

# Wyoming Law Enforcement Retirement Fund

Actuarial Valuation Report  
for the Year Beginning January 1, 2018



April 6, 2018

Board of Trustees  
**Wyoming Law Enforcement Retirement Fund**  
6101 Yellowstone Road  
Suite 500  
Cheyenne, WY 82002

Dear Board of Trustees:

**Subject: Actuarial Valuation as of January 1, 2018**

We are pleased to present the report of the actuarial valuation of the Wyoming Law Enforcement Retirement Fund (“the Fund”) for the plan year commencing January 1, 2018. This report describes the current actuarial condition of the Fund, determines the calculated employer contribution rate (the actuarially determined contribution rate), and analyzes changes in this contribution rate from the prior year. Valuations are prepared annually, as of January 1, the first day of the Fund’s plan year.

#### **Financing objectives and funding policy**

The employer and employee contribution rates are specified in the statute. The purpose of this actuarial valuation is to determine whether the statutory contribution is sufficient to meet the obligations of the Fund.

#### **Progress toward realization of financing objectives**

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan’s funded status. The funded ratio as of January 1, 2018 is 88.24%. This funded ratio is based on the assumption that no future cost-of-living increases will be paid annually. In the January 1, 2017 valuation, this funded ratio, based on no future COLAs, was 94.01%. On a market value of assets basis, the funded ratio decreased from 89.05% as of January 1, 2017 to 88.90% as of January 1, 2018. The funded status alone is not appropriate for assessing the need for future contributions. The funded status is also not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

#### **Benefit provisions**

The benefit provisions reflected in this valuation are those which were in effect on January 1, 2018. W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change. Therefore, this valuation does not include any liability for future cost-of-living increases. There were no benefit changes since the prior valuation.

The benefit provisions are summarized in Appendix B of the report.

### Assumptions and methods

Actuarial assumptions and methods are set by the Board, based upon recommendations made by the plan's actuary. The current assumptions used in the actuarial valuation were adopted by the Board effective August 23, 2017 and were first utilized with the January 1, 2018 valuation report. For a detailed description of the experience related to these assumptions, as well as the rationale for any changes, please see our latest Wyoming Retirement System Actuarial Experience Study Report. Our experience study report was dated January 10, 2018 and it covered the five-year investigation period ending December 31, 2016.

Below is a summary of the changes in assumptions:

1. **Inflation:** reduce the current assumption of 3.25% to 2.25%.
2. **Real rate of return:** increase the current assumption from 4.50% to 4.75%.
3. **Nominal rate of return:** decrease the nominal investment return assumption (the sum of inflation and the real rate of return) from 7.75% to 7.00%.
4. **Wage inflation:** reduce the wage inflation assumption from 4.25% to 2.50%.
5. **Payroll growth:** reduce the assumed growth in total payroll from 4.25% to 2.50%.
6. **Administrative expenses:** recommend reducing the assumed annual increase in expenses from 6.50% per year to 2.50%.
7. **Post-retirement mortality, disabled lives mortality, active life mortality:** update to the RP2014 table, projected generationally using MP 2017.
8. **Salary increase:** decrease the total assumed increases while increasing the merit/promotion assumption.
9. **Retirement (unreduced retirement):** modify the retirement rates to reflect actual experience.
10. **Early (reduced) retirement:** modify the retirement rates to reflect actual experience.
11. **Termination (withdrawal):** adjust rates to reflect observed experience.
12. **Disability:** reduce rates to reflect observed experience.

The assumption changes increased the accrued liability by \$52 million.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution amounts and funding periods. The actuarial calculations presented in the report are intended to provide information for rational decision making. Due to the many factors affecting a retirement system, users of this report should be aware that contributions made at that rate do not necessarily guarantee long-term benefit security.

The employer contribution requirement in Table 1 of this report is determined using the actuarial assumptions and methods disclosed in Appendix A of this report. This report does not include a detailed assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We encourage a review and assessment of investment and other significant risks that may have a material effect on the plan's financial condition.

All assumptions and methods are described in Appendix A of the report.

#### **Data**

Member data for retired, active and inactive members was supplied as of January 1, 2018 by the Fund's staff. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data.

Asset and financial information as of January 1, 2018 was prepared by the Wyoming Retirement System and is the responsibility of management. Eide Bailly, LLP provided us the asset and financial information and will opine on Wyoming Retirement System's statements.

