

# Employees' Retirement System of the County of Milwaukee

## Actuarial Valuation Report

Plan Year

January 1, 2017 – December 31, 2017

June 21, 2017

June 21, 2017

The Retirement Board  
Employees' Retirement System of the County of Milwaukee  
901 N. 9th St.  
Milwaukee, WI 53233

### **Certification of Actuarial Valuation**

Dear Ladies and Gentlemen:

This report presents the results of the annual actuarial valuation of the Employees' Retirement System of the County of Milwaukee as of January 1, 2017. The valuation takes into account all of the promised benefits to which members are entitled as of January 1, 2017, including pension and survivor benefits; and as required by the Retirement Code is the basis for the Budget Contribution for fiscal year 2017.

The valuation was based on the actuarial assumptions and methods as adopted by the Board of Trustees, including a valuation interest rate of 8% per annum compounded annually. Based on our recommendations in November 2012, the Board adopted revised actuarial assumptions effective with the January 1, 2013 valuation.

Use of this report for any other purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, you should ask Conduent to review any statement you wish to make on the results contained in this report. Conduent will not accept any liability for any such statement made without prior review by Conduent.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions, applicable law or regulations. Because of limited scope, Conduent performed no analysis of the potential range of such future differences.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the Plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the Plan. The actuary performs an analysis of Plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The Experience Study for the period January 1, 2007 to December 31, 2011 was prepared by Conduent and approved by the Board for use beginning with the January 1, 2013 actuarial valuation and will remain in effect for valuation purposes until such time as the Board adopts revised assumptions. The next Experience Study will be based on the period from January 1, 2012 to December 31, 2016 and upon approval by the Board will be the basis of valuations performed from January 1, 2018 through January 1, 2022. A summary of the actuarial assumptions and methods used in this actuarial valuation are shown in Table 18.

Where presented, references to “funded ratio” and “unfunded accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

### **Assets and Membership Data**

The Retirement System reported the individual data for members of the System as of the valuation date to the actuary. For 2017 we received the data in multiple files. Missing information was updated with either supplemental information sent or by using assumptions based on the prior year’s data. While we did not verify the data at their source, we did perform tests for internal consistency and reasonableness. The amount of assets in the trust fund taken into account in the valuation was based on statements prepared for us by the Retirement System.

### **Funding Adequacy**

The 2016 valuation performed last year resulted in an Actual Funding Contribution of \$63,067,396 against which \$51,297,571 in County contributions and \$12,619,906 in Member contributions (adjusted for interest as shown in Table 11) were actually contributed. The County contributions above include a MyChoice contribution of \$2,918,641, which will not be reflected in the calculation of any contribution variance. The net effect of these contributions established a contribution surplus for 2016 that is amortized over five years beginning January 1, 2017. The amortization of the additional MyChoice contribution will be amortized over 20 years beginning January 1, 2017.

The Actual Funding Contribution for 2017, based on the results of this valuation, is \$65,799,451. It is expected that \$65,991,000 (\$65,991,000 in expected contribution plus \$0 interest) will be contributed during 2017 on behalf of the 2017 plan year. The surplus in contributions of \$191,549 will be amortized over five years beginning January 1, 2018.

### **Budget Contribution**

The 2018 Budget Contribution, expected to be contributed in 2018, is \$72,194,000. Please note that this amount reflects a change in the discount rate from 8.00% to 7.75%, effective January 1, 2018.

### **Financial Results and Membership Data**

Detailed summaries of the financial results of the valuation and membership data used in preparing the valuation are shown in the valuation report. The actuary prepared supporting schedules and required supplementary information included in the County of Milwaukee Annual Report of the Pension Board.

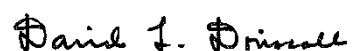
### **Compliance with Actuarial Standards of Practice**

Except as specially noted otherwise, the work in this report was performed in accordance with all applicable Actuarial Standards of Practice.


## Qualifications

The undersigned actuaries are members of the American Academy of Actuaries and are experienced in performing actuarial valuations of public employee retirement systems. To the best of our knowledge, this report is complete and accurate and has been prepared in accordance with applicable Actuarial Standards of Practice. We are members of the American Academy of Actuaries and meet the Academy's qualification standards to issue this Statement of Actuarial opinion and are available to answer questions about it.

Sincerely,



David L. Driscoll, FSA, EA, MAAA, FCA  
Principal, Consulting Actuary



Troy Jaros, FSA, EA, MAAA, FCA  
Senior Consultant, Retirement Actuary

Conduent HR Services

# Table of Contents

<b>Executive Summary</b> .....	1
TABLE 1: Summary of Results of Actuarial Valuation.....	10
TABLE 2: Security of Promised Benefits Unfunded Actuarial Accrued Liability Funded Status.....	11
TABLE 3: Unexpected Change in Unfunded Actuarial Accrued Liability.....	12
TABLE 4: Amortization Schedule for Funding.....	13
TABLE 5: Development of Normal Cost for Current and Prior Plan Year Actual Funding Calculations.....	14
TABLE 6: Gross Contribution Requirements.....	15
TABLE 7: Summary Statement of Market Value of Plan Assets.....	17
TABLE 8: Summary Reconciliation of Market Value of Plan Assets.....	18
TABLE 9: Derivation of Actuarial Value of Plan Assets.....	19
TABLE 10: Summary Reconciliation of Actuarial Value of Plan Assets.....	20
TABLE 11: Contributions for 2016 Plan Year and Variance from the Funding Calculation Contribution.....	21
TABLE 12: Actuarial Methods and Assumptions for GASB 67/68 Disclosure Purposes.....	22
TABLE 13: GASB 67 Net Pension Liability.....	23
TABLE 14: Sensitivity of the Net Pension Liability as of December 31, 2016 to Changes in the Discount Rate.....	24
TABLE 15: Pension Expense for Year Ended December 31, 2016 and and Deferred Inflows & Outflows of Resources Related to Pensions.....	25
TABLE 16: Projection of Fiduciary Net Position.....	28
TABLE 17: Actuarial Present Values of Projected Benefit Payments.....	29
TABLE 18: Description of Actuarial Assumptions and Methods.....	30
TABLE 19: Summary of Benefit and Contribution Provisions.....	34
TABLE 20: Summary of Membership Data as of January 1, 2017.....	39
TABLE 21: Active Membership Statistics (Unaudited).....	40
EXHIBIT I: Active Membership Data – All Employees.....	41
EXHIBIT II: Active Membership Data – General Employees.....	42
EXHIBIT III: Active Membership Data – Deputy Sheriffs.....	43
EXHIBIT IV: Active Membership Data – Elected Officials.....	44
EXHIBIT V: Active and Deferred Vested Members Obtaining Retirement Eligibility over Next Five Calendar Years.....	45
EXHIBIT VI: Retiree and Beneficiary Membership Data as of January 1, 2017.....	46
EXHIBIT VII: 5-Year History of Membership Data.....	47

## Table of Contents (continued)

EXHIBIT VIII: Detailed Tabulations of the Data.....	48
EXHIBIT IX: Glossary.....	67

# Executive Summary

This report presents the actuarial valuation as of January 1, 2017 for the Employees' Retirement System of the County of Milwaukee. The principal valuation results include:

The Actual Funding Contribution for fiscal year 2017, which is \$65,799,451.

The Budget Contribution for fiscal year 2018, which is \$72,194,000. Please note that this amount reflects a change in the discount rate from 8.00% to 7.75%, effective January 1, 2018.

The total funded ratio of the plan determined as of January 1, 2017, which is 77.1% based on the accrued liability and the actuarial value of assets. On a market value basis, the plan is 74.1% funded.

The determination of the unexpected change in the unfunded accrued liability (UAL) as of January 1, 2017, which is an increase in the UAL of \$26,129,846.

The valuation was based on membership and financial data submitted by the Retirement System.

## Changes since Last Year

### Legislative and Administrative Changes

No legislative or administrative changes have been adopted since the previous valuation.

Note that for purposes of the contribution rates shown in the report, these amounts are gross contribution amounts. It is our understanding that County staff will net out the amount of employee contributions that are collected to arrive at a net County contribution. The benefit and contribution provisions are outlined in Table 19.

### Actuarial Assumptions and Methods

No actuarial assumptions have changed since the previous valuation.

The actuarial assumptions and methods are outlined in Table 18.

## Contribution Amounts

The results of the valuation as of January 1, 2017 determine the Actual Funding Contribution for fiscal year 2017 and the Budget Contribution for fiscal year 2018. The Actual Funding Contribution for fiscal year 2017 is \$65,799,451. The Budget Contribution for fiscal year 2018 is \$72,194,000. These amounts are based on assumptions and methods as adopted by the Board and participant data as of January 1, 2017. Please note that the Budget Contribution for fiscal year 2018 reflects a change in the discount rate from 8.00% to 7.75%, effective January 1, 2018.

## Executive Summary (continued)

### Reasons for Change in Budget Contribution Calculated by the Actuary

The Budget Contribution calculated by the actuary increased from \$65,461,000 for fiscal year 2017 to \$72,194,000 for fiscal year 2018. A reconciliation of the increase of \$6,733,000 is shown in the following table. It is pertinent to note that the budget contribution calculated for 2018 reflects the decision to adopt a valuation rate of 7.75% as of 2018 rather than the rate of 8% assumed previously. No other assumption changes are contemplated at this time.

Item	Amount
1. 2017 Budget Contribution	\$ 65,461,000
2. Increase / (Decrease) during 2016 due to	
a. Unanticipated liability loss (gain)	475,000
b. Asset experience other than expected	210,000
c. 2016 reimbursable expenses other than assumed	307,000
d. 2016 contribution variance other than assumed	(391,000)
e. MyChoice Contribution	(262,000)
f. Increase due to assumption/method/plan changes	-
g. Total	<u>339,000</u>
3. 2017 Actual Contribution (1 + 2)	\$ 65,800,000
4. Expected Increase / (Decrease) during 2017 due to	
a. Normal cost and existing amortization base	\$ 873,000
b. Phase-in of deferred asset (gains) losses	1,014,000
c. Increase in reimburseable expenses	26,000
d. Expected contribution variance for 2017	(48,000)
e. Full recognition of bases	-
f. Change in Assumption	<u>4,529,000</u>
g. Total	<u>6,394,000</u>
5. 2018 Budget Contribution (3 + 4)	\$ 72,194,000



## Executive Summary (continued)

### Summary of Principal Results

Summarized below are the principal financial results for the Employees' Retirement System of the County of Milwaukee based upon the actuarial valuation as of January 1, 2017. Comparable results from the January 1, 2016 valuation are also shown.

Item	January 1, 2017	January 1, 2016
<b>Demographics</b>		
<u>Active Members</u>		
• Number	3,488	3,619
• Average Annual Pay	\$ 53,387	\$ 53,847
<u>Inactive Members</u>		
Members Receiving Benefits		
• Number	8,063	7,991
• Average Annual Benefit Payment	\$ 21,700	\$ 21,180
Members With Deferred Benefits		
• Number	1,394	1,387
• Average Annual Benefit Payment	\$ 8,153	\$ 7,993
<b>Actual Funding Contribution</b>		
	<b>(Fiscal Year 2017)</b>	<b>(Fiscal Year 2016)</b>
• Normal Cost with Interest	\$ 16,405,955	\$ 17,381,870
• Net Amortization Payments	47,838,754	44,459,669
• Expense	<u>1,554,742</u>	<u>1,225,857</u>
• Total Contribution	\$ 65,799,451	\$ 63,067,396
<b>Actuarial Funded Status</b>		
• Accrued Liability	\$ 2,256,308,243	\$ 2,262,851,177
• Actuarial Value of Assets	<u>1,740,422,208</u>	<u>1,767,419,752</u>
• Unfunded Accrued Liability	\$ 515,886,035	\$ 495,431,425
• Funded Ratio	77.1%	78.1%

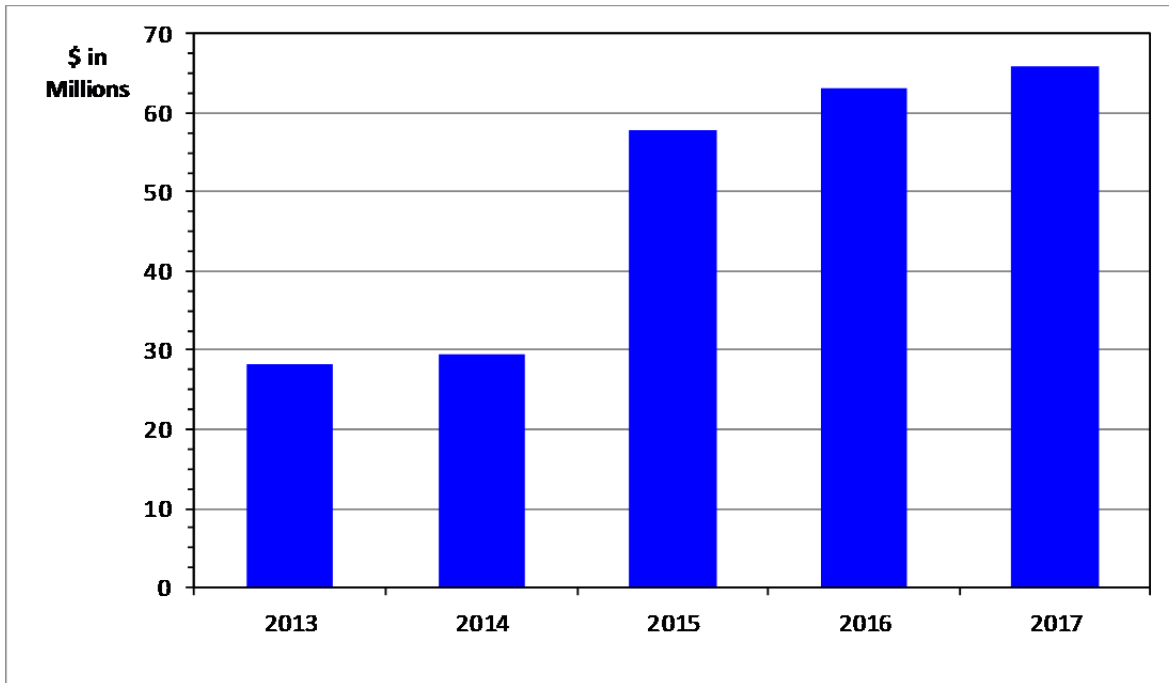
# Executive Summary (continued)

## Five-Year History of Principal Financial Results

### Five-Year History of Contribution Amounts

Valuation as of January 1	Normal Cost with Interest	Actual Funding Contributions		
		Net Amortization Payments	Expenses	Total
2017	\$ 16,405,955	\$ 47,838,754	\$ 1,554,742	\$ 65,799,451
2016	17,381,870	44,459,669	1,225,857	63,067,396
2015	16,999,506	39,300,143	1,554,175	57,853,824
2014	15,235,436	14,329,489	N/A	29,564,925
2013	16,105,425	12,164,620	N/A	28,270,045

Chart of Five-Year History of Actual Funding Contributions



## Executive Summary (continued)

### Funded Ratio

The financing objective of the System is to:

- Fully fund all current costs based on the normal contribution rate determined under the funding method; and
- Liquidate the unfunded accrued liability based on the amortization schedules as required by Section 3.1 of the retirement code, i.e., a schedule of 5 or 20 years for each change in the unfunded accrued liability.

