital. These investments are eligible for redemption on a quarterly basis with notice periods ranging from 30 – 90 days.
- *Short Hedge fund investments* consist of two open-end global long/short equity hedge fund of funds portfolios that primarily invests both long and short in publicly traded global equities. The fair values of these investments have been determined using the NAV per share of the investments. These investments are eligible for redemption on a quarterly basis with a notice period of 45 days.
- *Private equity fund investments* consist of four private equity fund of funds investing primarily in leveraged buyout funds, venture capital funds, special situation funds and secondary funds. The fair values of these investments have been determined using the NAV per share of the investments. These investments are not eligible for redemption.
- *Infrastructure investments* consist of two core open-end infrastructure funds that primarily invest in global infrastructure assets. The fair values of these investments have been determined using the NAV per share of the investments. These investments are eligible for redemption on a quarterly basis with a notice period of 90 days.

Fair Value Disclosure Requirements

	12/31/2017	Fair Value Measurements Using:		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable inputs (Level 2)	Significant Unobservable inputs (Level 3)
Investments by fair value level:				
Equity Securities				
- Common Stocks	\$ 287,019,253	\$ 287,019,253	\$ -	\$ -
- Domestic Stock Funds	141,402,139	42,081,598	99,320,541	-
- International Stock Funds	372,650,484	-	372,650,484	-
TOTAL EQUITY SECURITIES	801,071,876	329,100,851	471,971,025	-
Fixed Income Securities				
- Corporate Bonds	157,406,738	-	157,406,738	-
- Corporate Bond Funds	96,460,275	-	96,460,275	-
TOTAL FIXED INCOME SECURITIES	253,867,013	-	253,867,013	-
Futures				
- Futures Contracts	359,044	359,044	-	-
TOTAL FUTURES	359,044	359,044	-	-
TOTAL INVESTMENTS BY FAIR VALUE LEVEL	\$ 1,055,297,933	\$ 329,459,895	\$ 725,838,038	\$ -

Investments measured at the net asset value (NAV):

	Net Asset Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Alternative Investments				
- Hedge Funds				
ABS INVESTMENT MANAGEMENT	\$ 72,595,332	\$ -	Quarterly	45 Days
PARAMETRIC DEF EQUITY FUND LLC	93,846,296	-	Monthly	5 Days
TOTAL ALTERNATIVE INVESTMENTS	166,441,628			
Private Equity				
- Venture Capital				
ADAMS STREET	88,185,726	26,392,055	Illiquid	--
MESIROW FINANCIAL	18,249,928	13,500,000	Illiquid	--
PROGRESSIVE INVESTMENT MANAGEMENT	25,924	-	Illiquid	--
SIGULER GUFF	49,882,701	33,257,551	Illiquid	--
- Infrastructure				
IFM INFRASTRUCTURE	86,343,477	-	Quarterly	90 Days
JP MORGAN INFRASTRUCTURE	80,372,856	-	Semi-Annually	90 Days
TOTAL PRIVATE EQUITY	323,060,612			
Real Estate				
- Real Estate				
AMERICAN REALTY ADVISORS	41,104,606	-	Quarterly	30 Days
MORGAN STANLEY PRIME PROPERTY FUND	94,501,281	-	Quarterly	90 Days
UBS TRUMBULL R/E	42,044,760	-	Quarterly	60 Days
TOTAL REAL ESTATE	177,650,646			
TOTAL INVESTMENTS MEASURED AT NAV	667,152,886			
TOTAL INVESTMENTS	\$ 1,722,450,819			

Fair Value Disclosure Requirements

	12/31/2016	Fair Value Measurements Using:		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable inputs (Level 2)	Significant Unobservable inputs (Level 3)
Investments by fair value level:				
Equity Securities				
- Common Stocks	\$ 389,406,903	\$ 337,369,807	\$ 52,037,096	\$ -
- Domestic Stock Funds	95,837,846	-	95,837,846	-
- International Stock Funds	266,029,194	-	266,029,194	-
TOTAL EQUITY SECURITIES	751,273,943	337,369,807	413,904,136	-
Fixed Income Securities				
- Corporate Bonds	166,819,788	-	166,819,788	-
- Corporate Bond Funds	100,622,092	-	100,622,092	-
TOTAL FIXED INCOME SECURITIES	267,441,880	-	267,441,880	-
Futures				
- Futures Contracts	(171,817)	(171,817)	-	-
TOTAL FUTURES	(171,817)	(171,817)	-	-
TOTAL INVESTMENTS BY FAIR VALUE LEVEL	\$ 1,018,544,006	\$ 337,197,990	\$ 681,346,016	\$ -

Investments measured at the net asset value (NAV):

	Net Asset Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Alternative Investments				
- Hedge Funds				
ABS INVESTMENT MANAGEMENT	\$ 64,290,525	\$ -	Quarterly	45 Days
PARAMETRIC DEF EQUITY FUND LLC	84,020,259	-	Monthly	5 Days
TOTAL ALTERNATIVE INVESTMENTS	148,310,784			
Private Equity				
- Venture Capital				
ADAMS STREET	67,083,177	44,338,655	Illiquid	--
MESIROW FINANCIAL	11,251,540	18,750,000	Illiquid	--
PROGRESSIVE INVESTMENT MANAGEMENT	25,924	-	Illiquid	--
SIGULER GUFF	43,695,014	37,800,000	Illiquid	--
- Infrastructure				
IFM INFRASTRUCTURE	74,644,141	-	Quarterly	90 Days
JP MORGAN INFRASTRUCTURE	74,866,911	-	Semi-Annually	90 Days
TOTAL PRIVATE EQUITY	271,566,707			
Real Estate				
- Real Estate				
AMERICAN REALTY ADVISORS	40,353,840	-	Quarterly	30 Days
MORGAN STANLEY PRIME PROPERTY FUND	90,337,497	-	Quarterly	90 Days
UBS TRUMBULL R/E	41,228,616	-	Quarterly	60 Days
TOTAL REAL ESTATE	171,919,953			
TOTAL INVESTMENTS MEASURED AT NAV	591,797,444			
TOTAL INVESTMENTS	\$ 1,610,341,450			

(4) Income Taxes –

Management has submitted to the Internal Revenue Service, as part of a Voluntary Compliance Program, any compliance issues that have been discovered through a self-administered review where the provisions contained in the Internal Revenue Code, the County Pension Ordinances or Pension Rules differ from actual practice. Management has received a response from the Internal Revenue Service regarding what action will be required to bring the pension system into compliance in all of its practices in order to maintain its tax-qualified status, and completed the corrections required by December 31, 2016, at a cost of \$14,150,844. The majority of the cost resulted from a correction to the mortality tables used to calculate joint and survivor benefits for members who retired between 2001 and 2008.

Management submitted a supplemental report to the IRS in 2014, followed by a revised submission in 2017, that details any new compliance issues as well as proposed corrections. RPS is awaiting direction from the IRS.