#### **Plan experience**

As part of each valuation, we examine the Fund's experience relative to the assumptions. As experience in a given year deviates from the assumptions, a gain occurs if the liabilities grow slower than the assumption set anticipates and a loss occurs if the liabilities grow faster. This past fiscal year the Fund experienced a total gain on the unfunded actuarial accrued liability of approximately \$7.0 million primarily due to gains on smaller than expected increases on salaries for individual members. The aggregate results of these analyses are disclosed in Tables 4 and 5 under Section III of the report.

### **Actuarial certification**

All of the tables contained in this actuarial valuation report were prepared by Gabriel, Roeder, Smith & Company. Historical information for years prior to 2010 was prepared by the prior actuarial firm and was not subjected to our actuarial review.

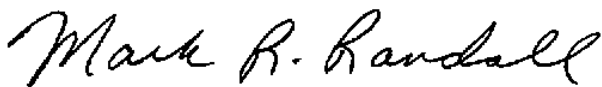
We certify that the information presented herein is accurate and fairly portrays the actuarial position of the Fund as of January 1, 2018.

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of state law and, where applicable, the Internal Revenue Code and ERISA. The undersigned are independent actuaries and consultants. Mark Randall and Leslie Thompson are Enrolled Actuaries and Mark Randall, Leslie Thompson, and Paul Wood are Members of the American Academy of Actuaries, and all three meet all the Qualification Standards of the American Academy of Actuaries.

Finally, all of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,

**Gabriel, Roeder, Smith & Company**



Mark R. Randall, FCA, EA, MAAA  
Chief Executive Officer



Leslie Thompson, FSA, FCA, EA, MAAA  
Senior Consultant



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# SECTION I

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## EXECUTIVE SUMMARY



## Executive Summary

Item	January 1, 2018	January 1, 2017
	No COLA	No COLA
1. Contributions:		
a. Total normal cost	14.30%	14.26%
b. Employee contributions	(8.60%)	(8.60%)
c. Other expected contributions	0.00%	0.00%
d. Net employer normal cost	5.70%	5.66%
e. Amortization payment	3.22%	1.26%
f. Administrative expenses	0.39%	0.34%
g. Required contribution	9.31%	7.26%
h. Statutory	(8.60%)	(8.60%)
i. Shortfall/(surplus)	0.71%	(1.34%)
2. Funding Elements:		
a. Market value of assets (MVA)	\$630,242,119	\$559,283,932
b. Actuarial value of assets (AVA)	\$625,562,038	\$590,466,391
c. Actuarial accrued liability (AAL)	\$708,957,832	\$628,084,812
d. Unfunded/(overfunded) actuarial accrued liability	\$83,395,794	\$37,618,421
3. Contributions and Ratios:		
a. Annual required contribution	\$14,493,422	\$11,623,441
b. Actual contributions	N/A	13,614,406
i. Employer	N/A	13,320,352
ii. Other	N/A	294,054
c. Percentage contributed	N/A	117.13%
d. Funded ratio on an actuarial basis (AVA/AAL)	88.24%	94.01%
e. Funded ratio on a market basis (MVA/AAL)	88.90%	89.05%
f. Projected payroll	\$155,696,162	\$160,072,828

## SECTION II

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### DISCUSSION

## Contribution Requirements

- Exhibits throughout this report are based primarily, unless stated otherwise, on the assumption of no future cost-of-living adjustments (COLAs).
- W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change. The actuarial value funded ratio is 88.24% and the market value funded ratio is 88.90%.
- There were no changes to the benefit provisions reflected in this actuarial valuation.
- The actuarial assumptions have been updated since the prior valuation. For a detailed description of the experience related to these assumptions, as well as the rationale for any changes, please see our latest Wyoming Retirement System Actuarial Experience Study Report.
- The amortization payment is based upon the following assumptions:
  - 30-year closed funding period
  - Amortization payment amounts are calculated in such a way that they will increase as a level percentage of payroll
  - Total payroll increases are assumed at 2.50% per year
  - Future growth in the number of active members is not reflected in the annual valuation
- The analysis of the changes in the contribution rates is shown in Table 5 under Section III of the report
- The calculated funding period assuming the current statutory contribution of 8.60% of pay is 61 years.