The total Actual Funding Contribution of \$65,799,451, when taken together with the contributions payable by the members and asset returns, is the amount sufficient to achieve the financing objective for 2017.

The System's total funded ratio on the funding basis is measured by comparing the actuarial value of assets (based on a 10-year moving average market value) with the accrued liability. The accrued liability is the present value of benefits accumulated to date under the System's funding method and reflects future pay increases for active employees.

On this basis, the System's funded ratio is 77.1% as of January 1, 2017. This funded ratio is based on an actuarial value of assets of \$1,740,422,208 and an accrued liability of \$2,256,308,243.

### Reasons for Change in the Funded Ratio

The total funded ratio decreased from a reported 78.1% as of January 1, 2016 to 77.1% as of January 1, 2017. Returns on actuarial assets from 2015 were 7.4%, versus the expected return of 8.0%. Additionally, overall liability experience was worse than expected.

## Executive Summary (continued)

### Five-Year History of Funded Ratio Based on Actuarial Value of Assets

(\$ Amounts in Thousands)

Valuation as of January 1	Actuarial Value of Assets (a)	Actuarial Accrued Liability	Funded Ratio (a / b)	Unfunded Actuarial Accrued	Covered Payroll (c)	Unfunded as a Percentage of Covered Payroll
2017	\$ 1,740,422	\$ 2,256,308	77.1%	\$ 515,886	\$ 186,214	277.0%
2016	1,767,420	2,262,851	78.1%	495,431	194,872	254.2%
2015	1,773,638	2,222,620	79.8%	448,982	191,432	234.5%
2014	1,772,750	2,069,547	85.7%	296,797	188,605	157.4%
2013	1,768,435	2,025,319	87.3%	256,884	189,132	135.8%

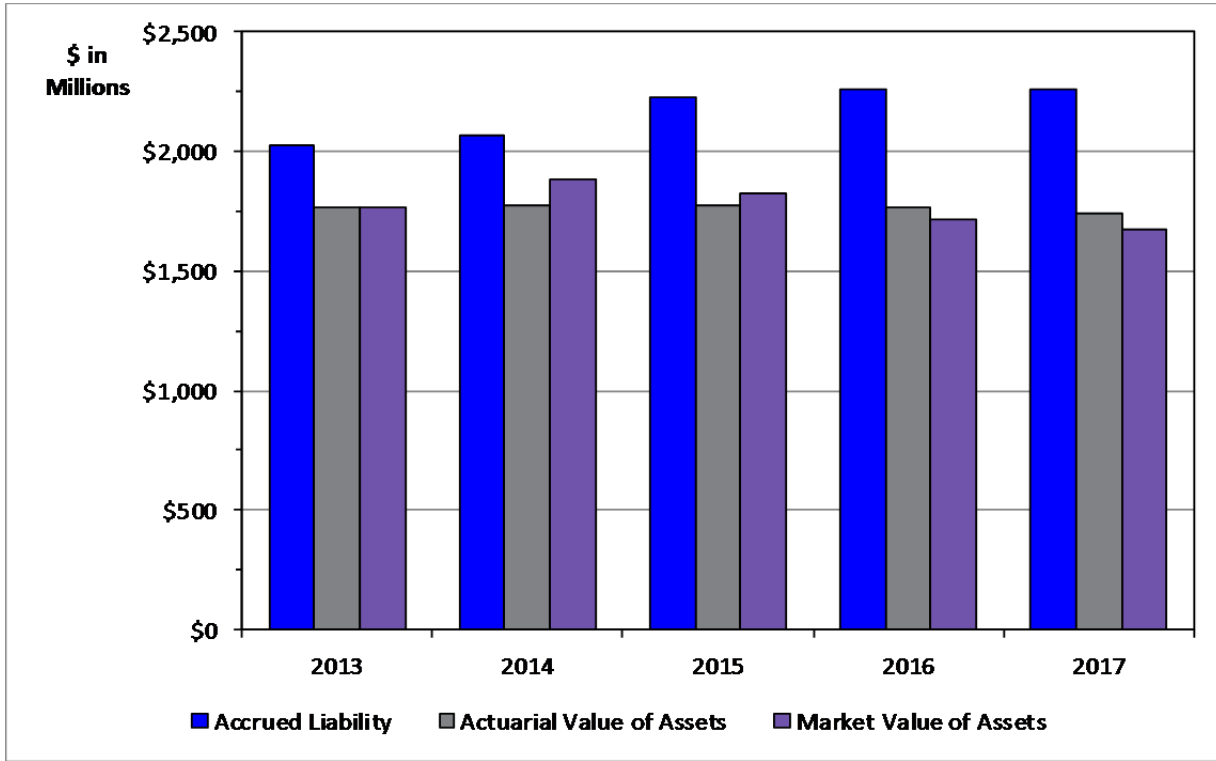
### Five-Year History of Funded Ratio Based on Market Value of Assets

(\$ Amounts in Thousands)

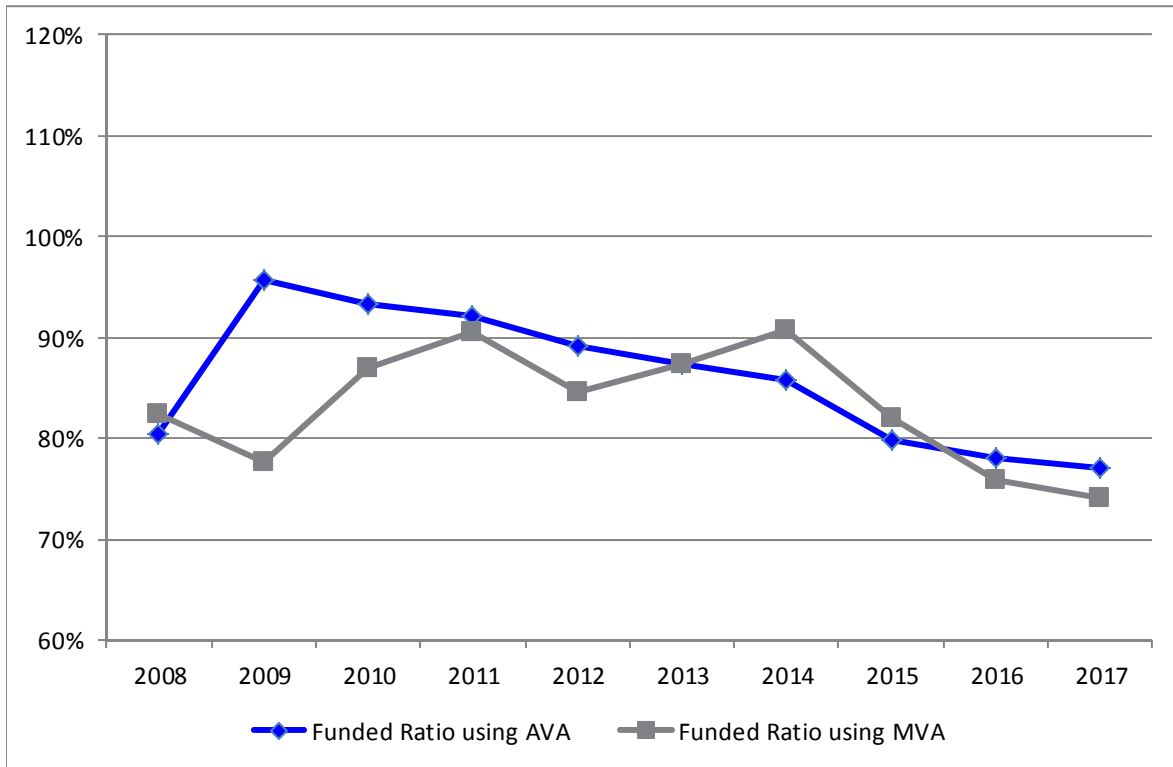
Valuation as of January 1	Market Value of Assets (a)	Actuarial Accrued Liability (b)	Funded Ratio (a / b)	Unfunded Actuarial Accrued Liability (b - a)	Covered Payroll (c)	Unfunded as a Percentage of Covered Payroll [(b - a) / c]
2017	\$ 1,671,682	\$ 2,256,308	74.1%	\$ 584,626	\$ 186,214	314.0%
2016	1,716,152	2,262,851	75.8%	546,699	194,872	280.5%
2015	1,822,579	2,222,620	82.0%	400,041	191,432	209.0%
2014	1,879,234	2,069,547	90.8%	190,313	188,605	100.9%
2013	1,768,435	2,025,319	87.3%	256,884	189,132	135.8%

# Executive Summary (continued)

Chart of Five-Year History of Accrued Liability and Actuarial Value of Assets



Ten-Year History of Funded Ratio



## Executive Summary (continued)

### Rate of Return

The investment return of the trust fund (i.e. total return including both realized and unrealized gains and losses) for fiscal years 2012 through 2016 is shown in the table below. The return based on the actuarial value of assets used for determining annual contribution rates is also shown.

The rate of return on market value reflects the investment earnings on the market value of assets from the beginning of the fiscal year to the end of the fiscal year. The actuarial assets are the assets recognized for valuation purposes. Actuarial assets are based on a smoothed market value that spreads the difference between the actual and expected return over a period of ten years. The rate of return on the actuarial value of assets is a measure of the increase in the actuarial value of assets from the beginning of the fiscal year to the end of the fiscal year. The rates of return shown below have been developed by the actuary for illustrative purposes only. They are based on simplifying assumptions and, as such, likely will not exactly match the returns presented by your investment consultants. The reader is encouraged to use the returns developed by the investment consultants.

### Five-Year History of Asset Returns

As of 12/31	Asset Values		Rates of Return		
	Market	Actuarial	Market	Actuarial	Assumed
2012	\$ 1,768,434,628	\$ 1,768,434,628	10.8%	4.8%	8.0%
2013	1,879,234,430	1,772,749,644	15.0%	8.7%	8.0%
2014	1,822,579,695	1,773,638,120	5.2%	8.9%	8.0%
2015	1,716,151,763	1,767,419,752	2.0%	8.0%	8.0%
2016	1,671,682,331	1,740,422,208	6.6%	7.4%	8.0%
Compound Rate of Return (five years):			7.8%	7.6%	8.0%

### GASB No. 67 and GASB No. 68 Disclosure

Please note that GASB Statement No. 25 (Financial Reporting for Defined Benefit Pension Plans) is applicable for fiscal years ending prior to 2014 and has been replaced by GASB Statement No. 67 (Financial Reporting for Pension Plans) for fiscal years ending 2014 and later. Similarly, GASB Statement No. 27 (Accounting for Pensions by State and Local Governmental Employers) is applicable for fiscal years ending prior to 2015 and has been replaced by GASB Statement No. 68 (Accounting and Financial Reporting for Pensions) for fiscal years ending 2015 and later.

## Executive Summary (continued)

The discount rate used to measure the total pension liability was 8.0%. The projection of cash flows used to determine the discount rate assumed that System contributions will continue to follow the current funding policy. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members.

### Net Pension Liability Asset

Net Pension Liability (Asset)				
	December 31, 2016		December 31, 2015	
Total Pension Liability	\$	2,256,308,243	\$	2,262,851,177
Plan Fiduciary Net Position		<u>1,671,682,331</u>		<u>1,716,151,763</u>
Net Pension Liability (Asset)	\$	584,625,912	\$	546,699,414
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (Asset)		74.09%		75.84%
Covered Employee Payroll	\$	194,871,557	\$	191,432,915
Net Pension Liability (Asset) as a Percentage of Covered Employee Payroll		300.01%		285.58%

Please see Tables 12 – 17 for a summary of all GASB 67 and GASB 68 results.

## TABLE 1: Summary of Results of Actuarial Valuation

Item	January 1, 2017	January 1, 2016
<b>Participant Data</b>		
1. Number of Participants		
a. Active Participants	3,488	3,619
b. Participants with Deferred Benefits	1,394	1,387
c. Participants Receiving Benefits	<u>8,063</u>	<u>7,991</u>
d. Total All Participants	12,945	12,997
2. Annualized Salaries	\$ 186,213,740	\$ 194,871,557
3. Annual Annuities	\$ 174,967,121	\$ 169,278,563
<b>Valuation Results</b>		
4. Present Value of Projected Benefits		
a. Active Participants	\$ 532,308,013	\$ 595,350,716
b. Participants with Deferred Benefits	79,583,004	74,513,301
c. Participants Receiving Benefits	<u>1,744,454,752</u>	<u>1,697,765,361</u>
d. Total All Participants	\$ 2,356,345,769	\$ 2,367,629,378
5. Present Value of Future Normal Costs	\$ 100,037,526	\$ 104,778,201
6. Actuarial Accrued Liability: (4 - 5)	\$ 2,256,308,243	\$ 2,262,851,177
7. Actuarial Value of Assets	\$ 1,740,422,208	\$ 1,767,419,752
8. Funded Status: (7 / 6)	77.1%	78.1%
9. Unfunded Actuarial Accrued Liability	\$ 515,886,035	\$ 495,431,425
10. Normal Cost for the Plan Year	\$ 15,190,699	\$ 16,094,324
<b>Actual Funding Contribution and Annual Required Contribution for Fiscal Year*</b>		
11. Actual Funding Contribution Calculated by Actuary		
a. Normal Cost with Interest	\$ 16,405,955	\$ 17,381,870
b. Net Annual Amortization Payments	47,838,754	44,459,669
c. Expenses	<u>1,554,742</u>	<u>1,225,857</u>
d. Total Contribution: ((a + b + c), not less than zero)	\$ 65,799,451	\$ 63,067,396

\* Effective January 1, 2011 Elected Officials and Non-Represented employees contributed 2% of compensation. For all Non-Represented employees (other than elected officials), the contribution increased to 4% of compensation effective December 11, 2011. During 2011, State mandated contributions were implemented. The amounts shown above are gross of member contributions.