(5) Contributions Required and Contributions Made –

The Retirement System's funding policy provides for periodic County contributions at actuarially determined rates that, expressed as percentages of annual covered payroll, are sufficient to accumulate sufficient assets to pay benefits when due. Payroll contribution rates are determined using the Aggregate Entry Age Normal method of funding. The Retirement System also uses the level percentage of payroll method to amortize the unfunded liability over a 30 year period. The significant actuarial assumptions used to compute the contribution requirements are the same as those used to compute the pension benefit obligation.

County contributions totaling \$53,660,695 and \$50,625,672 were recorded in 2017 and 2016, respectively. The 2017 contributions were \$191,549 above and the 2016 contributions were \$298,214 below the Funding Contribution Amount ("FCA"), respectively. The County contributions do not include contributions made by the members. Member contributions were \$12,330,305 for the year ended December 31, 2017 and \$12,143,510 for the year ended December 31, 2016. The increase was due to the increase in the employee contribution percentages from 6.5%-8.1% of pensionable compensation in 2017 from 6.5%-7.4% in 2016. See the Schedule of Contributions in the Required Supplementary Information.

The 2017 and 2016 contributions reflected in the accompanying statements were actuarially determined as of January 1, 2016 and 2015. These amounts were included in the County's 2017 and 2016 budgets. The Retirement System's financial statements as of December 31, 2017 reflects the unpaid portion of the 2017 contributions as a contribution receivable. The financial statements as of December 31, 2016 reflects the unpaid portion of the 2016 contributions as a contribution receivable.

(6) Deposit and Investment Risk Disclosure –

As provided by state legislative act and County Ordinance, the Board has exclusive control and management responsibility of the Retirement System's funds and full power to invest the funds. In exercising its fiduciary responsibility, the Board is governed by the "prudent person" rule in establishing investment policy. The "prudent person" rule, requires the exercise of that degree of judgment, skill and care under the circumstances then prevailing which persons of prudence, discretion and intelligence exercise in the management of their own affairs, not in regard to speculation, but in regard to permanent disposition of their funds, considering the probable income as well as the probable safety of the principal. The Board has adopted a Statement of Investment Policy to formally document investment objectives and responsibilities. This policy establishes guidelines for permissible investments of the Retirement System. The Retirement System's investments are subject to various risks. Among them are credit risk, concentration of credit risk, custodial credit risk, interest rate risk, and foreign currency risk. Each of these risks is discussed in more detail below.

Concentration of Credit Risk –

Concentration of credit risk is a risk of loss that may be attributed to the magnitude of the Retirement System's investment in a single issuer, generally investments in any one issuer that represents five (5) percent or more of total investments. Investments issued or explicitly guaranteed by the U.S. Government and investments in mutual funds, external investment pools, and other pooled investments are excluded from this definition. The Retirement System has no investments in one issuer other than U.S. Government securities and mutual funds that exceed five (5) percent of the total investments.

Credit Risk –

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The credit risk of a debt instrument is measured by nationally recognized statistical rating agencies such as Moody's Investors Services ("Moody's"), Standard and Poor's ("S & P") and Fitch Ratings ("Fitch's"). With the exception of the Mellon Capital Management Aggregate Bond portfolio, bonds purchased and owned in each portfolio must have a minimum quality rating of "Baa3" (Moody's) or "BBB-" (S & P or Fitch's). The average quality of each portfolio must be "A" or better. The fixed income securities for the Mellon Capital Management Aggregate Bond portfolio should have a minimum quality rating of "A", with the exception of 15% of the portfolio which may have a minimum quality rating of "BBB". Moody's quality rating of "BAA3" or above is considered investment grade. Of the \$7.9 million not rated by Moody's as of December 31, 2017, \$7.3 million was rated by S & P as investment grade ("BBB-" or higher). As of December 31, 2017, \$0.6 million was not rated by S & P or Moody's. Of the \$5.6 million not rated by Moody's as of December 31, 2016, \$4.8 million was rated by S & P as investment grade ("BBB-" or higher). As of December 31, 2016, \$0.7 million was not rated by S & P or Moody's. The credit quality ratings of investments in fixed income securities by Moody's as of December 31, 2017, and 2016, are as follows: (amounts are in thousands of dollars)

<u>Moody's Quality Ratings</u>	<u>12/31/2017 Fair Value</u>	<u>12/31/2016 Fair Value</u>
AAA	\$ 66,712	\$ 67,627
AA1	4,701	716
AA2	5,392	2,263
AA3	3,751	2,542
A1	4,518	4,442
A2	3,072	4,352
A3	9,199	7,134
BAA1	10,368	10,745
BAA2	5,817	6,884
BAA3	3,734	4,378
BA1	3,639	1,184
BA2	2,430	969
BA3	7,374	343
B1	2,109	1,158
B2	354	529
B3	-	111
CAA1	-	71
CAA2	-	122
CAA3	-	143
CA	-	239
NR	7,879	5,583
Total Credit Risk Fixed Income Securities	\$ 141,049	\$ 121,535
U.S. Government and Agencies	16,358	45,285
Units of Participation (Not Rated)	96,460	100,622
Total Investment in Fixed Income	\$ 253,867	\$ 267,442

Custodial Credit Risk – Deposits and Investments –

Custodial credit risk is the risk that, in the event a financial institution or counterparty fails, the Retirement System will not be able to recover the value of its deposits, investments or securities. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the Retirement System’s name and are held by the counterparty.

No formal policy exists on custodial risk. However, substantially all assets of the Retirement System are held in its name. The Retirement System did not own any repurchase agreements as of December 31, 2017 or December 31, 2016.

As of December 31, 2017 and 2016, all deposits with banks are fully insured by the Federal Depository Insurance Corporation or the State Deposit Guarantee Fund.

The following table presents the Retirement System’s total cash, deposits and cash equivalents as of December 31, 2017 and December 31, 2016: (amounts are in thousands of dollars)

Schedule of Cash and Cash Equivalent Investments				
	12/31/17		12/31/16	
	Carrying Value	Bank Balance	Carrying Value	Bank Balance
Cash held by various investment managers.....	\$ 61,717	\$ 61,717	\$ 54,822	\$ 54,822
Deposits with banks.....	4,232	4,777	3,521	3,944
Total Deposits.....	\$ 65,949	\$ 66,494	\$ 58,343	\$ 58,766

The difference between the carrying value and bank balances are due to outstanding checks and deposits not yet processed by the bank.

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 deposit.

This footnote is a required disclosure when the Retirement System directly owns investments denominated in a foreign currency. As of December 31, 2017, and 2016, the Retirement System directly owned approximately \$42,900 dollars and \$5,200 dollars in investments denominated in foreign currencies, respectively.