## Calculation of Contribution Rates

The funds available to pay benefits come from two sources, contributions as specified in the statute and investment income on those contributions (the majority of the funds available to pay benefits typically come from investment income). The Fund receives contributions from two sources, employer contributions and member contributions which are both determined as a percentage of pay. As shown in Table 1 under Section III of the report, the employer contribution rate has three components:

- The normal cost percentage (NC%)
- The amortization percentage (UAAL%)
- The administrative expenses

The NC% is the theoretical amount which would be required to pay the members' benefits if this amount had been contributed from each member's entry date and if the fund's experience exactly followed the actuarial assumptions. The NC% is shown in Table 3 under Section III of the report.

Members are required to make employee contributions and only the excess of the NC% over the member contribution rate is included in the employer contribution rate.

The actuarial accrued liability (AAL) is the difference between (i) the actuarial present value of all future benefits for all current participants of the fund, including active, inactive and retired members, and (ii) the actuarial present value of future normal costs. Thus the AAL represents the liability associated with past years. The unfunded actuarial accrued liability (UAAL) is the difference between the AAL and the actuarial value of assets (AVA). It is the shortfall/excess between the liability associated with prior years (the AAL) and the assets actually accumulated (the AVA). This shortfall/excess can arise from several sources, including actuarial gains and losses which are caused by differences between actual experience and the plan's assumptions, changes to the plan's actuarial assumptions, and amendments to the benefit provisions.

The UAAL% is the amount required to fund this difference. It is the amount, expressed as a level percentage of payroll, necessary to amortize the UAAL. This amortization is over a period of 30 years beginning January 1, 2018. The Executive Summary shows the UAAL%, called Amortization Payment, compared to that of last year.

Administrative expenses are the average of the actual expenses for the prior two years, with each year projected at 2.50% to the valuation date.

The calculated rate is used in determining the contributions necessary to meet the Actuarially Determined Contribution for the twelve-month period beginning January 1, 2018. Note that the employer contribution is set at 8.60% of payroll. Therefore, the Actuarially Determined Contribution will not be fully contributed. This is detailed in the Executive Summary.

## Financial Data and Experience

As of January 1, 2018, the Fund has a total market value of about \$630 million. Financial information was received from Eide Bailly, LLP.

Table 7 under Section III of the report shows a reconciliation of the market values between the beginning and end of 2017.

During 2017, the total investment return on the market value of assets (MVA) was 14.20%, as reported by Meketa Investment Group, Inc., as shown in Table 10 under Section III of the report.

In determining the contribution rates and funded status of the Fund, an actuarial value of assets (AVA) is used rather than the market value of assets. The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (or less than) expected investment income. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses. An adjustment is made if the actuarial value is not within 20% of the Market Value. For any year following a year in which the 20% of market value adjustment was applied, the actuarial value is determined as if the adjustment was not applied in the previous year.

The development of the AVA is shown in Table 9 under Section III of the report. The AVA is \$626 million. The AVA is 99.26% of the MVA as of December 31, 2017, compared to 105.58% last year. The difference between the AVA and the MVA is the deferred gains and losses. As of January 1, 2017, the total deferred loss was \$31.2 million. As of January 1, 2018, the total deferred gain was \$4.7 million.

In addition to the market return, Table 10 also shows the return on the actuarial value of assets for the Fund. For 2017, this return was 7.17%. Because this is less than the assumed 7.75% investment return for the prior year, an actuarial loss occurred, increasing the unfunded actuarial accrued liabilities of the Fund by \$3.0 million.

## Member Data

Member data as of January 1, 2018 was supplied electronically by the Fund's staff. While we did not audit this data, we did perform various tests to ensure that it was internally consistent, consistent with the prior year's data, and was reasonable overall.

Table 15 under Section III of the report shows the number of members by category (active, inactive, retired, etc.) along with member statistics. Tables 16 through 28 show summaries of certain historical data and include membership statistics.

The total payroll shown on the statistical tables is the amount that was supplied by the Fund, annualized, if necessary. For the cost calculations, the pay amounts were adjusted in accordance with the actuarial assumptions to reflect one year's salary increase.

Total active member payroll decreased 2.73%, compared with a 0.80% decrease the prior year.

Of the 2,661 active participants, 294 are eligible or will become eligible for normal retirement in 2018, and 280 are eligible or will become eligible for early retirement in 2018.