## TABLE 2: Security of Promised Benefits Unfunded Actuarial Accrued Liability Funded Status

Item	January 1, 2017	January 1, 2016
1. Actuarial Accrued Liability		
a. Active Participants		
Retirement Benefits	\$ 400,213,582	\$ 454,933,671
Withdrawal Benefits	24,945,444	27,672,128
Disability Benefits	4,146,195	4,622,567
Death Benefits	<u>2,965,266</u>	<u>3,344,149</u>
Total Active	432,270,487	490,572,515
b. Participants with Deferred Benefits	79,583,004	74,513,301
c. Participants Receiving Benefits	<u>1,744,454,752</u>	<u>1,697,765,361</u>
d. Total All Participants	2,256,308,243	2,262,851,177
2. Actuarial Value of Assets	1,740,422,208	1,767,419,752
3. Unfunded Actuarial Accrued Liability (1d - 2)	515,886,035	495,431,425
4. Funded Status (2 / 1d)	77.1%	78.1%

The interest rate used as of January 1, 2017 and January 1, 2016 was 8.00%

**TABLE 3: Unexpected Change in Unfunded Actuarial Accrued Liability**

Item	December 31, 2016	December 31, 2015
1. Actuarial Accrued Liability at Beginning of Year	\$ 2,262,851,177	\$ 2,222,620,399
2. Increases/(Decreases) During the Year		
a. Normal Cost for the year	16,094,324	15,740,283
b. Benefit Payments and Refunds	(212,662,113)	(188,819,565)
c. Assumed Interest to End of Year*	173,972,802	171,661,372
d. Plan and Assumption Changes	-	-
e. Total: (a + b + c + d + e)	(22,594,987)	(1,417,910)
3. Expected Liability at End of Year	2,240,256,190	2,221,202,489
4. Actuarial Accrued Liability at End of Year	2,256,308,243	2,262,851,177
<b>5. Liability Unexpected Change on UAL: (4 - 3)</b>	<b>\$ 16,052,053</b>	<b>\$ 41,648,688</b>
6. Actuarial Value of Assets at Beginning of Year	\$ 1,767,419,752	\$ 1,773,638,120
7. Increases/(Decreases) During the Year		
a. County Contributions	50,625,672	39,080,593
b. Member Contributions	12,143,510	9,324,866
c. Benefit Payments and Refunds	(212,662,113)	(188,819,565)
d. Administrative Expenses Reimbursable by County	(1,225,857)	(1,204,226)
e. Assumed Interest to End of Year*	134,199,037	135,116,167
f. Total: (a + b + c + d + e)	(16,919,751)	(6,502,165)
8. Expected Actuarial Assets at End of Year (6 + 7)	1,750,500,001	1,767,135,955
9. Actuarial Value of Assets at End of Year (prior to method change)	1,740,422,208	1,767,419,752
<b>10. Actuarial Asset Unexpected Change on UAL: (8 - 9)</b>	<b>\$ 10,077,793</b>	<b>\$ (283,797)</b>
<b>11. Total Unexpected Change in UAL: (5 + 10)</b>	<b>\$ 26,129,846</b>	<b>\$ 41,364,891</b>

\*8.00% per annum interest rate assumed for 2016 plan year

## TABLE 4: Amortization Schedule for Funding

### For Actual Funding Contribution for 2017

Type of Payment	Amortization Period				Balances		
	Date Created	Initial Years	Remaining Years	Last Payment	Initial	Outstanding	Payment
<b>1. Charges</b>							
Reestablished UAAL	1/1/2015	21	19	2035	448,982,279	441,260,879	40,687,684
Increase to UAAL	1/1/2016	20	19	2035	49,830,707	49,345,391	4,550,029
Loss	1/1/2017	20	20	2036	26,129,846	26,129,846	2,344,874
Contribution variance	1/1/2017	5	5	2021	2,068,560	2,068,560	518,084
Total Charges						\$ 518,804,676	48,100,671
<b>2. Credits</b>							
MyChoice contribution	1/1/2017	20	20	2036	2,918,641	2,918,641	261,917
Total Credits						\$ 2,918,641	261,917
<b>3. Net Amount (1 - 2)</b>						\$ 515,886,035	\$ 47,838,754

### For Budget Contribution for 2018

Type of Payment	Amortization Period				Balances		
	Date Created	Initial Years	Remaining Years	Last Payment	Initial	Outstanding	Payment
<b>1. Charges</b>							
Reestablished UAAL	1/1/2015	21	18	2035	448,982,279	435,874,065	40,643,477
Increase to UAAL	1/1/2016	20	18	2035	49,830,707	48,742,993	4,545,085
Loss	1/1/2017	20	19	2036	26,129,846	25,875,360	2,340,555
Contribution variance	1/1/2017	5	4	2021	2,068,560	1,715,961	515,204
Loss	1/1/2018	20	20	2037	11,295,738	11,295,738	993,670
Assumption change	1/1/2018	20	20	2037	51,249,912	51,249,912	4,508,382
Total Charges						\$ 574,754,029	\$ 53,546,373
<b>2. Credits</b>							
MyChoice contribution	1/1/2017	20	19	2036	2,918,641	2,890,215	261,434
Contribution variance	1/1/2018	5	5	2022	191,549	191,549	47,659
Total Credits						\$ 3,081,764	\$ 309,093
<b>3. Net Amount (1 - 2)</b>						\$ 571,672,265	\$ 53,237,280

Note the assumption change is lowering the discount rate from 8.00% to 7.75% effective with the January 1, 2018 valuation.

**TABLE 5: Development of Normal Cost for Current and Prior Plan Year Actual Funding Calculations**

Item	January 1, 2017	January 1, 2016
1. Present Value of Projected Benefits		
a. Active Participants		
Retirement Benefits	\$ 481,083,683	\$ 539,947,745
Withdrawal Benefits	38,242,450	41,230,704
Disability Benefits	5,978,054	6,509,230
Death Benefits	<u>7,003,826</u>	<u>7,663,037</u>
Total Active	532,308,013	595,350,716
b. Participants with Deferred Benefits	79,583,004	74,513,301
c. Participants Receiving Benefits	<u>1,744,454,752</u>	<u>1,697,765,361</u>
d. Total All Participants	2,356,345,769	2,367,629,378
2. Actuarial Value of Assets	1,740,422,208	1,767,419,752
3. Unfunded Actuarial Accrued Liability	515,886,035	495,431,425
4. Present Value of Future Normal Costs (1d - 2 - 3)	100,037,526	104,778,201
5. Individual Normal Cost		
Retirement Benefits	\$ 12,060,935	\$ 12,867,341
Withdrawal Benefits	2,295,127	2,338,415
Disability Benefits	560,069	602,552
Death Benefits	<u>274,568</u>	<u>286,016</u>
Total Individual Normal Cost	15,190,699	16,094,324
6. <b>Normal Cost for the Plan Year</b>	<b>15,190,699</b>	<b>16,094,324</b>

\* Prior-year earnings increased by the salary assumption and limited by the IRS compensation limit for those under the mandatory retirement age.

## TABLE 6: Gross Contribution Requirements

Item	2018 Budget	Actual	2017 Budget
1. Normal Cost with Interest	\$ 17,377,000	\$ 16,405,955	\$ 17,372,000
2. Net Annual Amortizations	53,237,000	47,838,754	46,841,000
3. Expenses	<u>1,580,000</u>	<u>1,554,742</u>	<u>1,248,000</u>
4. Total Contribution (1 + 2 +3, not less than zero)	\$ 72,194,000	\$ 65,799,451	\$ 65,461,000

The budgeted contributions shown above for the 2018 and 2017 plan years were estimated based on participant data as of January 1, 2017, and January 1, 2016, respectively.

The 2017 Actual and Budget Contributions are based on financing all sources of unfunded actuarial accrued liability (UAAL) over fixed periods corresponding to the date of establishment. For the 2018 Budget Contribution, a base for unexpected change in UAAL during 2017 is added and amortized over 20 years. There is also a base added for changing the discount rate from 8.00% to 7.75% effective January 1, 2018 and is amortized over 20 years. In addition, a contribution variance base is added and amortized over 5 years for the amount of the 2017 Actual Contribution determined in this report that is not contributed during 2017. This contribution variance amount does not include the additional MyChoice contribution that was made, which a separate base is added and is amortized over 20 years. See Table 4 for details.

Note that for purposes of the contribution rates shown in the report, these amounts are gross contribution amounts. It is our understanding that County staff will net out the amount of employee contributions that are collected to arrive at a net County contribution.

## TABLE 6: Gross Contribution Requirements (continued)

### State Mandated Member Contributions

Item	Results Based on Current Contributions			
	Non-Contributors	Public Safety	General	All Members
<b>Valuation Results as of January 1, 2017</b>				
1. Present Value of Future Benefits				
a) Active Participants *	\$ -	\$ 84,223,244	\$ 448,084,769	\$ 532,308,013
b) Participants with Deferred Benefits	79,583,004	-	-	79,583,004
c) Participants Receiving Benefits	<u>1,744,454,752</u>	<u>-</u>	<u>-</u>	<u>1,744,454,752</u>
d) Total	\$ 1,824,037,756	\$ 84,223,244	\$ 448,084,769	\$ 2,356,345,769
2. Present Value of Future Normal Cost	\$ -	\$ 11,144,590	\$ 88,892,936	\$ 100,037,526
3. Actuarial Accrued Liability: (1 - 2)	\$ 1,824,037,756	\$ 73,078,654	\$ 359,191,833	\$ 2,256,308,243
4. Actuarial Value of Assets	\$ 1,406,986,758	\$ 56,369,830	\$ 277,065,620	\$ 1,740,422,208
5. Funded Status: (4 ÷ 3)	77.1%	77.1%	77.1%	77.1%
6. Unfunded Actuarial Accrued Liability: (3 - 4)	\$ 417,050,998	\$ 16,708,824	\$ 82,126,213	\$ 515,886,035
7. Total Normal Cost for the Plan Year	\$ -	\$ 1,725,692	\$ 13,465,007	\$ 15,190,699
<b>Projected Employee Contribution for 2018</b>				
1. Actual Contribution for 2017				
a) Normal Cost with Interest	\$ -	\$ 1,863,747	\$ 14,542,208	\$ 16,405,955
b) Net Annual Amortization Payments **	38,673,658	1,549,430	7,615,666	47,838,754
c) Expenses	<u>1,256,880</u>	<u>50,356</u>	<u>247,506</u>	<u>1,554,742</u>
d) Total Contribution: ((a + b + c), not less than zero)	\$ 39,930,538	\$ 3,463,533	\$ 22,405,380	\$ 65,799,451
2. Employee Contribution (50% of 1d for Contributors)	N/A	\$ 1,731,767	\$ 11,202,690	N/A
3. Expected Salaries in 2017	\$ -	\$ 19,995,006	\$ 166,218,735	\$ 186,213,741
4. Employee Contribution Rate (2 ÷ 3 ÷ 1.08 <sup>1/2</sup> )	N/A	8.3%	6.5%	N/A

\* The actives in the Public Safety group include 314 members comprised of Represented Firefighters and Sheriffs and Non-Represented Firefighters and Sheriffs.

\*\* The Net Annual Amortization Payments for the Contributors was prorated based on the contributors' actuarial accrued liability compared to total actuarial accrued liability of the Retirement System.

## TABLE 7: Summary Statement of Market Value of Plan Assets

Asset Category	Market Value as of December 31, 2016	Market Value as of December 31, 2015
1. Cash and Cash Equivalents	\$ 58,342,501	\$ 75,932,273
2. Investments at Fair Value		
a. Domestic common and preferred stocks	\$ 485,244,749	\$ 578,057,529
b. Futures contracts	(171,817)	158,689
c. Corporate bonds	267,441,880	291,782,236
d. International common and preferred stocks	266,029,194	146,364,857
e. Federal agency and mortgage-backed certificates	-	-
f. International fixed income	-	-
g. Venture Capital	-	-
h. Real estate investment trusts	171,919,953	198,099,895
i. Long/Short hedge funds	148,310,784	177,426,363
j. Infrastructure	149,511,052	151,437,209
k. Private equity	<u>122,055,655</u>	<u>91,577,424</u>
l. Total Investments	1,610,341,450	1,634,904,202
3. Contributions Receivable for OBRA and ERS	4,414,873	39,520,593
4. (Payable) to OBRA Pension Plan	(1,437,539)	(1,292,204)
5. Net All Other Receivables (Liabilities)	<u>21,046</u>	<u>(32,913,101)</u>
6. Net Assets Held in Trust for ERS Pension Benefits (1 + 2l + 3 + 4 + 5)	\$ 1,671,682,331	\$ 1,716,151,763

**TABLE 8: Summary Reconciliation of Market Value of Plan Assets**

Item	Year ended December 31,	
	2016	2015
1. Market Value of Assets at beginning of year	\$ 1,716,151,763	\$ 1,822,579,695
2. Contributions for Plan Year		
a. County	\$ 50,625,672	\$ 39,080,593
b. Member	12,143,510	9,324,866
c. Total	<u>62,769,182</u>	<u>48,405,459</u>
3. Disbursements for Plan Year		
a. Benefit payments and refunds	\$ 212,662,113	\$ 188,819,565
b. Administrative expenses payable to County	<u>1,225,857</u>	<u>1,204,226</u>
c. Total	213,887,970	190,023,791
4. Market Value of Assets at end of year	1,671,682,331	1,716,151,763
5. Net Investment Income *	106,649,356	35,190,400
(4 - 1 - 2c + 3c)		
6. Expected Net Investment Income (8.00% per annum)	130,097,598	139,031,493
7. Unexpected Change of Market Value of Assets	(23,448,242)	(103,841,093)
(5 - 6)		
8. Estimated Rate of Return	6.6%	2.0%

\* Net Investment Income is the change in the value of assets for reasons other than contributions.



## TABLE 9: Derivation of Actuarial Value of Plan Assets

1. Market Value of Assets as of December 31, 2016 \$ 1,671,682,331

2. Determination of Unexpected Change in Assets

Year	Unexpected Change	Percentage Deferred	Amount Deferred
2016	\$ (23,448,242)	90%	\$ (21,103,418)
2015	\$ (103,841,093)	80%	\$ (83,072,874)
2014	\$ (50,790,631)	70%	\$ (35,553,442)
2013	\$ 118,316,429	60%	\$ 70,989,857
2012	\$ -	50%	\$ -
2011	\$ -	40%	\$ -
2010	\$ -	30%	\$ -
2009	\$ -	20%	\$ -
2008	\$ -	10%	\$ -
2007	\$ -	%	\$ -
Total			(68,739,877)

3. Actuarial Value of Assets (1 - 2) \$ 1,740,422,208

Assets were re-established at market value on January 1, 2013, so actual Unexpected Changes prior to 2013 are not applicable.