Interest Rate Risk –

Interest rate risk is the risk that changes in interest rates will adversely affect the fair market value of an investment. Duration is a measure of an investment's sensitivity to changes in interest rates. The higher the duration, the greater the changes in fair value when interest rates change. The Option-Adjusted Duration for a security is the percentage price sensitivity to interest rates changes of 100 basis points (or 1.0%), as of December 31, 2017 and 2016. For example, an Option-Adjusted Duration of 5.20 means that the price of the security should fall approximately 5.20% for a 1.0% rise in the level of interest rates. Conversely, the price of a security should rise approximately 5.20% for a 1.0% fall in the level of interest rates. Interest rate changes will affect securities with negative durations in the opposite direction. The Option-Adjusted Duration method of measuring duration takes into effect the embedded options on cash flows.

The Retirement System does not have a formal investment policy that limits investment maturities as a means of managing exposure to losses arising from increasing interest rates with the exception of the cash equivalent portfolio. The investment policy limits the duration of individual securities held in the cash equivalent portfolio to 2.5 years. In addition, the duration of the entire cash equivalent portfolio should be between 1 and 2 years.

As of December 31, 2017 and 2016, the Retirement System had the following Option-Adjusted Durations for the fixed income investments: (amounts are in thousands of dollars)

Fixed Income Sector	12/31/17		12/31/16	
	Fair Value*	Option Adjusted	Fair Value*	Option Adjusted
		Duration		Duration
ABS-Car Loan	\$ 1,971	0.92	\$ 2,933	1.29
ABS-Credit Cards	1,022	0.96	1,025	1.93
ABS-Home Equity	-	-	144	0.00
ABS-Small Business Administration	8,933	5.02	-	-
Aerospace & Defense	1,428	4.57	284	5.82
Agency for Int'l. Devel. Backed Debt	369	6.80	351	7.90
Automobiles & Components	-	-	576	10.11
Banking & Finance	10,761	5.01	9,398	5.13
Canadian Government Bonds	-	-	340	3.18
Capital Goods	2,110	3.85	738	9.88
Chemicals	1,678	4.91	660	9.06
CMBS - Conduit	12,287	4.25	1,010	0.05
Commercial Services & Supp.	4,348	11.92	202	13.03
Communications	1,378	3.29	1,917	7.88
FHLMC Multiclass	752	4.91	10,382	3.05
FHLMC Pools	14,127	3.65	5,408	2.09
FNMA Pools	21,868	3.74	15,750	2.53
FNMA REMIC	1,208	3.47	19,461	1.91
Food Beverage & Tobacco	205	5.40	683	5.67
Food Products	851	6.90	772	6.96
GNMA Multi Family Pools	381	4.13	504	2.86
GNMA REMIC	-	-	5,907	2.42
GNMA Single Family Pools	1,007	4.03	1,304	3.10
Health Care	7,054	11.25	1,796	7.87
Household Products	593	5.75	118	3.28
Industrial	3,152	3.50	289	4.36
Insurance	627	4.20	1,035	7.53
Interest Only US Agencies	-	-	223	11.37
Materials	-	-	12	7.50
Mining	-	-	233	3.39
Non-US Corporate Bonds	-	-	464	8.79
Oil & Gas	7,260	4.91	5,241	6.95
Other Corporate Bonds	375	3.16	-	-
Other U.S. Govt. Obligations	627	4.10	-	-
Paper & Forest Products	374	7.78	-	-
Principal Only US Agencies	-	-	5,379	5.51
Private Placements - ABS	-	-	1,056	0.38
Private Placements - MBS	-	-	1,172	2.46
Pvt Placements-More than 1 yr	7,144	3.81	4,263	5.49
Real Estate	31	6.66	-	-
REITS	4,798	4.84	1,523	5.88
Retail	-	-	1,400	9.81
Taxable Municipals	10,362	8.75	895	15.36
Technology	2,974	4.88	1,669	6.56
Transportation	1,656	4.31	1,568	7.14
U.S. Agencies	-	-	944	14.03
U.S. Governments Interest Only	-	-	14,395	10.48
U.S. Governments	16,203	10.23	29,655	6.01
Utility-Electric	4,743	7.91	3,850	6.08
Utility-Gas	353	4.48	358	4.82
Utility-Other	-	-	147	8.62
Utility-Telephone	2,131	10.91	2,383	9.70
Whole Loan - CMO	9	-	5,105	1.20
Whole Loan - Re-securitization	257	0.11	304	0.02
Yankee Bonds	-	-	1,291	7.84
Other*	96,460		100,622	
Total	\$ 253,867		\$ 267,442	

* For 2017, this represents \$99,717 in units of participation, \$510 in FNMA REMIC, \$1,850 in Utilities, \$1,903 in Whole Loans, and (\$7,520) in Cash transfer to be invested. For 2016, this represents \$50,198 in units of participation, \$246 in FNMA REMIC, \$1,058 in Utilities, \$875 in Whole Loans, and \$48,245 in Cash transfer to be invested.

Securities Lending –

Section 201.24 (9.1) of the General Ordinances of Milwaukee County and Board policies permit ERS to lend its securities to broker-dealers and other entities with a simultaneous agreement to return the collateral for the same securities in the future. ERS participates in such a securities lending program through its custodian, the Bank of New York Mellon, acting as ERS’s securities lending agent. ERS requires collateral from the borrower in the form of cash or securities. Collateral for domestic issues is set at 102% of the fair value of the securities loaned at the time of the initial transaction. If the value falls to 100% of the fair value of the securities loaned, additional collateral is obtained to reestablish collateral at 102% of the fair value of securities loaned. Collateral for international securities is maintained at a level of 105% of the fair value of securities loaned at all times. The securities lending program guidelines attempt to preserve capital while earning a moderate rate of return. Earnings from securities lending, after all fees are paid, are split on a percentage basis with the custodian. For 2017 and 2016, the net investment income realized from security lending was \$78,142 and \$122,663 respectively.

ERS also invested in several commingled funds managed by Mellon Capital Management that participated in securities lending programs. The earnings and losses attributable to the commingled funds’ securities lending programs are combined with the commingled funds’ performance and are not reported separately in ERS’s financial statements.

Securities loaned and the collateral held were as follows: (amounts are in thousands of dollars)

	As of December 31			
	2017		2016	
	Securities		Securities	
	Lent	Collateral	Lent	Collateral
Securities Lent for Cash Collateral				
Fixed income	\$ 9,063	\$ 9,280	\$ 18,827	\$ 19,243
Domestic stocks	14,893	15,211	14,642	14,960
Subtotal	23,956	24,491	33,469	34,203
Securities Lent for Securities Collateral				
Fixed income	4,535	4,718	3,084	3,149
Domestic stocks	858	876	829	846
Subtotal	5,393	5,594	3,913	3,995
Grand Total	\$ 29,349	\$ 30,085	\$ 37,382	\$ 38,198
Percent Collateral to Securities Loaned		102.51%		102.18%

The collateral received from securities lending transactions are recorded as assets at quoted fair value as of the financial statement date. The Retirement System records an identical amount as a liability, representing the obligation of the Retirement System to return the collateral at the time the borrower of the Retirement System’s securities return those securities.