If the payroll does not grow at the assumed 2.50% per year average, then the current amortization payments may be understated and the funding position of the Fund will not strengthen as assumed over time. Table 5 under Section III of the report shows, for the past year, payroll for the plan increased less than expected, so the effect is an increase in the calculated contribution rate of 0.22% of payroll.

One reason payroll increased less than expected is that the salary, for continuing active participants, increased less than expected. This represented a gain to the Plan, as shown in Table 4 under Section III of the report.

## Benefit Provisions

Appendix B of the report includes a more detailed summary of the benefit provisions for the Fund. A brief summary from W.S. 9-3-432 is as follows:

- *Normal Retirement Eligibility*
  - Age 60 with at least four years of service as a law enforcement officer or any age with at least twenty years of service as a law enforcement officer.
- *Normal Retirement Benefit*
  - 2.50% of highest average five-year salary not to exceed 75.0% of highest average five-year salary.
- *Normal Form of Payment*
  - Monthly benefit for life with a lump-sum death benefit equal to the excess (if any) of the employee contributions with interest over the total benefits received.
- *Employee Contributions* are required
  - 8.60% of pay.
- *Post-retirement Cost-of-Living Adjustments (COLAs)*
  - W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change.

There have been no changes to plan provisions since the prior valuation.

## Actuarial Methods and Assumptions

Appendix A of the report includes a summary of the actuarial assumptions and methods used in this valuation. A few highlights are listed as follows:

- Costs are determined using the Entry Age Normal actuarial cost method, calculated as a level percentage of payroll.
- The unfunded actuarial accrued liability is amortized over a closed 30 year period as a level percent of payroll.
- The assumed annual investment return rate is 7.00%, with assumed inflation of 2.25%.
- Payroll is assumed to increase at 2.50% per year.
- Inactive vested participants are assumed to retire at age 60 - or the valuation date if over age 60. Those with over 20 years of service are assumed to retire immediately.
- No benefit data is available for members entitled to deferred benefits. The present value of benefits expected to be paid to vested inactive non-retired members is approximated using the data provided.

The average future lifetime for current pensioners is 22.4 years.

The actuarial assumptions and methods were reviewed in detail as part of the 2017 Experience Study covering the five year period ending December 31, 2016. Please see Appendix A for a summary of the new assumptions.



## **GASB and Funding Progress**

Governmental Accounting Standards Board Statement Number 67 (GASB 67) contains certain accounting requirements for the Fund. Schedules, notes and required supplementary information are provided under separate cover.