**TABLE 10: Summary Reconciliation of Actuarial Value of Plan Assets**

Item	Year ended December 31,	
	2016	2015
1. Actuarial Value of Assets at beginning of year	\$ 1,767,419,752	\$ 1,773,638,120
2. Contributions for Plan Year		
a. County	\$ 50,625,672	\$ 39,080,593
b. Member	<u>12,143,510</u>	<u>9,324,866</u>
c. Total	62,769,182	48,405,459
3. Disbursements for Plan Year		
a. Benefit payments and refunds	\$ 212,662,113	\$ 188,819,565
b. Administrative expenses payable to County	<u>1,225,857</u>	<u>1,204,226</u>
c. Total	213,887,970	190,023,791
4. Actuarial Value of Assets at end of year	1,740,422,208	1,767,419,752
5. Net Investment Income * (4 - 1 - 2c + 3c)	124,121,244	135,399,964
6. Expected Net Investment Income (8.00% per annum)	134,199,037	135,116,167
7. Unexpected Change of Actuarial Value of Assets (5 - 6)	(10,077,793)	283,797
8. Estimated Rate of Return	7.4%	8.0%

\* Net Investment Income is the change in the value of assets for reasons other than contributions

**TABLE 11: Contributions for 2016 Plan Year and Variance from the Funding Calculation Contribution**

Item		Amount		
1. Total Funding Calculation, End-of-Year Basis, for 2016 Plan Year (from January 1, 2016 actuarial valuation report)		\$ 63,067,396		
2. Total Employer Contributions Made:				
Contribution Made	Fraction of a Year Invested	Contribution Amount	Interest to Year End*	End of Year Amount
Bi-weekly	50.0%	\$ -	\$ -	\$ -
9/15/2016	29.5%	15,600,000	358,326	15,958,326
10/15/2016	21.3%	15,600,000	257,974	15,857,974
12/15/2016	4.6%	15,525,799	55,599	15,581,398
4/24/2017	0.0%	<u>3,899,873</u>	<u>-</u>	<u>3,899,873</u>
Total		\$ 50,625,672	\$ 671,899	\$ 51,297,571
3. Total Member Contributions Made:				
Contribution Made	Fraction of a Year Invested	Contribution Amount	Interest to Year End*	End of Year Amount
Bi-weekly	50.0%	\$ 12,143,510	\$ 476,396	\$ 12,619,906
4. MyChoice Contribution		\$ 2,918,641		
5. Variance from Funding Calculation Amount** (2 + 3 - 1 - 4)		\$ (2,068,560)		

\* Interest to December 31, 2016 at 8.00% per annum.

\*\* Variance will be amortized on a level dollar basis over five years.

Note that for purposes of the contribution rates shown in the report, these amounts are gross contribution amounts. It is our understanding that County staff will net out the amount of employee contributions that are collected to arrive at a net County contribution.

## **TABLE 12: Actuarial Methods and Assumptions for GASB 67/68 Disclosure Purposes**

The total pension liability as of December 31, 2016 was determined by rolling forward the total pension liability as of January 1, 2016 to December 31, 2016 using the following actuarial methods and assumptions, applied to all periods included in the measurement. All other assumptions such as retirement rates, termination rates, and disability rates used to determine the total pension liability are set forth in Table 18 – Description of Actuarial Assumptions and Methods.

### **Valuation Date**

January 1, 2016

### **Discount Rate**

8.0% net of all administrative expenses, compounded annually

### **Actuarial Cost Method**

Entry Age Normal – Level Percentage of Pay

### **Amortization Method**

For pension expense; the difference between expected and actual liability experience and changes of assumptions are amortized over the average expected remaining service lives of all members as of the Valuation Date.

The difference between projected and actual earnings is amortized over a closed period of five years.

### **Mortality**

Healthy pensioners

The sex-distinct UP-1994 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 were based on the results of an actuarial experience study for the period January 1, 2007 through December 31, 2011.

## TABLE 13: GASB 67 Net Pension Liability

### Schedule of Changes in Net Pension Liability

	Fiscal Year Ending December 31, 2016	Fiscal Year Ending December 31, 2015
<b>Total Pension Liability</b>		
Service Cost	\$ 16,094,324	\$ 15,740,283
Interest	173,972,802	171,661,372
Changes of Benefit Terms	-	-
Difference between Expected and Actual Experience	16,052,053	41,648,688
Change of Assumptions	-	-
Benefit Payments, including Refund of Member Contributions	<u>(212,662,113)</u>	<u>(188,819,565)</u>
Net Change in Total Pension Liability	(6,542,934)	40,230,778
Total Pension Liability - Beginning of Year	\$ 2,262,851,177	\$ 2,222,620,399
Total Pension Liability - End of Year	\$ 2,256,308,243	\$ 2,262,851,177
<b>Plan Fiduciary Net Position</b>		
Employer Contributions	\$ 50,625,672	\$ 39,080,593
Member Contributions	12,143,510	9,324,866
Net Investment Income	110,336,000	39,451,297
Benefit Payments, including Refund of Member Contributions	(212,662,113)	(188,819,565)
Administrative Expenses	(4,912,501)	(5,465,123)
Other	<u>-</u>	<u>-</u>
Net Change in Plan Fiduciary Net Position	(44,469,432)	(106,427,932)
Plan Fiduciary Net Position - Beginning of Year	\$ 1,716,151,763	\$ 1,822,579,695
Plan Fiduciary Net Position - End of Year	\$ 1,671,682,331	\$ 1,716,151,763

### Net Pension Liability (Asset)

	December 31, 2016	December 31, 2015
Total Pension Liability	\$ 2,256,308,243	\$ 2,262,851,177
Plan Fiduciary Net Position	<u>1,671,682,331</u>	<u>1,716,151,763</u>
Net Pension Liability (Asset)	\$ 584,625,912	\$ 546,699,414
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (Asset)	74.09%	75.84%
Covered Employee Payroll	\$ 194,871,557	\$ 191,432,915
Net Pension Liability (Asset) as a Percentage of Covered Employee Payroll	300.01%	285.58%

## TABLE 14: Sensitivity of the Net Pension Liability as of December 31, 2016 to Changes in the Discount Rate

Sensitivity of the Net Pension Liability to Changes in the Discount Rate December 31, 2016

	1% Decrease	Current	1% Increase
Discount Rate	7.00%	8.00%	9.00%
Net Pension Liability (Asset)	804,877,246	584,625,912	397,329,789

## TABLE 15: Pension Expense for Year Ended December 31, 2016 and Deferred Inflows & Outflows of Resources Related to Pensions

**Pension Expense.** For the period ending December 31, 2017, pension expense (based on a measurement date of December 31, 2016) is shown in the table below. The corresponding results for the period ending December 31, 2016 are shown for comparison purposes.

### Exhibit 1: Pension Expense for the Fiscal Year Ended

	December 31, 2016 (For Plan Sponsor 2017 FY)	December 31, 2015 (For Plan Sponsor 2016 FY)
Service cost	\$ 16,094,324	\$ 15,740,283
Interest	173,972,802	171,661,372
Projected earnings on plan investments	(130,097,598)	(139,031,493)
Employee contributions	(12,143,510)	(9,324,866)
Administrative expense	4,912,501	5,465,123
Current priod:		
Difference between expected and actual experience	6,173,867	15,425,440
Changes in assumptions	-	-
Difference between expected and actual investment earnings	3,952,320	19,916,040
Changes of benefit terms	-	-
Recognition of prior years'		
Deferred outflows of resources	44,752,196	9,410,716
Deferred inflows of resources	(3,999,497)	(6,665,832)
Total Pension Expense	<u>103,617,405</u>	<u>82,596,783</u>

For 2016, the difference between expected and actual experience is recognized over the average expected remaining service lives of active and inactive members as of January 1, 2016 (2.6 years).

For 2015, the difference between expected and actual experience is recognized over the average expected remaining service lives of active and inactive members as of January 1, 2015 (2.7 years).

The difference between projected and actual investment earnings is recognized over 5.0 years.

Details of the deferred inflows and outflows of resources are shown in Exhibit 2 and Exhibit 3.

## TABLE 15: Pension Expense for Year Ended December 31, 2016 and Deferred Inflows & Outflows of Resources Related to Pensions (continued)

### Exhibit 2: Amortization of Differences between Expected and Actual Liability Experience

Measurement Year End	2014	2015	2016	2017	2018
Amount Established	\$ (17,331,161)	\$ 41,648,688	\$ 16,052,053		
Recognition Period	2.6	2.7	2.6		
Annual Recognition	\$ (6,665,832)	\$ 15,425,440	\$ 6,173,867		

Measurement Year End	Amount Recognized					Outflows	Inflows	Total
	2014	2015	2016	2017	2018			
2014	\$ (6,665,832)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (6,665,832)	\$ (6,665,832)
2015	(6,665,832)	15,425,440	-	-	-	15,425,440	(6,665,832)	8,759,608
2016	(3,999,497)	15,425,440	6,173,867	-	-	21,599,307	(3,999,497)	17,599,810
2017	-	10,797,808	6,173,867	-	-	16,971,675	-	16,971,675
2018	-	-	3,704,319	-	-	3,704,319	-	3,704,319
2019	-	-	-	-	-	-	-	-

Measurement Year End	Deferred Balance					Outflows	Inflows	Total
	2014	2015	2016	2017	2018			
2014	\$ (10,665,329)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (10,665,329)	\$ (10,665,329)
2015	(3,999,497)	26,223,248	-	-	-	26,223,248	(3,999,497)	22,223,751
2016	-	10,797,808	9,878,186	-	-	20,675,994	-	20,675,994
2017	-	-	3,704,319	-	-	3,704,319	-	3,704,319
2018	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-



## TABLE 15: Pension Expense for Year Ended December 31, 2016 and Deferred Inflows & Outflows of Resources Related to Pensions (continued)

### Exhibit 3: Amortization of Differences between Projected and Actual Earnings

Measurement Year End	2014	2015	2016	2017	2018
Amount Established	\$ 47,053,580	\$ 99,580,196	\$ 19,761,598		
Recognition Period	5.0	5.0	5.0		
Annual Recognition	\$ 9,410,716	\$ 19,916,040	\$ 3,952,320		

Measurement Year End	Amount Recognized					Outflows	Inflows	Total
	2014	2015	2016	2017	2018			
2014	\$ 9,410,716	\$ -	\$ -	\$ -	\$ -	\$ 9,410,716	\$ -	\$ 9,410,716
2015	9,410,716	19,916,040	-	-	-	29,326,756	-	29,326,756
2016	9,410,716	19,916,040	3,952,320	-	-	33,279,076	-	33,279,076
2017	9,410,716	19,916,040	3,952,320	-	-	33,279,076	-	33,279,076
2018	9,410,716	19,916,040	3,952,320	-	-	33,279,076	-	33,279,076
2019	-	19,916,036	3,952,320	-	-	23,868,356	-	23,868,356
2020	-	-	3,952,318	-	-	3,952,318	-	3,952,318
2021	-	-	-	-	-	-	-	-

Measurement Year End	Deferred Balance					Outflows	Inflows	Total
	2014	2015	2016	2017	2018			
2014	\$ 37,642,864	\$ -	\$ -	\$ -	\$ -	\$ 37,642,864	\$ -	\$ 37,642,864
2015	28,232,148	79,664,156	-	-	-	107,896,304	-	107,896,304
2016	18,821,432	59,748,116	15,809,278	-	-	94,378,826	-	94,378,826
2017	9,410,716	39,832,076	11,856,958	-	-	61,099,750	-	61,099,750
2018	-	19,916,036	7,904,638	-	-	27,820,674	-	27,820,674
2019	-	-	3,952,318	-	-	3,952,318	-	3,952,318
2020	-	-	-	-	-	-	-	-
2021	-	-	-	-	-	-	-	-

## TABLE 16: Projection of Fiduciary Net Position

Year	Projected Beginning Fiduciary Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expense	Projected Investment Earnings	Projected Ending Fiduciary Net Position
2017	\$ 1,671,682,331	\$ 65,991,000	\$ 188,749,420	\$ 4,694,247	\$ 129,538,435	\$ 1,673,768,099
2018	1,673,768,099	65,689,592	190,995,096	4,372,915	129,453,145	1,673,542,825
2019	1,673,542,825	66,288,041	194,002,200	4,096,443	129,097,690	1,670,829,913
2020	1,670,829,913	66,981,466	195,486,389	3,845,201	128,621,512	1,667,101,301
2021	1,667,101,301	67,723,376	196,511,587	3,620,350	128,103,725	1,662,796,465
2022	1,662,796,465	68,536,052	197,842,600	3,414,124	127,543,586	1,657,619,379
2023	1,657,619,379	69,672,486	198,206,850	3,219,042	126,940,773	1,652,806,746
2024	1,652,806,746	71,741,787	198,719,530	3,036,209	126,389,669	1,649,182,463
2025	1,649,182,463	73,340,808	198,804,827	2,863,667	125,959,433	1,646,814,210
2026	1,646,814,210	73,947,468	198,910,616	2,695,731	125,632,067	1,644,787,398
2027	1,644,787,398	74,404,518	198,822,644	2,533,027	125,344,758	1,643,181,003
2028	1,643,181,003	74,920,685	198,913,117	2,370,238	125,083,733	1,641,902,066
2029	1,641,902,066	75,475,650	198,255,246	2,208,047	124,877,969	1,641,792,392
2030	1,641,792,392	76,040,362	197,624,258	2,048,967	124,768,679	1,642,928,208
2031	1,642,928,208	76,586,046	196,709,944	1,885,894	124,766,621	1,645,685,037
2032	1,645,685,037	77,208,008	195,501,076	1,720,448	124,902,542	1,650,574,063
2033	1,650,574,063	77,926,760	194,058,973	1,558,066	125,217,547	1,658,101,331
2034	1,658,101,331	78,732,220	191,866,126	1,410,029	125,784,136	1,669,341,532
2035	1,669,341,532	79,618,729	189,598,132	1,274,596	126,659,798	1,684,747,331
2036	1,684,747,331	17,676,228	186,852,703	1,152,730	127,898,712	1,642,316,838
2037	1,642,316,838	13,901,357	183,618,813	1,039,524	124,988,525	1,596,548,383
2038	1,596,548,383	12,344,490	179,938,828	933,293	121,389,628	1,549,410,380
2039	1,549,410,380	10,855,931	175,985,182	835,338	117,698,651	1,501,144,442
2040	1,501,144,442	9,437,304	171,730,391	743,506	113,934,163	1,452,042,012
2041	1,452,042,012	8,078,580	167,191,757	656,541	110,117,415	1,402,389,709
2042	1,402,389,709	6,777,758	162,308,176	574,956	106,274,719	1,352,559,054
2043	1,352,559,054	5,541,552	157,491,134	496,863	102,416,879	1,302,529,488
2044	1,302,529,488	2,863,210	152,280,882	425,808	98,564,205	1,251,250,213
2045	1,251,250,213	983,891	147,111,164	360,305	94,614,226	1,199,376,861
2046	1,199,376,861	540,819	141,873,827	299,972	90,623,004	1,148,366,885
2047	1,148,366,885	427,549	136,595,741	245,802	86,707,051	1,098,659,942
2048	1,098,659,942	335,155	131,333,065	197,895	82,899,350	1,050,363,487
2049	1,050,363,487	255,925	125,939,148	156,605	79,214,823	1,003,738,482
2050	1,003,738,482	-	120,585,371	121,035	75,858,869	958,890,945
2051	958,890,945	-	115,320,383	92,037	72,404,192	915,882,717
2052	915,882,717	-	109,949,972	68,467	69,115,897	874,980,175
2053	874,980,175	-	104,745,924	49,770	66,002,112	836,186,593
2054	836,186,593	-	99,621,202	35,355	63,065,278	799,595,314
2055	799,595,314	-	94,553,023	24,532	60,311,697	765,329,456
2056	765,329,456	-	89,583,962	16,471	57,746,861	733,475,884
2057	733,475,884	-	84,662,343	10,680	55,378,726	704,181,587
2058	704,181,587	-	79,908,680	6,696	53,213,265	677,479,476
2059	677,479,476	-	75,212,851	4,154	51,255,798	653,518,269
2060	653,518,269	-	70,655,047	2,402	49,514,087	632,374,907
2061	632,374,907	-	66,235,261	1,326	47,993,911	614,132,231
2062	614,132,231	-	61,955,441	701	46,701,224	598,877,313
2063	598,877,313	-	57,823,508	346	45,642,305	586,695,764
2064	586,695,764	-	53,842,074	170	44,823,632	577,677,152
2065	577,677,152	-	50,005,638	53	44,252,494	571,923,955
2066	571,923,955	-	46,314,669	21	43,936,987	569,546,252
2067	569,546,252	-	42,774,299	5	43,885,643	570,657,591
2068	570,657,591	-	39,379,931	-	44,107,711	575,385,371
2069	575,385,371	-	36,132,342	-	44,613,339	583,866,368
2070	583,866,368	-	33,037,907	-	45,413,216	596,241,677