The collateral received from securities lending transactions includes cash (in thousands) of approximately \$24,491 and \$34,203 and U.S. Treasury securities, Domestic stocks, and REIT’s of approximately \$5,594 and \$3,995 for the years ended December 31, 2017 and 2016, respectively. Under the terms of the securities lending agreement, the Retirement System has the right to sell or pledge the cash collateral. The non-cash collateral in the amounts of approximately \$5,594 and \$3,995 for the years ended December 31, 2017 and 2016, respectively, is controlled by the custodian and, correspondingly, not reflected in the Statements of Fiduciary Net Position.

At year-end, the Retirement System has no credit risk exposure to borrowers because the amounts the Retirement System owes the borrowers exceed the amounts the borrowers owe the Retirement System. The contract with the Retirement System’s custodian requires it to indemnify the Retirement System if a borrower fails to return the securities (and if the collateral is inadequate to replace the securities lent) or fails to pay the Retirement System for income distributions by the securities’ issuers while the securities are on loan.

(7) Financial Instruments with Off-Balance Sheet Risks –

A currency forward is a contractual agreement between two parties to pay or receive amounts of foreign currency at a future date in exchange for another currency at an agreed-upon exchange rate. Forward commitments are entered into with the foreign exchange department of a bank located in a major money market. These transactions are entered into in order to hedge risks from exposure to foreign currency rate fluctuations. Recognition of realized gain or loss depends on whether the currency exchange rate has moved favorably or unfavorably to the contract holder upon termination of the contract. Prior to termination of the contract, the Retirement System records the amount receivable or payable at fair value, with the unrealized gain or loss reported as a component of net appreciation in fair value. All contracts are short-term in duration and mature within 90 days.

The Retirement System did not hold any financial instruments with off-balance sheet risk as of December 31, 2017 and December 31, 2016.

ERS invests in financial futures contracts in order to improve the performance of the fund. The Retirement System purchases contracts that approximate the amount of cash held by US equity investment managers and cash used to pay benefits and expenses. Financial futures contracts are agreements to buy or sell a specified amount at a specified delivery or maturity date for an agreed upon price.

The market values of the futures contracts vary from the original contract price. A gain or loss is recognized and paid to or received from the clearinghouse. Financial futures represent an off balance sheet obligation, as there are no balance sheet assets or liabilities associated with those contracts. The cash or securities to meet these obligations are held in the investment portfolio. All contracts are short-term in duration and mature within 90 days.

ERS is subject to credit risk in the event of non-performance by counter parties to financial futures and forward contracts. ERS generally only enters into transactions with credit-worthy institutions. The Retirement System is exposed to market risk, the risk that future changes in market conditions may make an instrument less valuable. Exposure to market risk is managed in accordance with risk limits set by ERS management and by buying or selling futures or forward contracts. The cash or securities to meet these obligations are held in the investment portfolio.

The futures contracts held by the Retirement System are as follows: (amounts are in thousands of dollars)

	<u>As of December 31</u>			<u>As of December 31</u>	
	<u>2017</u>	<u>2016</u>		<u>2017</u>	<u>2016</u>
US Equity Managers			Cash Used to Pay Benefits and Expenses		
<u>Cash Held</u>			<u>Cash Held</u>	\$ 29,361	\$ 28,225
US Equity Investment Managers	\$ 30,962	\$ 17,298			
			<u>Futures Purchased</u>		
<u>Futures Purchased</u>			Barclays AGG (Fixed Income)	13,245	4,562
S&P 500 (US Equity)	13,915	5,031	S&P 500 (US Equity)	16,324	16,101
Futures Above\ (Below) Cash	(17,047)	(12,267)	MSCI EAFE (International Equity)	6,852	2,513
Market Value	\$ 359	\$ (172)	Total Futures Purchased	36,421	23,176
			Futures Above\ (Below) Cash	7,060	(5,049)
			Market Value	-	-
			Total Market Value	\$ 359	\$ (172)

(8) Commitments and Contingencies –

The Retirement System is involved in litigation and certain other disputes arising during the normal course of operations. Management does not believe the settlement of such matters will have a material impact on the Retirement System’s financial statements.

(9) OBRA 1990 Retirement System of the County of Milwaukee –

The County established the OBRA 1990 Retirement System of the County of Milwaukee (“OBRA”) to cover seasonal and certain temporary employees who are not enrolled in the Retirement System. Assets of the OBRA system are commingled for investment purposes with the assets of the Retirement System. The assets of the Retirement System are legally available to pay benefits of either the ERS or OBRA and all assets have been commingled. The Retirement System and OBRA are considered a single plan for financial reporting purposes.

Net assets identified for OBRA benefits as of December 31, 2017 and 2016 were as follows:

Statement of Fiduciary Net Position		
	(Unaudited)	
	<u>2017</u>	<u>2016</u>
Assets		
Cash	\$ 69,994	\$ 77,617
Assets held by Retirement System.....	<u>2,148,099</u>	<u>1,437,539</u>
Total assets	<u>2,218,093</u>	<u>1,515,156</u>
Liabilities		
Taxes Payable	<u>(12,822)</u>	<u>(1,570)</u>
Net position restricted for pensions	<u>\$ 2,205,271</u>	<u>\$ 1,513,586</u>

Changes in plan net position available for benefits for OBRA for the years ended December 31, 2017 and 2016, were as follows:

Statements of Change in Fiduciary Net Position		
	(Unaudited)	
	<u>2017</u>	<u>2016</u>
Contributions from the County	\$ 833,000	\$ 819,000
Investment income	242,489	87,752
Investment and administrative expenses	(204,323)	(459,362)
Benefits paid	<u>(179,481)</u>	<u>(244,349)</u>
Net increase in net position restricted for pensions	<u>\$ 691,685</u>	<u>\$ 203,041</u>

As of December 31, 2017 and 2016, respectively, there were 5,712 and 6,370 participants with vested benefits in OBRA. The total pension liability of OBRA at December 31, 2017 and 2016, was \$5,806,199 and \$4,605,852, respectively, leaving net assets available less than the total pension liability of (\$3,600,928) and (\$3,092,266), respectively. These amounts are not reflected in the required supplementary information tables that follow the notes to the financial statements.