## SECTION III

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### SUPPORTING EXHIBITS

**Table 1**  
**Calculation of Annual Required Contribution Rate**  
**(Assumes No Future Cost-Of-Living Increases)**

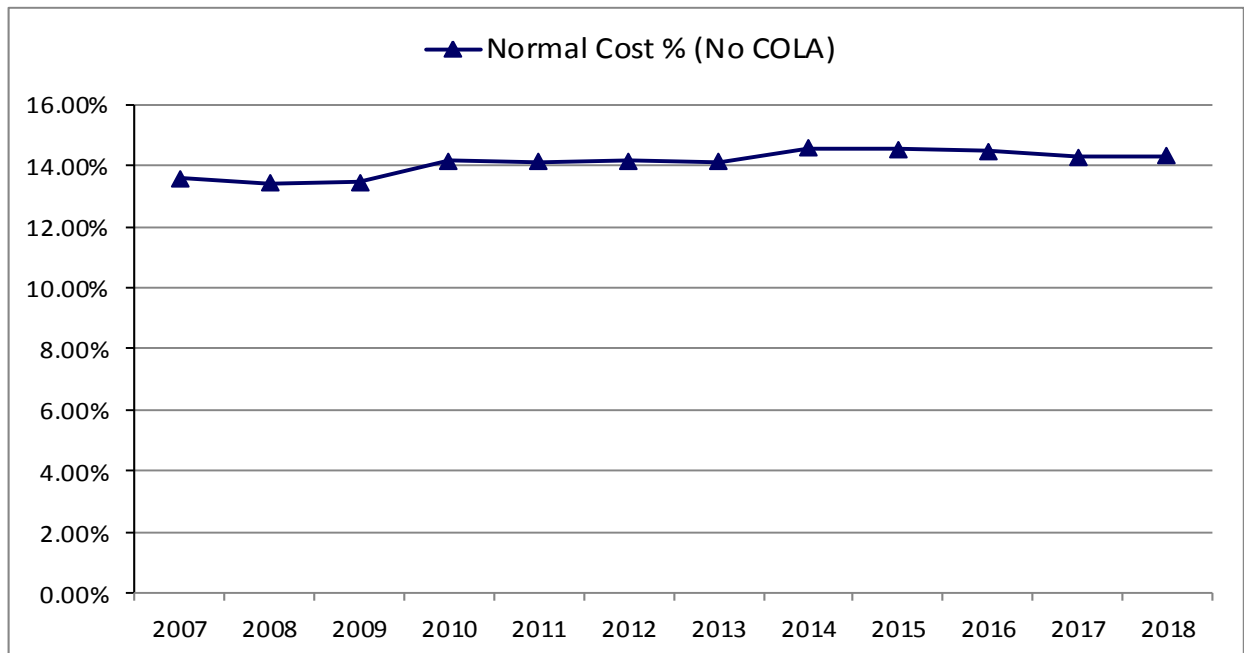
Item	January 1, 2018	January 1, 2017
1. Projected valuation payroll	\$155,696,162	\$160,072,828
2. Present value of future pay	\$1,131,264,494	\$1,167,089,896
3. Employer normal cost rate	5.70%	5.66%
4. Actuarial accrued liability for active members		
a. Present value of future benefits for active members	\$478,183,812	\$454,206,550
b. Less: present value of future employer normal costs	(61,239,094)	(61,148,846)
c. Less: present value of future employee contributions	(97,288,746)	(100,369,732)
d. Actuarial accrued liability	\$319,655,972	\$292,687,972
5. Total actuarial accrued liability for:		
a. Retirees and beneficiaries	\$319,273,166	\$277,225,777
b. Disabled members	46,055,157	37,988,156
<i>Duty</i>	32,430,357	27,526,467
<i>Non-duty</i>	13,624,800	10,461,689
c. Inactive members	23,973,537	20,182,907
d. Active members (Item 4d)	319,655,972	292,687,972
e. Total	\$708,957,832	\$628,084,812
6. Actuarial value of assets (Table 9)	\$625,562,038	\$590,466,391
7. Unfunded actuarial accrued liability (UAAL) (Item 5e - Item 6)	\$83,395,794	\$37,618,421
8. UAAL amortization period	30 years	30 years
9. Assumed payroll growth rate	2.50%	4.25%
10. Employer Contribution requirement		
a. UAAL amortization payment as % of pay	3.22%	1.26%
b. Employer normal cost	5.70%	5.66%
c. Administrative expense	0.39%	0.34%
d. Contribution requirement (a + b + c)	9.31%	7.26%

**Table 2**  
**Cost Breakdown**  
**(Assumes No Future Cost-Of-Living Increases)**

<b>Item</b>	<b>Present Value of Future Normal Costs (1)</b>	<b>Actuarial Accrued Liabilities (2)</b>	<b>Total Present Value of Benefits (3) = (1) + (2)</b>
Age and service allowances based on total service and disability benefits likely to be rendered by present active members	\$117,651,607	\$314,917,722	\$432,569,329
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	5,877,973	4,183,610	10,061,583
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	34,998,260	554,640	35,552,900
Benefits likely to be paid to vested inactive members	0	20,067,577	20,067,577
Benefits to be paid to members due refunds	0	3,905,960	3,905,960
Benefits to be paid to current retirees, disabled members, beneficiaries, and future beneficiaries of current retirees	0	365,328,323	365,328,323
<b>Total</b>	<b>\$158,527,840</b>	<b>\$708,957,832</b>	<b>\$867,485,672</b>
Actuarial Value of Assets	0	625,562,038	625,562,038
Liabilities to be covered by future contributions	\$158,527,840	\$83,395,794	\$241,923,634

**Table 3**  
**History of Total Normal Cost**  
**(Assumes No Future Cost-Of-Living Increases)**

Fiscal Year Ending December 31	Normal Cost as Percent of Payroll
2007	13.56%
2008	13.42%
2009	13.46%
2010	14.14%
2011	14.13%
2012	14.14%
2013	14.12%
2014	14.56%
2015	14.54%
2016	14.46%
2017	14.26%
2018	14.30%