## TABLE 17: Actuarial Present Values of Projected Benefit Payments

Year	Projected Beginning Fiduciary Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected Benefit Payments	Present Value of Funded Benefit Payments at 8.00%	Present Value of Unfunded Benefit Payments at 3.71%	Present Value of Benefit Payments Using Single Discount Rate of 8.00%
2017	\$ 1,671,682,331	\$ 188,749,420	\$ 188,749,420	\$ -	\$ 181,624,214	\$ -	181,624,214
2018	1,673,768,099	190,995,096	190,995,096	-	170,171,404	-	170,171,404
2019	1,673,542,825	194,002,200	194,002,200	-	160,046,900	-	160,046,900
2020	1,670,829,913	195,486,389	195,486,389	-	149,325,295	-	149,325,295
2021	1,667,101,301	196,511,587	196,511,587	-	138,989,267	-	138,989,267
2022	1,662,796,465	197,842,600	197,842,600	-	129,565,434	-	129,565,434
2023	1,657,619,379	198,206,850	198,206,850	-	120,188,869	-	120,188,869
2024	1,652,806,746	198,719,530	198,719,530	-	111,573,841	-	111,573,841
2025	1,649,182,463	198,804,827	198,804,827	-	103,353,456	-	103,353,456
2026	1,646,814,210	198,910,616	198,910,616	-	95,748,568	-	95,748,568
2027	1,644,787,398	198,822,644	198,822,644	-	88,616,871	-	88,616,871
2028	1,643,181,003	198,913,117	198,913,117	-	82,089,996	-	82,089,996
2029	1,641,902,066	198,255,246	198,255,246	-	75,757,868	-	75,757,868
2030	1,641,792,392	197,624,258	197,624,258	-	69,922,920	-	69,922,920
2031	1,642,928,208	196,709,944	196,709,944	-	64,443,907	-	64,443,907
2032	1,645,685,037	195,501,076	195,501,076	-	59,303,584	-	59,303,584
2033	1,650,574,063	194,058,973	194,058,973	-	54,505,680	-	54,505,680
2034	1,658,101,331	191,866,126	191,866,126	-	49,897,936	-	49,897,936
2035	1,669,341,532	189,598,132	189,598,132	-	45,655,655	-	45,655,655
2036	1,684,747,331	186,852,703	186,852,703	-	41,661,620	-	41,661,620
2037	1,642,316,838	183,618,813	183,618,813	-	37,907,940	-	37,907,940
2038	1,596,548,383	179,938,828	179,938,828	-	34,396,491	-	34,396,491
2039	1,549,410,380	175,985,182	175,985,182	-	31,148,820	-	31,148,820
2040	1,501,144,442	171,730,391	171,730,391	-	28,144,200	-	28,144,200
2041	1,452,042,012	167,191,757	167,191,757	-	25,370,724	-	25,370,724
2042	1,402,389,709	162,308,176	162,308,176	-	22,805,239	-	22,805,239
2043	1,352,559,054	157,491,134	157,491,134	-	20,489,275	-	20,489,275
2044	1,302,529,488	152,280,882	152,280,882	-	18,343,918	-	18,343,918
2045	1,251,250,213	147,111,164	147,111,164	-	16,408,489	-	16,408,489
2046	1,199,376,861	141,873,827	141,873,827	-	14,652,155	-	14,652,155
2047	1,148,366,885	136,595,741	136,595,741	-	13,062,088	-	13,062,088
2048	1,098,659,942	131,333,065	131,333,065	-	11,628,556	-	11,628,556
2049	1,050,363,487	125,939,148	125,939,148	-	10,324,968	-	10,324,968
2050	1,003,738,482	120,585,371	120,585,371	-	9,153,745	-	9,153,745
2051	958,890,945	115,320,383	115,320,383	-	8,105,625	-	8,105,625
2052	915,882,717	109,949,972	109,949,972	-	7,155,695	-	7,155,695
2053	874,980,175	104,745,924	104,745,924	-	6,312,045	-	6,312,045
2054	836,186,593	99,621,202	99,621,202	-	5,558,543	-	5,558,543
2055	799,595,314	94,553,023	94,553,023	-	4,884,958	-	4,884,958
2056	765,329,456	89,583,962	89,583,962	-	4,285,406	-	4,285,406
2057	733,475,884	84,662,343	84,662,343	-	3,749,973	-	3,749,973
2058	704,181,587	79,908,680	79,908,680	-	3,277,239	-	3,277,239
2059	677,479,476	75,212,851	75,212,851	-	2,856,159	-	2,856,159
2060	653,518,269	70,655,047	70,655,047	-	2,484,333	-	2,484,333
2061	632,374,907	66,235,261	66,235,261	-	2,156,414	-	2,156,414
2062	614,132,231	61,955,441	61,955,441	-	1,867,663	-	1,867,663
2063	598,877,313	57,823,508	57,823,508	-	1,613,986	-	1,613,986
2064	586,695,764	53,842,074	53,842,074	-	1,391,533	-	1,391,533
2065	577,677,152	50,005,638	50,005,638	-	1,196,649	-	1,196,649
2066	571,923,955	46,314,669	46,314,669	-	1,026,225	-	1,026,225
2067	569,546,252	42,774,299	42,774,299	-	877,573	-	877,573
2068	570,657,591	39,379,931	39,379,931	-	748,086	-	748,086
2069	575,385,371	36,132,342	36,132,342	-	635,549	-	635,549
2070	583,866,368	33,037,907	33,037,907	-	538,074	-	538,074

## TABLE 18: Description of Actuarial Assumptions and Methods

### Assumptions

Interest Rate: 8.0% per annum, compounded annually. The components are 3.0% for inflation and 5.0% for the real rate of return. For the budget contribution estimate for 2018 the plan sponsor's decision reduce the valuation rate to 7.75% has been reflected.

Separation from Service: Illustrative rates of assumed separation from service are shown in the following tables.

### Annual Rates per 100 Participants

Mortality				
Attained	Healthy Pensioners		Disabled Pensioners	
Age	Males	Females	Males	Females
45	0.09	0.05	2.26	0.75
50	0.14	0.08	2.90	1.15
55	0.23	0.15	3.54	1.65
60	0.44	0.30	4.20	2.18
65	0.84	0.59	5.02	2.80
70	1.34	0.94	6.26	3.76
75	2.14	1.47	8.21	5.22
80	3.86	2.59	10.94	7.23
85	6.40	4.55	14.16	10.02

### Healthy pensioners

The sex-distinct UP-1994 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.

### Disabled pensioners

RP2000 Disabled Mortality Table.

## TABLE 18: Description of Actuarial Assumptions and Methods (continued)

### Annual Rates per 100 Participants

Attained Age	Withdrawal – Ultimate			
	General Employees	Elected Officials*	Deputy Sheriffs	Disability
20	20.00	2.00	20.00	0.00
25	18.10	2.00	18.10	0.04
30	8.10	2.00	8.10	0.05
35	5.20	2.00	5.20	0.07
40	4.00	2.00	4.00	0.12
45	3.70	2.00	3.70	0.16
50	3.70	2.00	3.70	0.16
55	1.00	2.00	1.00	0.16
60	0.00	0.00	0.00	0.16
65	0.00	0.00	0.00	0.16

\* Select rates for elected officials assume no turnover for first four years.

### Annual Rates per 100 Participants

Retirement Rates				
Attained Age	General Employees (backdrop eligible)	General Employees (not backdrop eligible)	Elected Officials	Deputy Sheriffs
45-49	14.0	0.0	0.0	15.0
50-54	14.0	14.0	0.0	30.0
55	14.0	14.0	19.8	30.0
56	15.0	15.0	19.8	30.0
57	16.0	16.0	23.0	30.0
58	17.0	17.0	20.4	30.0
59	17.0	17.0	24.8	30.0
60	17.0	17.0	19.4	30.0
61	25.0	25.0	22.5	50.0
62	30.0	30.0	28.4	50.0
63	30.0	30.0	26.6	50.0
64	30.0	30.0	24.3	50.0
65	40.0	40.0	30.4	100.0
66	40.0	40.0	22.5	100.0
67	40.0	40.0	25.7	100.0
68	40.0	40.0	34.2	100.0
69	40.0	40.0	36.0	100.0
70	100.0	100.0	100.0	100.0

### Salary Increase

Effective average of 3.5% per annum, compounded annually. Representative values are as follows:

## TABLE 18: Description of Actuarial Assumptions and Methods (continued)

### Annual Rate of Salary Increase

Age	General Employees	Elected Officials	Deputy Sheriffs
20	9.5%	3.0%	9.5%
25	5.0	3.0	8.0
30	4.0	3.0	6.1
35	3.7	3.0	4.6
40	3.5	3.0	3.7
45	3.0	3.0	3.3
50	3.0	3.0	3.0
55	3.0	3.0	3.0
60	3.0	3.0	3.0
Average	3.3	3.0	4.3

### Payroll Growth

3.5% per annum.

### Miscellaneous

#### Percentage Married/Age Difference

Male 80%, female 80%. Beneficiaries are assumed to be the same age as the participant.

#### Percentage Married with at Least One Dependent Child

21.6% for General Employees, 43.2% for Deputy Sheriffs and Elected Officials. For those who die prior to age 60, it is assumed at least one child will remain a dependent until the member would have turned age 60.

### Backdrop Rate

75% of eligible retirees are assumed to elect a backdrop. Of those electing, 75% are assumed to take the maximum period available to them and 25% take half the maximum period available based on eligibility for an unreduced retirement benefit.

### Assumed Type of Disability

For represented employees, the assumption is 50% Ordinary and 50% Accidental and for non-represented employees, the assumption is 100% Ordinary and 0% Accidental.

## Methods

### Calculations

The actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system, and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

## **TABLE 18: Description of Actuarial Assumptions and Methods (continued)**

### **Actuarial Cost Method**

Liabilities and contributions shown in this report are computed using the Individual Entry Age Normal Cost Method. The outstanding balance of the unfunded actuarial accrued liability (UAAL) as of January 1, 2015 was amortized over a fixed 21 year period, and any changes to the UAAL arising from plan changes, assumption changes, and unexpected changes in UAAL are amortized as a level percentage of payroll over a 20-year period.

The full administrative expenses incurred by the County related to the System are payable by the System to the County. The County then reimburses the System for this payment in the annual contribution.

The variance between the amount contributed to the System for a plan year, and the actual contribution requirement for that year is amortized on a level dollar basis over 5 years. POB proceeds were not subject to the contribution variance requirements.

### **Asset Valuation Method**

A ten-year moving market average value of assets that recognizes the actuarial expected investment return immediately and spreads the difference between the actual and expected return over a period of ten years. Assets were re-established at market value on January 1, 2013.

### **Data**

Census and Assets: The valuation was based on members of the System as of January 1, 2016 and does not take into account future members. All census data was supplied by the System and was subject to reasonable consistency checks. Asset data was supplied by the System.

## TABLE 19: Summary of Benefit and Contribution Provisions

### Membership

Any person regularly employed by the County at an annual wage or salary, including any person employed by the State of Wisconsin, but receiving part of his compensation from the County.

### Vesting Service

Service during period of employment in the County or in any department in any town, village, city or metropolitan sewerage commission in the County, which department has by consolidation or merger been absorbed by the County. Creditable service shall consist of "prior service", "military service", and "membership service", for which service credit is allowable under Section 4, Chapter 201, Laws of 1937, as well as service under Executive Order 11231, July 8, 1965, for Vietnam. Additional credit for periods of military service will be earned in accordance with the following chart:

Years of Service with Milwaukee County	Maximum Years of Military Service Granted
0-4	0
5-9	1
10-14	2
15-19	3
20+	4

### Benefit Service

Same as vesting service except service prior to becoming a participant does not count.

### Earnings

Earnable compensation is the full rate of compensation payable to member if he worked the full normal working time for his position, including authorized overtime payments and the compensation rate assumed to have been received while the member is on authorized leave of absence. In cases where compensation includes maintenance, the Pension Board shall fix the value of that part of the compensation not payable in money. Compensation shall not exceed \$270,000 in the pension calculation as indexed for changes in the cost of living.

For all members except certain deputy sheriffs hired on or after January 1, 1982, the final average salary means the average annual salary for the highest three (3) consecutive years of service. For deputy sheriffs hired on or after January 1, 1982, excluding DA Investigators and non-represented deputy sheriffs, the final average salary means the average annual salary for the highest five (5) consecutive years of service. For DA Investigators and non-represented deputy sheriffs hired before July 1, 1995 and all non-deputy sheriff members hired before January 1, 1982, the final average salary is increased 7.5% for each year worked after January 1, 2001 to a maximum of 25%.