(10) Net Pension Liability

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

ERS		
	<u>2017</u>	<u>2016</u>
Total pension liability.....	\$ 2,307,848,750	\$ 2,256,308,243
Plan fiduciary net position.....	<u>(1,786,408,565)</u>	<u>(1,671,682,331)</u>
Net pension liability.....	<u>\$ 521,440,185</u>	<u>\$ 584,625,912</u>
Plan fiduciary net pension as a percentage of the total pension liability.....	77.4%	74.1%

OBRA		
	<u>2017</u>	<u>2016</u>
Total pension liability.....	\$ 5,806,199	\$ 4,605,852
Plan fiduciary net position.....	<u>(2,205,271)</u>	<u>(1,513,586)</u>
Net pension liability.....	<u>\$ 3,600,928</u>	<u>\$ 3,092,266</u>
Plan fiduciary net pension as a percentage of the total pension liability.....	38.0%	32.9%

Actuarial assumptions—The last actuarial valuation was performed as of January 1, 2017, and these amounts were used to roll forward the total pension liability for the year ended December 31, 2017, and was determined using the following actuarial assumptions, applied to all prior periods included in the measurement:

Valuation date	1/1/2017
Actuarial cost method	Entry Age Normal—Level Percentage of Pay
Asset valuation method	10-year smoothed market
Amortization methods	For pension expense; the difference between expected and actual liability experience and changes of assumptions are amortized over the average of the expected remaining service lives of all members. The difference between projected and actual earnings is amortized over a closed period of five years.
Inflation Assumption	3.00%
Mortality Table	Healthy pensioners: The sex-distinct UP-2014 Mortality Table with Projection scale AA to 2012 and then fully generational thereafter using scale AA. Active members: 70% of the rates applicable to healthy pensioners.
Experience study	The actuarial assumptions used for ERS were based on the results of an actuarial experience study for the period January 1, 2012 through December 31, 2016. The actuarial assumptions used for OBRA were based on the results of an actuarial experience study for the period January 1, 2012 through December 31, 2016.

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 position plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2017 and 2016, respectively, are summarized in the following table:

<u>Asset Class</u>	<u>2017</u>		<u>2016</u>	
	<u>Policy</u>	<u>Long-term Expected Real Rate of Return *</u>	<u>Policy</u>	<u>Long-term Expected Real Rate of Return *</u>
Fixed income	18.00%	0.80%	18.00%	0.80%
Domestic common and preferred stocks	25.00%	5.20%	25.00%	5.10%
International common and preferred stocks ...	20.00%	5.50%	20.00%	5.30%
Long/Short hedge funds	8.50%	4.20%	8.50%	3.10%
Infrastructure	8.50%	5.60%	8.50%	5.30%
Real estate and REIT's	10.00%	5.30%	10.00%	5.50%
Private equity	10.00%	9.00%	10.00%	8.90%
Cash & cash equivalents	0.00%	0.00%	0.00%	0.00%
	<u>100.00%</u>		<u>100.00%</u>	

* Provided by Marquette Associates

Discount rate — The discount rate used to measure the total pension liability was 7.75 percent. The projection of cash flows used to determine the discount rate assumed that the Retirement System's contributions will continue to follow the current funding policy. Based on those assumptions, the Retirement System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members.

Sensitivity of the net pension liability to changes in the discount rate — The following presents the 2017 net pension liability of the Retirement System, calculated using the discount rate of 7.75 percent, as well as what the Retirement System and OBRA's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.75 percent) or 1-percentage-point higher (8.75 percent) than the current rate:

	<u>2017</u>		
	<u>1% Decrease (6.75%)</u>	<u>Current Discount (7.75%)</u>	<u>1% Increase (8.75%)</u>
ERS' net pension liability.....	\$ 747,699,917	\$ 521,440,185	\$ 330,647,176
OBRA's net pension liability.....	\$ 4,564,006	\$ 3,600,928	\$ 2,852,346

The following presents the 2016 net pension liability of the Retirement System, calculated using the discount rate of 8.0 percent, as well as what the Retirement System and OBRA's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (7.0 percent) or 1-percentage-point higher (9.0 percent) than the current rate:

	<u>2016</u>		
	<u>1% Decrease (7.00%)</u>	<u>Current Discount (8.00%)</u>	<u>1% Increase (9.00%)</u>
ERS' net pension liability.....	\$ 804,877,246	\$ 584,625,912	\$ 397,329,789
OBRA's net pension liability.....	\$ 4,071,976	\$ 3,092,266	\$ 2,360,877

11) Subsequent Events

The Retirement System has evaluated subsequent events occurring through July 24, 2018, the date the financial statements were available to be issued for events requiring recording or disclosure in the Retirement System's financial statements. Management feels that no material events occurred that would require disclosure, except for the following.

In January 2018, the Pension Board adopted the following changes:

- Transferring ERS's assets from IFM's non-hedged share class to its hedged Class A product.
- Selected QMA as ERS's emerging markets small cap manager and approved the reallocation of approximately one half of the assets from OFI to QMA.
- Pursuant to Ordinance section 201.24(8.6), the Pension Board voted unanimously to adopt Rule 1058—Benefit administration for non-public safety collective bargaining units recognized post-2011 Wisconsin Act 10.

In March 2018, the Pension Board adopted the following changes:

- The Pension Board voted unanimously to approve Northern Trust as ERS's new custodial and securities lender provider, finalize the related contract and provide notice to BNY Mellon as soon as administratively feasible.

In February 2017, the Director of Retirement Plan Services resigned. An interim Director was appointed by the County Executive until another Director can be found. In April 2018, a search for Director of Retirement Plan Services was started, and a new Director will begin in mid June 2018.

In 2017 an Experience Study (quinquennial) was completed. As a result of that study, the following changes will be made effective on January 1, 2018:

- The investment return assumption was lowered from 8.00% to 7.75%. This is part of a phase-in to 7.50% that is scheduled to be completed January 1, 2020.
- The inflation assumption was lowered from 3.00% to 2.50%.
- The salary increase assumptions for General Employees, Deputy Sheriffs, and Elected Officials were modified, generally with an increase to rates at certain age ranges.
- The mortality assumption for health participants was updated as follows:
 - ◇ Post-commencement—the RP-2014 Health Annuitant tables (102% of male rates and 107% of female rates), with generational projection using Scale MP-2016.
 - ◇ Pre-commencement—the RP-2014 Employee tables with generational projection using Scale MP-2016.
- The mortality assumption for disability retirees was updated to the RP-2014 Disabled Mortality Table (97% of male rates and 95% of female rates) with generational projection using Scale MP-2016.
- Other active decrement tables (retirement, termination, disability) were modified to more closely match recent experience.

As a result of these assumption changes, the total normal cost at beginning of year decreased by \$1,430,959 and the actuarial accrued liability increased by \$63,931,243. The total impact was an increase in the Actual Funding Contribution of \$3,677,576.