**Table 4**  
**Calculation of Total Actuarial Gain/(Loss)**  
**Assumes No Future Cost-Of-Living Increases**

Item	January 1, 2018
1. Derivation of Experience Gain/(Loss)	
a. Unfunded actuarial accrued liability (UAAL) - previous valuation	\$37,618,421
b. Normal cost (NC) for fiscal year ending December 31, 2017	22,831,753
c. Actual administrative expenses for fiscal year ending December 31, 2017	631,865
d. Actuarially determined contribution for fiscal year ending December 31, 2017	25,389,704
e. Interest accrual:	
(i) For whole year on (a)	2,915,428
(ii) For half year on (b) + (c) - (d)	(74,636)
(iii) Total interest: (e)(i) + (e)(ii)	2,840,792
f. Change in UAAL due to plan changes	-
g. Change in UAAL due to assumption change	51,904,131
h. Expected UAAL current year: (a) + (b) + (c) - (d) + (e)(iii) + (f) + (g)	90,437,257
i. Actual UAAL current year	83,395,794
j. Experience gain/(loss): (h) - (i)	7,041,463
k. Experience gain/(loss) as a % of actuarial accrued liability	0.99%
2. Approximate Portion of Gain/(Loss) Due to Investments (at Actuarial Value)	(\$2,983,517)
3. Approximate Portion of Gain/(Loss) Due to Contributions higher or lower than expected	\$1,567,728
4. Approximate Portion of Gain/(Loss) Due to Liabilities: (1)(j) - (2) - (3)	<u>\$8,457,252</u>
a. Age & service retirements	(1,273,009)
b. Non-duty disability retirements	(274,512)
c. Duty disability retirements	377,664
d. Death-in-service	(1,365,387)
e. Withdrawal from employment	(1,554,016)
f. Rehires	(173,628)
g. Pay increases	10,998,180
h. Death after Retirement	2,351,258
i. Other	(629,298)
j. Other as a % of actuarial accrued liability	-0.09%

**Table 5**  
**Change in Calculated Contribution Rate Since the Prior Valuation**  
**Assumes No Future Cost-Of-Living Increases**

Item	January 1, 2018
1. Calculated contribution rate as of January 1, 2017	7.26%
2. Change in contribution rate during year	
a. Change in employer normal cost	-0.03%
b. Assumption changes	2.12%
c. Actuarial (gain) loss from investments on actuarial value of assets	0.10%
d. Actuarial (gain) loss from liability sources and administrative expenses	-0.26%
e. Difference between contributions made and required contributions	-0.05%
f. Effect of payroll growing (faster)/slower than assumption	0.22%
g. Open amortization period reset to 30 years	-0.05%
h. Other changes	0.00%
i. Total change	2.05%
3. Calculated contribution rate as of January 1, 2018	9.31%

**Table 6**  
**Statement of Plan Net Assets**

<b>Assets at Market Value</b>		
<b>Item</b>	<b>FYE 2017</b>	<b>FYE 2016</b>
1. Cash and Cash Equivalents (Operating Cash)	\$37,287,998	\$56,716,351
2. Receivables		
a. Insurance premium tax	\$0	\$0
b. Buy backs	0	0
c. Employee contributions	\$766,751	\$1,066,061
d. Employer contributions	767,169	1,066,454
e. Securities sold	2,789,530	3,024,712
f. Accrued interest and dividends	932,732	997,455
g. Currency contract receivable	144,231,989	203,101,170
h. Other	351,926	20,702
i. Rebate and fee income receivable	19,474	0
j. Total receivables	<u>\$149,859,571</u>	<u>\$209,276,554</u>
3. Investments, at fair value	\$633,676,663	\$528,509,736
4. Liabilities		
a. Benefits and refunds payable	(\$93,663)	(\$287,662)
b. Securities purchased	(3,714,900)	(1,979,685)
c. Administrative and consulting fees payable	(1,323,923)	(638,979)
d. Currency contract payable	(144,933,098)	(201,149,534)
e. Securities lending collateral	(40,516,529)	(31,162,849)
f. Total liabilities	<u>(\$190,582,113)</u>	<u>(\$235,218,709)</u>
5. Total Market Value of Assets Available for Benefits	\$630,242,119	\$559,283,932