### Voluntary Employee Contribution

Up to 10% of earnings, provided that the employee was contributing on January 1, 1971.

### Mandatory Employee Contribution

Effective January 1, 2011 Elected Officials and Non-Represented employees contributed 2% of compensation. For all Non-Represented employees (other than elected officials), the contribution rate increased to 4% of compensation effective December 11, 2011.



## TABLE 19: Summary of Benefit and Contribution Provisions (continued)

### Benefits

#### Normal Retirement

##### Eligibility

###### Elected Officials

Age 60, or age 55 with 30 years of service. For elected officials hired before January 1, 2006, the combination of age and service adding up to 75 (Rule of 75) also applies.

###### General Employees

- For firefighters, Federated Nurses, and Machinists  
Age 60 with 5 years of service, or age 55 with 30 years of service. For firefighters hired before December 1, 1996, Federated Nurses hired before January 1, 1997, and Machinists hired before January 1, 1994, Rule of 75 also applies. For Federated Nurses and Machinists hired after January 1, 2012, age 64 or age 55 with 30 years of service.
- For Attorneys, Skilled Trades, non-represented employees, DC48, and Teamco  
Age 60, or age 55 with 30 years of service. For attorneys, Skilled Trades, and non-represented employees hired before January 1, 2006 and DC48 and Teamco hired before January 1, 1994, Rule of 75 also applies.
- For attorneys, Skilled Trades, non-represented employees, and TEAMCO hired after January 1, 2010, age 64 or age 55 with 30 years of service.
- For DC48 hired after August 1, 2011, age 64 or age 55 with 30 years of service.
- For non-represented employees (excluding Elected Officials, Deputy Sheriffs), attorneys, machinists and TEAMCO hired after January 1, 2010, retirement age is 64.

###### Deputy Sheriffs

- Age 57, or age 55 with 15 years of service. For deputy sheriffs, DA Investigators, and non-represented deputy sheriffs hired before January 1, 1994, Rule of 75 also applies.

##### Amount

###### Elected Officials

For elected officials hired before March 15, 2002, 2.5% of final average salary per year of service before October 14, 2010 and 1.6% of final average salary per year of service thereafter, not greater than 80%. For elected officials hired on or after March 15, 2002, 2.0% of final average salary per year of service before October 14, 2010 and 1.6% of final average salary per year of service thereafter, not greater than 80%.

###### General Employees

2.0% of final average salary per year of service, not greater than 80%. For non-represented employees (excluding Elected Officials and Deputy Sheriffs), 1.6% of final average salary per year of service from January 1, 2010; for attorneys and TEAMCO, the 1.6% provision is effective May 1, 2010; for machinists, June 1, 2010; for DC48, effective August 1, 2011; for building trades and FNHP, effective January 1, 2012. In addition to the pension portion, the benefit includes any voluntary contribution balance. Benefits should not be less than under previous system.

## **TABLE 19: Summary of Benefit and Contribution Provisions (continued)**

### **Deputy Sheriffs:**

For deputy sheriffs hired before July 1, 1995 and DA Investigators and non-represented deputy sheriffs, 2.5% of final average salary per year of service, not greater than 80%. For deputy sheriffs hired on or after July 1, 1995, 2.0% of final average salary per year of service, not greater than 80%.

For all members, 1.6% of final average salary per year of service after 80% of final average salary has been reached.

In addition to the pension portion, the benefit includes any voluntary contribution balance. Benefits should not be less than under previous system.

### **Early Retirement**

#### **Eligibility**

Age 55 with 15 years of service.

#### **Amount**

Benefits reduced by 5/12 of 1% for each month by which commencement of payments precedes Normal Retirement Age. For deputy sheriffs, DA Investigators, and non-represented deputy sheriffs, benefit reduction does not apply.

### **Ordinary Disability Benefit**

#### **Eligibility**

After 15 years of service.

#### **Amount**

Benefits calculated as for normal retirement benefits. Minimum benefit is 25% of final average salary.

### **Accidental Disability Benefit**

#### **Eligibility**

Immediate.

#### **Amount**

Benefits are the same as normal retirement benefits if the employee has attained the minimum Normal Retirement Age. If less than Normal Retirement Age at time of disability, the benefit is computed the same as for normal retirement but is not less than 75% or 60% of final average salary.

#### **Elected Officials**

For elected officials hired before February 19, 1987, the benefit is not less than 75% of final average salary. For all other elected officials, the benefit is not less than 60% of final average salary.

#### **General Employees**

For non-represented employees hired before February 19, 1987, attorneys hired on or after January 1, 1987, Skilled Trades hired before October 30, 1987, Federated Nurses hired before January 1, 1987, Machinists hired before May 18, 1988, DC48 hired before July 24, 1987, and Teamco hired before January 12, 1988, the benefit is not less than 75% of final average salary. For all other general employees, the benefit is not less than 60% of final average salary.

## **TABLE 19: Summary of Benefit and Contribution Provisions (continued)**

### **Deputy Sheriffs**

For all deputy sheriffs, the benefit is not less than 75% of final average salary. For DA Investigators and non-represented deputy sheriffs hired on or after February 19, 1987, the benefit is not less than 60% of final average salary.

### **Ordinary Death Benefit**

Upon the death of a deputy sheriff in active service for any cause other than accidental, the surviving spouse or child shall be entitled to receive the benefit under the provision of survivor benefits if the deceased member has completed at least one (1) year of service and is not eligible for normal retirement.

### **Accidental Death Benefit**

Upon the death of a deputy sheriff caused by an accident in active duty, a survivorship benefit equal to fifty (50) percent of final average salary shall be granted to the following members:

1. A surviving spouse for life or until remarriage, or
2. If there is no spouse or spouse dies or remarries before the youngest child has attained age 18, the benefit is payable to his child(ren) under age 18 until the youngest child attains said age, or
3. If there is no spouse or child(ren) under age 18, the benefit is payable to his dependent father or mother to continue for life.

The monthly benefit aforementioned shall not be less than the benefit under ordinary death benefit section if death had not occurred in performance of duty.

### **Lump Sum Benefit upon Death**

Upon a death of members, a lump sum benefit of one-half the final average salary of the deceased member, not greater than two thousand dollars (\$2,000) shall be paid to designated beneficiary if such member has completed one (1) year of service and no survivors' benefits payable under any other survivorship benefits.

### **Deferred Vested Benefit**

Upon termination of employment, a member who does not elect to withdraw any part of his membership account shall be eligible for a deferred vested benefit if:

1. The accrued benefit at age 60 is at least \$10 per month
2. 5 years of service

The benefit is computed the same as for a normal retirement benefit considering earnings and service prior to date of termination.

### **Survivor Benefit**

Upon the death of a member prior to age 60 and after completing at least one (1) year of service, a monthly benefit equal to 40% of the member's salary for the year of his death less monthly survivor benefits payable under the Social Security law shall be payable to his surviving spouse if she has at least one dependent child and was married to the member at least one (1) year prior to his death. Upon attainment of age 60 the dependent spouse shall be paid a benefit equal to 50% of the normal pension which the member would have received assuming service had continued to accrue to age 60 and the final average salary determined at death. In addition, a monthly

## TABLE 19: Summary of Benefit and Contribution Provisions (continued)

benefit equal to 10% of the member's monthly salary less the benefits payable to child under Social Security law shall be payable to each eligible children until he attains age 18 or marries, or until attainment of age 22 if he is a student and not married.

Any member eligible for normal retirement may elect the protective survivorship option by selecting option 2 or 3 under the Optional Benefit section. This survivorship option shall become effective at the death of the member. If any member eligible to elect an option shall die in active service, without selecting an option, his surviving spouse shall be paid a survivorship benefit equal to the amount that would have been payable if such member had retired under option 3 immediately prior to his death.

### Optional Benefit

In lieu of the full retirement benefit, any member at retirement may elect to receive an actuarial equivalent reduced retirement benefit in accordance with the following options:

- Option 1.  
In case of death before benefits attributable to his mandatory account have equaled the amount of his membership account at the date of retirement, the balance shall be paid to a designated beneficiary or to his estate; or
- Option 2.  
At the death of the member, one-half of the reduced benefit shall be continued throughout the life of designated beneficiary; or
- Option 3.  
At the death of the member, the same reduced benefit shall be continued throughout the life of designated beneficiary.

### Other Benefits

#### Simple COLA

2% of original benefit increase per year to retired employees (surviving beneficiary receives proportionate amount based on survivorship percentage).

#### Contribution Refund

Refund of employee voluntary contribution upon severance.

#### Backdrop Benefit

Employee may opt to receive a monthly benefit earned as of a specific date in the past (backdrop date). The backdrop date may not be prior to the earliest date that the member was eligible to retire and shall not be less than one (1) year prior to the date the member leaves active County service. Employee receives a cash payment equal to monthly benefits that would have been paid between backdrop date and actual retirement date plus interest earned.

Effective with backdrop dates on or after April 1, 2013, the monthly drop benefit shall be based on the salary, service and multipliers as of April 1, 2013, except for Elected Officials, Skilled Trades, Machinists, Federated Nurses and Firefighters.

Members not eligible for backdrop benefits are Elected Officials, non-represented employees and deputy sheriffs hired on or after March 15, 2002, Machinists and Teamco hired on or after November 4, 2005, Attorneys hired on or after January 1, 2006, Federated Nurses hired on or after December 15, 2005, Firefighters hired on or after June 19, 2007 and DC48 hired on or after February 1, 2007.

**TABLE 20: Summary of Membership Data as of January 1, 2017****Active Participants**

Item	General Employees	Deputy Sheriffs	Elected Officials	Total
Number of Participants	3,185	296	7	3,488
Average Annual Salaries *	\$ 52,326	\$ 63,414	\$ 112,231	\$ 53,387
Average Age	45.4	43.4	59.4	45.2
Average Service	9.9	15.0	12.6	10.3

\* The salaries shown in the table above represent a rate of pay increased by the salary assumption.

**Inactive Participants**

Item	Number	Annual Annuities	Average Annuities	Average Age
Participants with Deferred Benefits	1,394	\$ 11,365,345	\$ 8,153	51.1
Retired Participants	6,877	153,741,101	22,356	71.4
Beneficiaries	916	14,802,918	16,160	78.3
Disability Retirees	<u>270</u>	<u>6,423,102</u>	<u>23,789</u>	<u>64.2</u>
Total	9,457	\$ 186,332,466	\$ 19,703	68.8

## TABLE 21: Active Membership Statistics (Unaudited)

	<b>2016</b>
Members as of January 1	5,006 *
Changes during the year:	
New enrollments	488
Nonvested terminations	(317)
Retirements	(286)
Deaths in active service	(5)
New deferred beneficiaries	0
Withdrawals	(29)
Data Adjustment	25
Members as of December 31	4,882 *

\* This total includes vested inactive members.

## Retirements and Survivors (Unaudited)

	Retirements Granted									Survivors & Beneficiaires	Total
	Maximum Pension	Refund	Options						Other		
			100%	75%	50%	25%	10-yr				
January 1, 2016	3,288	304	1,445	261	990	503	240	46	914	7,991	
Changes during the year:											
Adjustments (actuary) *	(19)	(8)	17	(1)	5	(3)	-	(1)	5	(5)	
Retirements	125	2	75	15	27	18	24	-	75	361	
Benefits Expired	-	-	-	-	-	-	-	-	(35)	(35)	
Pensioner deaths	(91)	(22)	(37)	(4)	(41)	(6)	(5)	-	(43)	(249)	
December 31, 2016	3,303	276	1,500	271	981	512	259	45	916	8,063	

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

## EXHIBIT I: Active Membership Data – All Employees

Number and Average Annual Salary\* as of January 1, 2017

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
<b>Under 25</b>	79 \$39,238									79 \$39,238
<b>25-29</b>	253 \$41,417	17								270 \$41,763
<b>30-34</b>	278 \$45,222	83 \$49,772	10							371 \$46,129
<b>35-39</b>	206 \$49,597	99 \$52,235	67 \$52,291	27 \$54,803	1					400 \$51,050
<b>40-44</b>	168 \$49,362	78 \$56,324	71 \$56,996	112 \$55,784	16					445 \$53,928
<b>45-49</b>	144 \$50,287	73 \$56,903	67 \$54,636	160 \$57,859	99 \$64,882	23 \$57,926	4	1		571 \$56,774
<b>50-54</b>	114 \$51,724	56 \$54,705	50 \$53,268	96 \$53,957	116 \$59,276	88 \$59,500	16			536 \$55,746
<b>55-59</b>	67 \$57,583	54 \$51,011	59 \$54,435	89 \$54,362	65 \$58,122	78 \$61,493	28 \$65,650	3		443 \$56,983
<b>60-64</b>	59 \$52,791	37 \$57,850	39 \$55,277	49 \$51,425	39 \$60,896	47 \$71,769	19	7	1	297 \$58,517
<b>Over 64</b>	9	9	20 \$72,075	9	9	13	2	4	1	76 \$70,859
<b>Total</b>	1,377 \$47,533	506 \$53,518	383 \$55,076	542 \$55,329	345 \$61,478	249 \$62,963	69 \$65,280	15	2	3,488 \$53,387

\* Compensation in cells with fewer than 20 records has been suppressed.

## EXHIBIT II: Active Membership Data – General Employees

Number and Average Annual Salary\* as of January 1, 2017

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
<b>Under 25</b>	69 \$37,535									69 \$37,535
<b>25-29</b>	225 \$40,435	15								240 \$40,815
<b>30-34</b>	265 \$45,048	80 \$49,826	10							355 \$46,013
<b>35-39</b>	196 \$49,679	95 \$52,188	65 \$51,809	21 \$50,837	1					378 \$50,737
<b>40-44</b>	166 \$49,473	77 \$56,253	67 \$56,204	85 \$52,163	8					403 \$52,640
<b>45-49</b>	142 \$50,187	73 \$56,903	64 \$54,932	119 \$54,225	40 \$58,411	21 \$57,232	4	1		464 \$54,174
<b>50-54</b>	112 \$51,425	54 \$53,005	48 \$52,661	89 \$53,331	92 \$56,885	81 \$58,628	15			491 \$54,474
<b>55-59</b>	63 \$56,609	54 \$51,011	58 \$54,193	84 \$54,030	58 \$56,941	75 \$61,246	27 \$64,791	3		422 \$56,437
<b>60-64</b>	59 \$52,791	35 \$56,362	37 \$52,736	49 \$51,425	36 \$56,744	46 \$72,016	19	7		288 \$57,452
<b>Over 64</b>	9	9	19	9	9	13	2	4	1	75 \$70,654
<b>Total</b>	1,306 \$47,340	492 \$53,234	368 \$54,449	456 \$53,125	244 \$57,892	236 \$62,698	67 \$64,464	15	1	3,185 \$52,326

\* Compensation in cells with fewer than 20 records has been suppressed.