REQUIRED SUPPLEMENTARY INFORMATION
SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

Last 4 Fiscal Years

<u>ERS</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Total pension liability				
Service cost	\$ 15,190,699	\$ 16,094,324	\$ 15,740,283	\$ 15,299,451
Interest	173,929,104	173,972,802	171,661,372	172,040,282
Changes in benefit terms	-	-	-	-
Differences between expected and actual experience	(2,919,790)	16,052,053	41,648,688	(17,331,161)
Changes in assumptions	63,931,243	-	-	-
Benefit payments including refunds of member contributions	(198,590,749)	(212,662,113)	(188,819,565)	(177,366,124)
Net change in total pension liability	51,540,507	(6,542,934)	40,230,778	(7,357,552)
Total pension liability—beginning	2,256,308,243	2,262,851,177	2,222,620,399	2,229,977,951
Total pension liability—ending	<u>\$ 2,307,848,750</u>	<u>\$ 2,256,308,243</u>	<u>\$ 2,262,851,177</u>	<u>\$ 2,222,620,399</u>
Plan fiduciary net position				
Contributions—employer	\$ 53,660,695	\$ 50,625,672	\$ 39,080,593	\$ 19,005,395
Contributions—member	12,330,305	12,143,510	9,324,866	10,051,605
Net investment income	252,828,178	110,336,000	39,451,296	96,725,837
Benefit payments, including refunds of member contributions	(198,590,749)	(212,662,113)	(188,819,564)	(177,366,124)
Administrative expenses	(5,502,195)	(4,912,501)	(5,465,123)	(5,066,956)
Other	-	-	-	-
Net change in plan fiduciary net pension	114,726,234	(44,469,432)	(106,427,932)	(56,650,243)
Total plan fiduciary net position—beginning	1,671,682,331	1,716,151,763	1,822,579,695	1,879,229,938
Total plan fiduciary net position—ending	<u>\$ 1,786,408,565</u>	<u>\$ 1,671,682,331</u>	<u>\$ 1,716,151,763</u>	<u>\$ 1,822,579,695</u>
Net pension liability—ending	<u>\$ 521,440,185</u>	<u>\$ 584,625,912</u>	<u>\$ 546,699,414</u>	<u>\$ 400,040,704</u>
Plan fiduciary net position as a percentage of total pension liability	77.4%	74.1%	75.8%	82.0%
Covered-employee payroll	\$ 186,213,740	\$ 194,871,557	\$ 191,432,915	\$ 188,605,492
Net pension liability as a percentage of covered-employee payroll	280.0%	300.0%	285.6%	212.1%

The plan implemented GASB Statement No. 67 in the fiscal year 2014. Information calculated utilizing GASB 67 prior to fiscal year 2014 is not available.

(See independent auditor's report and notes to required supplemental information)

REQUIRED SUPPLEMENTARY INFORMATION
SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY AND RELATED RATIOS

Last 4 Fiscal Years

OBRA	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Total pension liability				
Service cost	\$ 110,678	\$ 95,763	\$ 111,283	\$ 97,190
Interest	370,220	320,348	298,507	297,724
Changes in benefit terms	-	-	-	-
Differences between expected and actual experience	676,340	405,683	103,770	(233,437)
Changes in assumptions	222,590	-	-	-
Benefit payments including refunds of member contributions	(179,481)	(244,349)	(206,452)	(126,636)
Net change in total pension liability	1,200,347	577,445	307,108	34,841
Total pension liability—beginning	4,605,852	4,028,407	3,721,299	3,686,458
Total pension liability—ending	\$ 5,806,199	\$ 4,605,852	\$ 4,028,407	\$ 3,721,299
Plan fiduciary net position				
Contributions—employer	\$ 833,000	\$ 819,000	\$ 440,000	\$ 440,000
Contributions—member	-	-	-	-
Net investment income	242,489	87,752	37,449	98,786
Benefit payments, including refunds of member contributions	(179,481)	(244,349)	(206,452)	(126,636)
Administrative expenses	(204,323)	(459,362)	(520,844)	(454,752)
Other	-	-	-	-
Net change in plan fiduciary net pension	691,685	203,041	(249,847)	(42,602)
Total plan fiduciary net position—beginning	1,513,586	1,310,545	1,560,392	1,602,994
Total plan fiduciary net position—ending	\$ 2,205,271	\$ 1,513,586	\$ 1,310,545	\$ 1,560,392
Net pension liability—ending	\$ 3,600,928	\$ 3,092,266	\$ 2,717,862	\$ 2,160,907
Plan fiduciary net position as a percentage of total pension liability	38.0%	32.9%	32.5%	41.9%
Covered-employee payroll	\$ 3,640,233	\$ 3,926,027	\$ 3,925,214	\$ 3,477,968
Net pension liability as a percentage of covered-employee payroll	98.9%	78.8%	69.2%	62.1%

The plan implemented GASB Statement No. 67 in the fiscal year 2014. Information calculated utilizing GASB 67 prior to fiscal year 2014 is not available.

(See independent auditor's report and notes to required supplemental information)

SCHEDULE OF COUNTY CONTRIBUTIONS
Last 10 Fiscal Years

ERS

FYE December 31	2017	2016	2015	2014	2013
Actuarially Determined Contribution (ADC)	\$65,799,451	\$63,067,396	\$57,853,824	\$ 29,564,925	\$ 32,136,934
Contributions related to ADC	65,991,000	62,769,182	48,405,459	29,057,000	30,952,781
Contribution deficiency/(excess)	(191,549)	298,214	9,448,365	507,925	1,184,153
Covered Employee Payroll	186,213,740	194,871,557	191,432,915	188,605,492	189,131,711
Contributions as a percentage of Covered Employee Payroll	35.44%	32.21%	25.29%	15.41%	16.37%

FYE December 31	2012	2011	2010	2009	2008
Actuarially Determined Contribution (ADC)	\$ 28,406,232	\$ 29,621,216	\$ 29,529,322	\$ 30,355,535	\$ 53,063,610
Contributions related to ADC	27,407,519	31,494,090	31,290,863	457,789,154	34,840,886
Contribution deficiency/(excess)	998,713	(1,872,874)	(1,761,541)	(427,433,619)	18,222,724
Covered Employee Payroll	190,747,973	221,647,443	237,040,117	233,820,179	227,364,398
Contributions as a percentage of Covered Employee Payroll	14.37%	14.21%	13.20%	195.79%	15.32%

OBRA

FYE December 31	2017	2016	2015	2014	2013
Actuarially Determined Contribution (ADC)	\$804,281	\$826,567	\$ 770,384	\$ 373,500	\$ 388,625
Contributions related to ADC	833,000	819,000	440,000	440,000	360,000
Contribution deficiency/(excess)	(28,719)	7,567	330,384	(66,500)	28,625
Covered Employee Payroll	3,640,233	3,926,027	3,925,214	3,477,968	7,735,644
Contributions as a percentage of Covered Employee Payroll	22.88%	20.86%	11.21%	12.65%	4.65%

FYE December 31	2012	2011	2010	2009	2008
Actuarially Determined Contribution (ADC)	\$ 446,452	\$ 807,028	\$ 716,439	\$ 660,925	\$ 557,813
Contributions related to ADC	880,000	2,022,000	786,000	660,925	522,000
Contribution deficiency/(excess)	(433,548)	(1,214,972)	(69,561)	-	35,815
Covered Employee Payroll	8,939,076	8,936,146	6,901,021	8,498,484	8,284,312
Contributions as a percentage of Covered Employee Payroll	9.84%	22.63%	11.39%	7.78%	6.30%

Notes to Schedules

Valuation date: Actuarially Determined Contributions (ADC) are calculated as of the January 1 of the fiscal year in which the contribution is made. That is, the contribution calculated for fiscal year ending December 31, 2017 is from the January 1, 2017 actuarial valuation. The contributions related to the ADC are a combination of employee contributions made during the fiscal year and the lump sum employer contribution made for the year.

The methods and assumptions used to calculate the Actuarially Determined Contributions are in the respective January 1 actuarial valuation reports. Prior to fiscal year ending December 31, 2014 the ADC shown is calculated based upon GASB No 25.

(See independent auditors' report and notes to required supplementary information)

**REQUIRED SUPPLEMENTARY INFORMATION
SCHEDULE OF INVESTMENT RETURNS**

Last 4 Fiscal Years

Fiscal Year	Total Investment Plan Assets	Annual Money-Weighted Rate of Return, Net of Investment Expense
2017	\$ 1,722,450,819	15.8% *
2016	\$ 1,610,341,450	6.9% *
2015	\$ 1,634,904,202	2.2% *
2014	\$ 1,715,303,583	5.3% *

* Calculated by Marquette Associates, Inc.
The plan implemented GASB Statement No. 67 in the fiscal year 2014.
Information calculated utilizing GASB 67 prior to fiscal year 2014 is
not available.

(See independent auditors' report and notes to required supplementary information)

NOTES TO REQUIRED SUPPLEMENTARY INFORMATION
As of and for the year ended December 31, 2017

1. This information presented is the required supplementary schedules, for pension funding purposes, was based on the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation is as follows:

Valuation date	1/1/2017
Actuarial cost method	Aggregate Entry Age Normal
Asset valuation method	10-year smoothed market
<u>Amortization methods:</u>	
Contribution variance	Level dollar, closed
Administrative expenses	Level dollar, closed
All other unfunded liability	Level percent of payroll, closed
<u>Remaining amortization periods:</u>	
Contribution variance	5 years
Administrative expenses	10 years
All other unfunded liability	30 years
<u>Actuarial Assumptions:</u>	
Investment rate of return	8.00%
Projected salary increases	3.50%
Post-retirement benefit increases	2%, simple

2. The total pension liability contained in the Schedule of Net Pension Liability and Related Ratios was provided by the Retirement System and OBRA's actuary, Conduent. The net pension liability is measured as the total pension liability less the amount of the fiduciary net position of the Retirement System and OBRA.
3. The required employer contributions and percent of those contributions actually made are presented in the Schedule of Contributions.

(See independent auditors' report and notes to required supplementary information)

TEN-YEAR HISTORICAL TREND INFORMATION

REVENUES BY SOURCE AND EXPENSES BY TYPE

(UNAUDITED)

Revenues by Source

Fiscal Year	Participant Contributions(1a)	County Contributions (1b)	Investment Income (Loss)(2)	Total
2017	\$ 12,330,305	\$ 53,660,695	\$ 256,014,405	\$ 322,005,405
2016	12,143,510	50,625,672	112,917,408	175,686,590
2015	9,324,866	39,080,593	42,890,830	91,296,289
2014	10,051,605	19,005,395	99,655,955	128,712,955
2013	8,954,525	21,998,256	260,834,765	291,787,546
2012	9,040,652	18,410,496	186,091,377	213,542,525
2011	3,313,807	28,275,594	11,186,780	42,776,181
2010	75,584	32,893,562	210,905,464	243,874,610
2009	131,766	457,789,154	319,997,171	777,918,091
2008	140,209	34,840,886	(352,108,625)	(317,127,530)

Expenses by Type

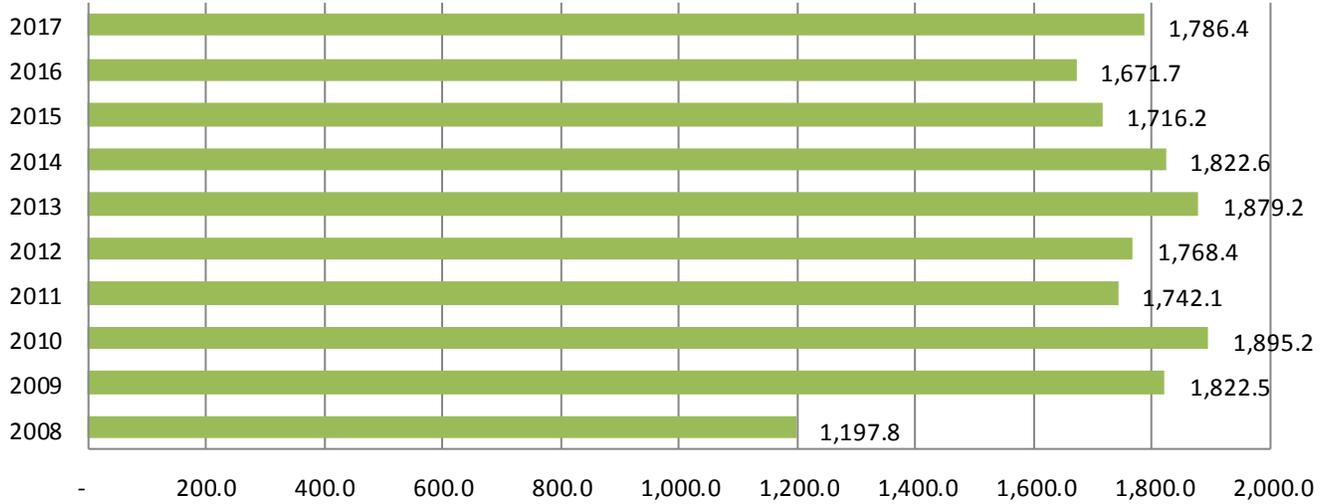
Fiscal Year	Benefits(3)	Investment and Administrative Expenses (4)	Withdrawals	Total
2017	\$ 196,852,807	\$ 8,688,421	\$ 1,737,942	\$ 207,279,170
2016	211,163,822	7,493,909	1,498,291	220,156,022
2015	187,512,204	8,904,657	1,307,360	197,724,221
2014	176,263,605	7,997,073	1,102,520	185,363,198
2013	172,583,835	7,963,552	444,848	180,992,235
2012	178,557,030	8,445,509	212,245	187,214,784
2011	187,460,030	8,305,984	70,123	195,836,137
2010	162,664,454	8,445,062	138,136	171,247,652
2009	145,306,937	7,846,655	38,583	153,192,175
2008	144,160,665	7,385,443	23,557	151,569,665