## EXHIBIT III: Active Membership Data – Deputy Sheriffs

Number and Average Annual Salary\* as of January 1, 2017

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
<b>Under 25</b>	10									10
<b>25-29</b>	28 \$49,303	2								30 \$49,340
<b>30-34</b>	13	3								16
<b>35-39</b>	10	4	2	6						22 \$56,424
<b>40-44</b>	2	1	4	27 \$67,182	8					42 \$66,289
<b>45-49</b>	2		3	41 \$68,405	59 \$69,269	2				107 \$68,052
<b>50-54</b>	2	1	2	7	24 \$68,439	7	1			44 \$68,188
<b>55-59</b>	3		1	5	7	3	1			20 \$67,039
<b>60-64</b>		1	1		1	1			1	5
<b>Over 64</b>										
<b>Total</b>	70 \$50,594	12	13	86 \$67,020	99 \$68,955	13	2		1	296 \$63,414

\* Compensation in cells with fewer than 20 records has been suppressed.

## EXHIBIT IV: Active Membership Data – Elected Officials

Number and Average Annual Salary\* as of January 1, 2017

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
<b>Under 25</b>										
<b>25-29</b>										
<b>30-34</b>										
<b>35-39</b>										
<b>40-44</b>										
<b>45-49</b>										
<b>50-54</b>		1								1
<b>55-59</b>	1									1
<b>60-64</b>		1	1		2					4
<b>Over 64</b>			1							1
<b>Total</b>	1	2	2		2					7

\* Compensation in cells with fewer than 20 records has been suppressed.

# EXHIBIT V: Active and Deferred Vested Members Obtaining Retirement Eligibility over Next Five Calendar Years

## Actives Reaching Retirement Eligibility

Year	General Employees	Elected Officials	Deputy Sheriffs	Total
Eligible at Valuation Date	770	4	53	827
2017	89	1	15	105
2018	74	0	6	80
2019	82	0	6	88
2020	88	1	3	92
2021	81	0	14	95
Total Over Next 5 Years	414	2	44	460
Grand Total Eligible	1,184	6	97	1,287

## Deferred Vesteds Reaching Retirement Age

Year	Total
2017	80
2018	80
2019	79
2020	59
2021	85
Total Over Next 5 Years	383

## EXHIBIT VI: Retiree and Beneficiary Membership Data as of January 1, 2017

### Number and Average Annual Benefit

Age Last Birthday	Number	Annual Benefit	Average Annual Benefit
<b>Retired Participants</b>			
Under 60	502	\$ 14,907,338	\$ 29,696
60 - 64	1,161	26,365,243	22,709
65 - 69	1,743	39,006,434	22,379
70 - 74	1,252	29,183,258	23,309
75 - 79	822	18,039,760	21,946
Over 79	1,397	26,239,068	18,782
Total	6,877	\$ 153,741,101	\$ 22,356
<b>Beneficiary Participants</b>			
Under 60	61	\$ 940,051	\$ 15,411
60 - 64	59	1,106,386	18,752
65 - 69	87	1,532,520	17,615
70 - 74	124	2,226,696	17,957
75 - 79	91	1,610,652	17,699
Over 79	494	7,386,613	14,953
Total	916	\$ 14,802,919	\$ 16,160
<b>Disabled Participants</b>			
Under 60	102	\$ 2,954,001	\$ 28,961
60 - 64	46	1,069,451	23,249
65 - 69	31	732,027	23,614
70 - 74	29	523,671	18,058
75 - 79	22	456,599	20,754
Over 79	40	687,354	17,184
Total	270	\$ 6,423,102	\$ 23,789
<b>Grand Total</b>	<b>8,063</b>	<b>\$ 174,967,122</b>	<b>\$ 21,700</b>

## EXHIBIT VII: 5-Year History of Membership Data

### Active Participants

Valuation as of January 1	Number of Active Participants	Percentage Change in Membership	Total Annual Payroll	Percentage Change in Payroll
2017	3,488	(3.62)%	\$ 186,213,740	(4.44)%
2016	3,619	(1.66)%	\$ 194,871,557	(1.70)%
2015	3,680	(5.91)%	198,235,780	5.11 %
2014	3,911	(0.58)%	188,605,492	4.81 %
2013	3,934	(0.96)%	189,131,711	(0.85)%

### Retired, Disabled, and Beneficiary Participants

Valuation as of January 1	Number on roll	Additions	Deletions	Percentage Change in Membership	Annual Annuities	Percentage Change in Annuities
2017	8,063	363	291	0.90 %	174,967,121	3.36 %
2016	7,991	362	350	0.15 %	169,278,563	2.56 %
2015	7,979	365	326	0.49 %	165,058,644	1.70 %
2014	7,940	319	246	0.93 %	162,296,676	2.69 %
2013	7,867	412	292	1.55 %	158,040,281	6.18 %

**EXHIBIT VIII: Detailed Tabulations of the Data**

## TABLE VIII A

### The Number and Annual Salaries of Members in Active Service Distributed by Age as of January 1, 2017 All Employees

(Compensation in cells with fewer than 20 records has been suppressed)

Age	Men		Women	
	Number	Compensation	Number	Compensation
17				
18				
19				
20	4			
21	4		3	
22	6		3	
23	21	\$ 892,254	14	
24	13		11	
25	26	1,084,648	16	
26	27	1,177,393	23	\$ 918,901
27	28	1,164,575	33	1,365,803
28	24	1,095,267	39	1,590,838
29	26	1,085,353	28	1,114,059
30	38	1,731,879	41	1,611,339
31	35	1,694,692	37	1,639,989
32	38	1,669,973	31	1,456,515
33	32	1,693,272	39	1,960,902
34	37	1,776,749	43	1,878,449
35	29	1,406,160	44	1,876,050
36	31	1,894,157	50	2,292,953
37	37	2,002,583	44	1,985,224
38	32	1,728,365	52	2,845,110
39	45	2,595,809	36	1,793,507
40	42	2,349,213	47	2,380,264
41	55	3,262,329	45	2,064,811
42	47	2,870,864	51	2,578,346
43	22	1,239,641	43	2,046,388
44	53	2,879,390	40	2,326,911
45	57	3,626,425	54	2,850,422
46	56	3,480,766	55	2,906,489
47	74	4,327,061	57	3,325,936
48	38	2,279,546	63	3,249,144
49	48	3,136,836	69	3,235,593

**TABLE VIII A (continued)**

Age	Men		Women	
	Number	Compensation	Number	Compensation
50	57	\$ 4,025,428	69	\$ 3,621,056
51	54	3,088,220	58	3,028,902
52	40	2,231,368	63	3,033,966
53	45	2,791,702	50	2,556,817
54	46	2,674,053	54	2,828,355
55	31	1,835,053	34	1,702,394
56	52	3,203,278	68	3,620,112
57	49	3,059,989	46	2,613,951
58	43	2,605,765	49	2,421,773
59	33	1,932,289	38	2,248,751
60	38	2,593,683	47	2,346,220
61	46	3,153,273	37	1,843,066
62	28	1,804,826	17	
63	27	1,685,679	20	1,050,124
64	13		24	1,295,996
65	16		12	
66	8		5	
67	5		5	
68	5		3	
69	2		2	
70	3		2	
71			1	
72				
73			2	
74			1	
75	2			
76				
77				
78			1	
79				
80	1			
<b>Total</b>	1,669	\$ 95,693,885	1,819	\$ 90,519,855



## TABLE VIII B

### The Number and Annual Salaries of Members in Active Service Distributed by Years of Credited Service as of January 1, 2016 All Employees

(Compensation in cells with fewer than 20 records has been suppressed)

Years of Service	Men		Women	
	Number	Compensation	Number	Compensation
0	230	\$ 10,665,385	266	\$ 11,229,284
1	142	7,434,395	202	8,703,239
2	69	3,823,340	119	5,763,366
3	85	5,149,086	117	5,359,543
4	77	4,046,083	70	3,279,734
5	74	4,070,559	69	3,360,990
6	43	2,318,411	39	2,061,268
7	38	2,270,395	52	2,851,224
8	67	3,599,849	57	2,764,134
9	30	1,678,314	37	2,104,717
10	40	2,207,526	40	2,303,331
11	38	2,045,780	61	3,153,820
12	36	2,159,084	34	1,883,196
13	30	1,715,478	34	1,831,599
14	49	2,866,511	21	927,935
15	63	3,537,873	55	2,611,461
16	64	3,778,987	72	3,498,133
17	62	3,541,751	59	3,218,547
18	45	2,653,359	35	1,923,791
19	49	3,002,094	38	2,222,498
20	36	2,419,018	33	1,733,905
21	38	2,678,786	16	
22	44	2,809,555	40	2,297,460
23	30	1,809,476	28	1,502,327
24	43	2,981,788	37	1,995,101
25	26	1,804,916	26	1,406,705
26	33	2,192,739	25	1,234,531
27	21	1,363,946	43	2,495,664
28	16		32	2,100,981
29	12		15	
30	6		10	
31	15		11	
32	4		8	
33	2		5	
34	5		3	
35	2		4	
36	1		3	
37	2		1	
38			1	
39	1			
40			1	
41	1			
<b>Total</b>	<b>1,669</b>	<b>\$ 95,693,885</b>	<b>1,819</b>	<b>\$ 90,519,855</b>

## TABLE VIII C

### The Number and Annual Salaries of Members in Active Service Distributed by Age as of January 1, 2016 General Employees

(Compensation in cells with fewer than 20 records has been suppressed)

Age	Men		Women	
	Number	Compensation	Number	Compensation
17				
18				
19				
20	4			
21	4		3	
22	5		3	
23	16		13	
24	10		11	
25	21	\$ 832,753	15	
26	21	876,653	23	\$ 918,901
27	24	964,926	32	1,315,713
28	18		38	1,540,972
29	23	943,763	25	976,330
30	34	1,534,080	39	1,514,197
31	32	1,548,251	36	1,590,231
32	35	1,528,193	31	1,456,515
33	30	1,597,564	39	1,960,902
34	36	1,726,333	43	1,878,449
35	24	1,171,034	42	1,778,710
36	29	1,777,642	48	2,195,476
37	35	1,864,325	43	1,916,518
38	28	1,494,543	51	2,776,617
39	42	2,410,213	36	1,793,507
40	39	2,143,692	45	2,254,405
41	45	2,594,889	43	1,926,555
42	41	2,487,402	49	2,443,460
43	18		42	1,978,223
44	42	2,159,988	39	2,258,657
45	42	2,656,866	49	2,509,930
46	35	2,028,532	51	2,656,026
47	55	3,010,912	55	3,185,335
48	21	1,125,466	58	2,906,516
49	35	2,225,828	63	2,831,262

**TABLE VIII C (continued)**

Age	Men		Women	
	Number	Compensation	Number	Compensation
50	43	\$ 3,015,075	68	\$ 3,553,221
51	44	2,391,483	56	2,893,753
52	38	2,094,809	61	2,934,823
53	38	2,315,885	50	2,556,817
54	41	2,305,650	52	2,685,079
55	27	1,563,394	34	1,702,394
56	47	2,862,685	66	3,523,157
57	40	2,409,968	46	2,613,951
58	42	2,537,930	49	2,421,773
59	33	1,932,289	38	2,248,751
60	33	2,064,849	47	2,346,220
61	44	3,016,577	37	1,843,066
62	26	1,637,071	17	
63	27	1,685,679	20	1,050,124
64	13		24	1,295,996
65	16		12	
66	8		5	
67	4		5	
68	5		3	
69	2		2	
70	3		2	
71			1	
72				
73			2	
74			1	
75	2			
76				
77				
78			1	
79				
80	1			
<b>Total</b>	<b>1,421</b>	<b>\$ 79,512,128</b>	<b>1,764</b>	<b>\$ 87,145,599</b>

## TABLE VIII D

### The Number and Annual Salaries of Members in Active Service Distributed by Years of Credited Service as of January 1, 2016 General Employees

(Compensation in cells with fewer than 20 records has been suppressed)

Years of Service	Men		Women	
	Number	Compensation	Number	Compensation
0	204	\$ 9,358,579	263	\$ 11,078,787
1	124	6,487,672	196	8,418,196
2	66	3,677,509	118	5,715,614
3	77	4,716,745	115	5,263,842
4	74	3,878,274	69	3,230,343
5	71	3,840,696	67	3,262,246
6	41	2,200,883	39	2,061,268
7	36	2,137,556	51	2,782,519
8	64	3,407,913	57	2,764,134
9	29	1,629,156	37	2,104,717
10	39	2,196,286	40	2,303,331
11	37	1,977,294	61	3,153,820
12	35	2,091,623	34	1,883,196
13	27	1,490,052	33	1,762,533
14	41	2,251,194	21	927,935
15	56	3,055,685	54	2,580,152
16	52	2,946,677	66	3,101,176
17	45	2,368,905	55	2,945,602
18	36	2,045,410	31	1,652,203
19	27	1,537,265	34	1,991,699
20	22	1,440,467	30	1,530,740
21	20	1,391,736	13	
22	25	1,491,427	37	2,081,914
23	16		26	1,365,526
24	22	1,472,627	33	1,715,957
25	24	1,672,644	25	1,344,239
26	31	2,057,069	25	1,234,531
27	16		42	2,427,698
28	16		30	1,964,539
29	12		15	
30	6		10	
31	13		11	
32	4		8	
33	2		5	
34	5		3	
35	2		4	
36	1		3	
37	2		1	
38			1	
39	1			
40			1	
41				
<b>Total</b>	<b>1,421</b>	<b>\$ 79,512,128</b>	<b>1,764</b>	<b>\$ 87,145,599</b>

## TABLE VIII E

### The Number and Annual Salaries of Members in Active Service Distributed by Age as of January 1, 2016 Deputy Sheriffs

(Compensation in cells with fewer than 20 records has been suppressed)

Age	Men		Women	
	Number	Compensation	Number	Compensation
22	1			
23	5		1	
24	3			
25	5		1	
26	6			
27	4		1	
28	6		1	
29	3		3	
30	4		2	
31	3		1	
32	3			
33	2			
34	1			
35	5		2	
36	2		2	
37	2		1	
38	4		1	
39	3			
40	3		2	
41	10		2	
42	6		2	
43	4		1	
44	11		1	
45	15		5	
46	21	\$ 1,452,235	4	
47	19		2	
48	17		5	
49	13		6	
50	13		1	
51	10		2	
52	2		2	
53	7			
54	5		2	
55	4			
56	5		2	
57	8			
58	1			
59				
60	2			
61	2			
62	1			
<b>Total</b>	<b>241</b>	<b>\$ 15,396,144</b>	<b>55</b>	<b>\$ 3,374,255</b>