FOOTNOTES ARE IN THOUSANDS OF DOLLARS

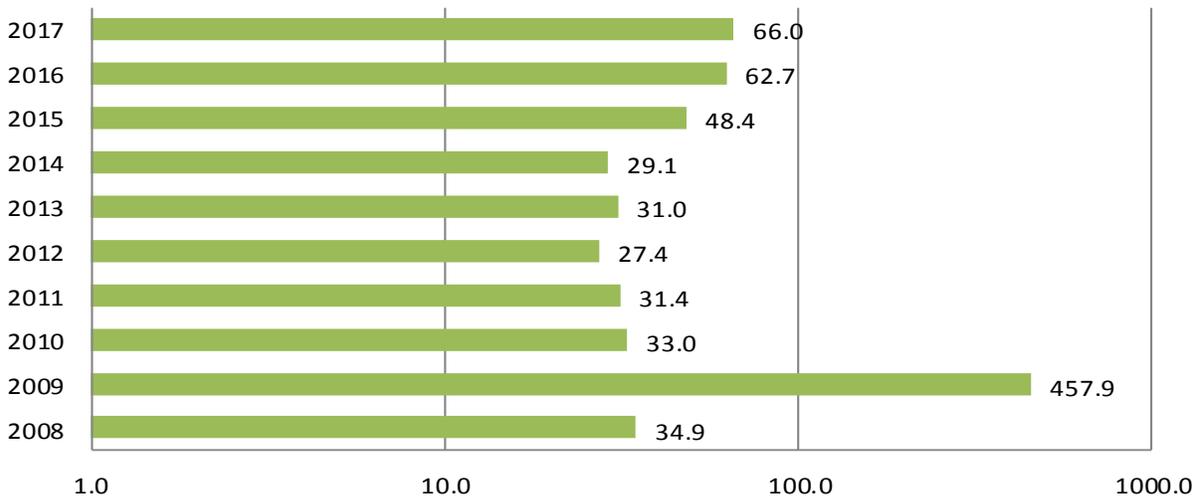
- (1a) Participant contributions are calculated by the actuary and are a percentage of the employees' pensionable compensation.
- (1b) County contributions are set during the County's budget process and are made at the discretion of the County Board.
- (2) Includes interest and dividends, net appreciation (depreciation) of fair value, net security lending income and other income.
- (3) Included in the benefits for 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, and 2008 are back drop lump-sum payments of \$19.9, \$24.4, \$19.8, \$12.6, \$11.7, \$21.7, \$38.8, \$20.3, \$8.7, and \$11.2 million, respectively.
- (4) There was a increase in investment and administrative expenses of \$1,303 from the past ten years ago, due mainly to the following expenses:
- outside consultants of \$158, with most of this increase occurring in 2008, 2009, and 2015 to support retirement systems, and additional audit services in 2017;
 - outside legal fees of \$58, due to buy-in/buy-back issues, RFP preparation, tax issues, and various other legal matters;
 - salaries and wages of \$273 and employee benefits of \$342, due to an increase in staff/benefits;
 - outside services and computer system expenses of \$240. The plan started using its new

(See independent auditors' report)

Fiduciary Net Position at Fair Value 2017-2008
(in millions of dollars)
(unaudited)



Actual County and Participant Contributions 2017-2008
(in millions of dollars)
(unaudited)



(See independent auditors' report)

ACTIVE MEMBERSHIP STATISTICS

(unaudited)

	<u>2017</u>	<u>2016</u>
Members as of January 1.....	4,882 *	5,006 *
Changes During the Year:		
New enrollments.....	488	488
Nonvested terminations.....	(197)	(317)
Retirements.....	(240)	(286)
Deaths in active service.....	(4)	(5)
Withdrawals	(87)	(29)
Data adjustments.....	<u>31</u>	<u>25</u>
Members as of December 31.....	<u>4,873 *</u>	<u>4,882 *</u>

* The total includes vested inactive members of 1,394 and 1,371 as of beginning of the year and end of the year, respectively.

RETIREMENTS AND SURVIVORS STATISTICS (unaudited)

	Retirements Granted							Survivors & Benefi- ciaries	Total	
	Maximum Pension	Option								
		Refund	100%	75%	50%	25%	10-yr.			Other
January 1, 2017	3,303	276	1,500	271	981	512	259	45	916	8,063
Changes During the Year:										
Adjustments (actuary)*	10	(1)	(12)	-	1	(1)	-	2	4	3
Retirements	117	1	63	13	21	14	20	-	68	317
Benefits Expired	-	-	-	-	-	-	-	-	(1)	(1)
Pensioner deaths	(109)	(26)	(64)	(6)	(50)	(5)	(7)	-	(78)	(345)
December 31, 2017	3,321	250	1,487	278	953	520	272	47	909	8,037

*Adjustments as a result of reclassifications made to beginning balances by the actuary

(See independent auditors' report)

CONSULTANTS
as of December 31, 2017

Legal Advisors

Milwaukee County
Corporation Counsel
Margaret Daun

Reinhart, Boerner, Van Deuren S.C.
Steven D. Huff, Secretary of the Pension Board
Milwaukee, Wisconsin

Actuary

Segal Consulting
Chicago, Illinois

Disbursing Agent

County Treasurer

Custodian/Securities Agent

BNY Mellon Asset Servicing
Pittsburgh, Pennsylvania

Medical Board

Managed Medical Review Organization, Inc.
Novi, Michigan

Investment Consultant

Marquette Associates, Inc.
Chicago, Illinois

Cash Equitization Manager

BNY Mellon BETA Management
San Francisco, California

Infrastructure Managers

IFM Investment Advisor
New York, New York

JP Morgan Investment Management
New York, New York

Long/Short Managers

ABS Investment Management
Greenwich, Connecticut

Parametric
Minneapolis, Minnesota

Fixed-Income Investment Managers

Galliard Capital Management
Minneapolis, Minnesota

Mellon Capital Management
Pittsburgh, Pennsylvania

U.S. Equity Investment Managers

Artisan Partners
Milwaukee, Wisconsin

Mesirow Fiduciary Management
Chicago, Illinois

Robeco Investment Management
Boston, Massachusetts

Silvercrest Asset Management Group
New York, New York

Mellon Capital Management
Pittsburgh, Pennsylvania

Northern Trust Investments
Chicago, Illinois

International Investment Managers

Segall Bryant & Hamill
Oaks, Pennsylvania

Northern Trust Investments
Chicago, Illinois

OFI Global Asset Management
New York, New York

Real Estate Investment Managers

American Realty Advisors
Glendale, California

Morgan Stanley Real Estate
New York, New York

UBS Realty Investors, LLC
Hartford, Connecticut

Private Equity Managers

Adams Street Partners
Chicago, Illinois

Progress Investment Management Company
San Francisco, California

Siguler Guff & Company, LLC
New York, New York

Mesirow Financial Equity Management
Chicago, Illinois

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