## TABLE VIII F

### The Number and Annual Salaries of Members in Active Service Distributed by Years of Credited Service as of January 1, 2016 Deputy Sheriffs

(Compensation in cells with fewer than 20 records has been suppressed)

Years of Service	Men Number	Men Compensation	Women Number	Women Compensation
0	26	\$ 1,306,806	3	
1	18		6	
2	3		1	
3	8		2	
4	2		1	
5	2		2	
6	2			
7	1		1	
8	3			
9	1			
10	1			
11	1			
12	1			
13	2		1	
14	7			
15	7		1	
16	12		6	
17	17		4	
18	9		4	
19	22	1,464,829	4	
20	14		3	
21	17		3	
22	19		3	
23	14		2	
24	20	1,380,412	4	
25	2		1	
26	2			
27	5		1	
28			2	
29				
30				
31	2			
32				
33				
34				
35				
36				
37				
38				
39				
40				
41	1			
<b>Total</b>	<b>241</b>	<b>\$ 15,396,144</b>	<b>55</b>	<b>\$ 3,374,255</b>

## TABLE VIII G

### The Number and Annual Salaries of Members in Active Service Distributed by Age as of January 1, 2016 Elected Officials

(Compensation in cells with fewer than 20 records has been suppressed)

Age	Men		Women	
	Number	Compensation	Number	Compensation
50	1			
51				
52				
53				
54				
55				
56				
57	1			
58				
59				
60	3			
61				
62	1			
63				
64				
65				
66				
67	1			
68				
<b>Total</b>	7	\$ 785,614		

## TABLE VIII H

### The Number and Annual Salaries of Members in Active Service Distributed by Years of Credited Service as of January 1, 2016 Elected Officials

(Compensation in cells with fewer than 20 records has been suppressed)

Years of Service	Men Number	Men Compensation	Women Number	Women Compensation
0				
1				
2				
3				
4	1			
5	1			
6				
7	1			
8				
9				
10				
11				
12				
13	1			
14	1			
15				
16				
17				
18				
19				
20				
21	1			
22				
23				
24	1			
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
<b>Total</b>	<b>7</b>	<b>\$ 785,614</b>		



## TABLE VIII I

The Number and Annual Benefits Payable to All Members Receiving Benefits as of January 1, 2017

Age	Men		Women	
	Number	Annuities	Number	Annuities
22	1	\$ 6,732		
23			1	\$ 7,917
24				
25				
26				
27			1	7,917
28			1	19,432
29	1	5,152		
30				
31				
32				
33				
34	1	3,760		
35	1	16,035		
36			1	4,306
37	1	20,819		
38	1	43,217	1	16,452
39	2	37,867		
40			1	6,324
41	1	27,201	1	16,702
42	3	78,286	1	40,975
43			1	46,961
44	1	24,802		
45	2	54,515	4	69,159
46	6	215,047	1	33,579
47	6	184,465		
48	7	218,573	1	11,492
49	1	53,727	3	61,028
50	4	121,962	8	199,496
51	9	331,766	12	416,013
52	10	332,697	21	565,152
53	15	600,284	31	892,186
54	21	655,599	30	859,748
55	20	573,359	27	675,422
56	26	730,371	60	1,471,468
57	18	596,893	69	1,662,680
58	43	1,336,093	65	1,725,798
59	43	1,522,019	80	2,199,942
60	69	1,750,290	106	2,444,189
61	90	2,496,762	121	2,451,308
62	100	2,551,761	160	2,979,292
63	120	3,174,128	178	3,466,253
64	138	3,536,526	184	3,690,571
65	142	3,966,373	193	3,623,138

**TABLE VIII I (continued)**

Age	Men		Women	
	Number	Annuities	Number	Annuities
66	168	\$ 4,455,230	216	\$ 3,839,645
67	162	3,983,699	214	3,796,464
68	186	5,362,302	221	4,018,215
69	157	4,208,210	202	4,017,705
70	196	5,299,698	214	4,364,556
71	107	2,974,308	156	3,531,014
72	122	2,896,418	141	2,742,540
73	90	2,438,085	139	2,578,632
74	96	2,484,150	144	2,624,224
75	88	2,471,777	122	2,184,191
76	80	2,142,151	104	2,046,539
77	75	1,863,807	110	1,928,165
78	71	1,814,677	112	2,141,422
79	62	1,611,123	111	1,903,159
80	70	1,760,093	107	1,748,751
81	61	1,519,561	105	1,968,914
82	45	1,340,099	116	2,009,829
83	51	1,431,859	78	1,276,532
84	60	1,420,462	80	1,309,103
85	53	1,422,177	73	1,265,172
86	47	1,024,364	116	1,901,840
87	35	873,224	102	1,419,618
88	34	694,337	99	1,389,583
89	35	744,132	71	1,001,474
90	24	566,666	77	956,347
91	20	376,301	65	1,005,251
92	23	428,101	42	521,514
93	21	322,628	50	687,704
94	7	147,064	40	455,085
95	8	124,678	27	254,832
96	6	96,974	31	303,159
97	3	25,926	10	90,397
98	3	53,288	12	125,172
99			11	105,499
100	1	44,823	6	26,428
101			3	52,340
102			2	15,532
103	1	6,200		
104				
<b>Total</b>	<b>3,171</b>	<b>\$ 83,695,672</b>	<b>4,892</b>	<b>\$ 91,271,449</b>

## TABLE VIII J

The Number and Annual Benefits Payable to Retired Members as of January 1, 2017

Age	Men		Women	
	Number	Annuities	Number	Annuities
49			1	\$ 24,928
50	2	\$ 62,436	3	87,641
51	7	278,211	7	254,439
52	7	241,339	11	291,698
53	8	371,373	22	631,693
54	19	601,474	22	678,886
55	18	502,127	22	610,864
56	25	716,970	51	1,312,061
57	17	549,930	56	1,455,665
58	37	1,192,870	60	1,589,702
59	38	1,435,937	69	2,017,094
60	60	1,550,318	92	2,187,389
61	85	2,381,358	109	2,194,394
62	95	2,494,006	147	2,770,737
63	109	2,956,001	160	3,052,398
64	130	3,302,413	174	3,476,228
65	134	3,832,489	182	3,344,425
66	162	4,390,358	196	3,530,783
67	157	3,866,205	196	3,375,837
68	179	5,233,614	199	3,579,810
69	150	4,096,279	188	3,756,636
70	188	5,155,992	189	3,879,898
71	105	2,931,791	134	2,986,699
72	108	2,724,547	122	2,334,675
73	83	2,342,549	118	2,202,917
74	86	2,358,172	119	2,266,018
75	84	2,381,479	107	1,915,593
76	77	2,099,340	82	1,610,697
77	71	1,810,543	94	1,665,223
78	66	1,772,565	93	1,668,674
79	58	1,547,029	90	1,568,617
80	61	1,626,082	75	1,225,702
81	55	1,442,183	74	1,308,475
82	44	1,331,514	88	1,508,244
83	48	1,399,074	49	828,566
84	56	1,393,496	61	1,027,352

**TABLE VIII J (continued)**

Age	Men		Women	
	Number	Annuities	Number	Annuities
85	48	\$ 1,336,951	37	\$ 499,112
86	42	932,120	76	1,213,164
87	33	866,199	68	990,035
88	31	674,735	64	875,633
89	31	700,708	38	524,816
90	23	553,450	45	535,534
91	19	361,794	32	465,233
92	17	388,414	22	249,937
93	16	291,950	29	368,875
94	7	147,064	24	244,647
95	6	92,000	18	178,154
96	6	96,974	18	151,037
97	2	23,204	3	27,136
98	3	53,288	10	109,401
99			7	56,063
100	1	44,823	4	21,857
101			3	52,340
102			2	15,532
103	1	6,200		
104				
<b>Total</b>	2,915	\$ 78,941,936	3,962	\$ 74,799,165

## TABLE VIII K

The Number and Annual Benefits Payable to Beneficiary Members as of January 1, 2017

Age	Men		Women	
	Number	Annuities	Number	Annuities
22	1	\$ 6,732		
23			1	\$ 7,917
24				
25				
26				
27			1	7,917
28			1	19,432
29	1	5,152		
30				
31				
32				
33				
34	1	3,760		
35	1	16,035		
36			1	4,306
37				
38			1	16,452
39	1	2,410		
40			1	6,324
41			1	16,702
42	1	8,296		
43				
44				
45	1	9,638	3	38,187
46				
47				
48	2	21,557	1	11,492
49			1	5,679
50			2	57,593
51			2	52,923
52			3	15,716
53	2	72,133	3	103,469
54	1	8,568	2	63,229
55			1	9,951
56			6	95,264
57			7	83,376
58			3	85,912
59			8	83,929
60	2	40,244	4	74,764
61	1	11,210	9	192,704
62	3	27,540	11	164,936
63	4	33,003	16	380,795
64			9	181,190
65	3	21,423	9	224,252

**TABLE VIII K (continued)**

Age	Men		Women	
	Number	Annuities	Number	Annuities
66	6	\$ 64,872	15	\$ 182,317
67	2	25,814	13	335,417
68	3	26,558	18	356,167
69	5	52,837	13	242,866
70	6	80,328	22	443,268
71			22	544,315
72	7	69,305	16	372,388
73	5	44,700	17	300,846
74	8	73,525	21	298,022
75	1	13,744	10	181,303
76	1	4,407	18	342,748
77	2	15,217	14	220,509
78	4	24,035	19	472,748
79	3	37,698	19	298,243
80	6	69,085	29	479,736
81	4	36,640	30	637,429
82			26	475,565
86	4	50,676	36	619,145
87	2	7,025	33	419,176
88	3	19,603	31	453,871
89	4	43,424	32	460,990
90	1	13,216	31	407,201
91	1	14,507	32	526,386
92	6	39,688	20	271,577
93	4	19,884	20	302,884
94			16	210,438
95	2	32,679	9	76,678
96			13	152,122
97	1	2,722	7	63,261
98			2	15,771
99			4	49,437
100			2	4,570
101				
102				
103				
104				
105				
106				
107				
<b>Total</b>	125	\$ 1,250,165	791	\$ 13,552,753

## TABLE VIII L

The Number and Annual Benefits Payable to Disabled Members as of January 1, 2017

Age	Men		Women	
	Number	Annuities	Number	Annuities
37	1	\$ 20,819		
38	1	43,217		
39	1	35,457		
40				
41	1	27,201		
42	2	69,989	1	\$ 40,975
43			1	46,961
44	1	24,802		
45	1	44,877	1	30,972
46	6	215,047	1	33,579
47	6	184,465		
48	5	197,016		
49	1	53,727	1	30,422
50	2	59,526	3	54,261
51	2	53,555	3	108,652
52	3	91,358	7	257,738
53	5	156,778	6	157,024
54	1	45,557	6	117,632
55	2	71,232	4	54,607
56	1	13,402	3	64,143
57	1	46,963	6	123,640
58	6	143,223	2	50,184
59	5	86,082	3	98,920
60	7	159,728	10	182,036
61	4	104,194	3	64,210
62	2	30,215	2	43,619
63	7	185,124	2	33,060
64	8	234,113	1	33,153
65	5	112,461	2	54,462
66			5	126,545
67	3	91,681	5	85,211
68	4	102,131	4	82,238
69	2	59,095	1	18,204
70	2	63,378	3	41,390
71	2	42,517		
72	7	102,566	3	35,478
73	2	50,835	4	74,870
74	2	52,453	4	60,184
75	3	76,554	5	87,294
76	2	38,404	4	93,094
77	2	38,047	2	42,433
78	1	18,077		
79	1	26,397	2	36,299
80	3	64,926	3	43,313
81	2	40,738	1	23,010

**TABLE VIII L (continued)**

Age	Men		Women	
	Number	Annuities	Number	Annuities
82	1	\$ 8,584	2	\$ 26,020
86	1	41,568	4	69,531
87			1	10,407
88			4	60,078
89			1	15,668
90			1	13,613
91			1	13,632
92				
93	1	10,795	1	15,944
<b>Total</b>	131	\$ 3,503,572	139	\$ 2,919,530



## EXHIBIT IX – Glossary

### **Accrued Liability**

The difference between (a) the present value of future plan benefits, and (b) the present value of future normal cost. It is the portion of the present value of future plan benefits attributable to service accrued as of the valuation date. Sometimes referred to as “actuarial accrued liability.”

### **Accrued Service**

The service credited under the plan, which was rendered before the date of the actuarial valuation.

### **Actual Funding Contribution**

The Actual Funding Contribution for a plan year is calculated using census and asset information as of the first day of the plan year, and includes Normal Cost, with interest to the end of the plan year, and a net amortization payment.

### **Actuarial Assumptions**

Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

### **Actuarial Cost Method**

A mathematical budgeting procedure for allocating the dollar amount of the “present value of future plan benefits” between the present value of future normal cost and the accrued liability. Sometimes referred to as the “actuarial funding method.”

### **Actuarial Equivalent**

A series of payments is called an actuarial equivalent of another series of payments if the two series have the same actuarial present value.

### **Actuarial Value of Assets**

The value of current plan assets recognized for valuation purposes. Based on a smoothed market value that recognizes Unexpected Changes in the market value over a period of ten years.

### **Amortization**

Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

### **Annual Required Contribution**

The Annual Required Contribution, or ARC, is the amount determined in accordance with Governmental Accounting Standards Board Statements Nos. 25 and 27.

### **Budget Contribution**

The Budget Contribution for a year is based on census and asset information as of the first day of the PRIOR plan year, rolled forward to the next plan year based on all actuarial assumptions being met. For example, the Budget Contribution for 2012 is based on census and asset information as of January 1, 2010, rolled forward to January 1, 2011.

## EXHIBIT IX – Glossary (continued)

### **Contribution Variance**

The difference between the Actual Contribution and the Budget Contribution for a plan year is referred to as the Contribution Variance. A Contribution Variance resulting from an overpayment is amortized over 5 years as a level dollar credit. A Contribution Variance resulting from an underpayment is amortized over 5 years as a level dollar charge.

### **Unexpected Experience**

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

### **Normal Cost**

The annual cost assumed, under the actuarial funding method, for current and subsequent plan years. Sometimes referred to as “current service cost.”

### **Present Value**

The amount of funds presently required to provide a payment or series of payments in the future. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

### **Unfunded Accrued Liability**

The difference between the actuarial accrued liability and valuation assets.