**Table 7**  
**Reconciliation of Plan Net Assets**

Assets at Market Value		
Item	FYE 2017	FYE 2016
A. Market Value of Assets at Beginning of Year	\$559,283,932	\$525,237,686
B. Contribution Income:		
1. Contributions		
a. Employee	\$13,284,543	\$13,459,558
b. Employer	13,320,352	13,454,399
c. Other	701,005	1,258,538
d. Total	\$27,305,900	\$28,172,495
2. Investment Income		
a. Interest, dividends, and other income	\$10,931,623	\$10,931,620
b. Net appreciation	72,342,850	29,293,394
c. Investment expenses	(5,482,843)	(2,612,124)
d. Net investment income	\$77,791,630	\$37,612,890
3. Securities Lending		
a. Gross income	\$527,592	\$243,548
b. Deductions	(372,577)	(73,788)
c. Net investment income	\$155,015	\$169,760
4. Benefits and Refunds		
a. Refunds	(\$4,041,082)	(\$3,491,089)
b. Regular monthly benefits	(29,621,411)	(27,873,802)
c. Total	(\$33,662,493)	(\$31,364,891)
5. Administrative and Miscellaneous Expenses	(\$631,865)	(\$544,008)
C. Market Value of Assets at End of Year	\$630,242,119	\$559,283,932

**Table 8**  
**Progress of Fund Through December 31, 2017**

Plan Year Ending December 31	Employer Contributions*	Employee Contributions*	Administrative Expenses	Net Investment Income**	Benefit Payments	Transfers	Actuarial Value of Assets
Total	\$206,883,949	\$176,686,443	(\$4,331,116)	\$290,714,979	(\$291,686,928)	\$8,655,176	
2003	\$7,229,011	\$8,646,962	(\$67,842)	\$9,479,413	(\$6,475,594)	-	\$204,892,219
2004	12,902,452	8,415,620	(83,082)	12,318,566	(7,747,280)	-	230,698,495
2005	11,155,211	8,185,299	(138,060)	16,938,900	(10,532,309)	\$8,655,176	264,962,712
2006	34,228,475	9,114,022	(101,237)	25,935,590	(11,170,034)	-	322,969,528
2007	10,591,387	10,072,138	(113,629)	34,419,422	(13,215,795)	-	364,723,051
2008	11,861,638	11,267,854	(158,229)	(46,711,706)	(15,036,756)	-	325,945,852
2009	11,779,557	11,867,348	(184,662)	4,176,581	(16,785,935)	-	389,358,007
2010	13,166,633	12,811,136	(219,040)	13,106,593	(18,656,300)	-	409,567,029
2011	13,497,836	12,838,756	(345,446)	7,312,027	(20,667,243)	-	422,202,959
2012	13,364,655	12,963,835	(416,632)	12,335,269	(23,214,588)	-	437,235,498
2013	13,558,586	13,043,663	(470,177)	49,168,273	(25,717,983)	-	486,817,860
2014	13,496,913	13,928,652	(414,331)	42,034,212	(27,320,442)	-	528,542,864
2015	12,706,883	15,397,475	(442,876)	31,040,707	(30,119,285)	-	557,125,768
2016	13,730,305	14,442,190	(544,008)	37,077,027	(31,364,891)	-	590,466,391
2017	13,614,406	13,691,494	(631,865)	42,084,105	(33,662,493)	-	625,562,038

\* Employer contributions include other funding sources and employee contributions may include member redeposits and member service purchase contributions

\*\* Net of investment expenses

**Table 9**  
**Development of Actuarial Value of Assets**

Item	FYE 2017	FYE 2016
1. Actuarial value of assets, beginning of year (before corridor)	\$590,466,391	\$557,125,768
2. Market value, end of year	\$630,242,119	\$559,283,932
3. Market value, beginning of year	\$559,283,932	\$525,237,686
4. Non-investment/administrative net cash flow:		
a. Employee contributions	\$13,284,543	\$13,459,558
b. Employer contributions	13,320,352	13,454,399
c. Other contributions	701,005	1,258,538
d. Refund of employee accounts	(4,041,082)	(3,491,089)
e. Retirement benefits	(29,621,411)	(27,873,802)
f. Administrative expenses	(631,865)	(544,008)
g. Total net cash flow: [sum of (4a) through (4f)]	(\$6,988,458)	(\$3,736,404)
5. Investments and securities lending:		
a. Interest and dividends on investments	\$10,931,623	\$10,931,620
b. Gross income from securities lending	527,592	243,548
c. Fees and expenses	(5,855,420)	(2,685,912)
d. Total net income: [sum of (5a) through (5c)]	\$5,603,795	\$8,489,256
6. Investment income:		
a. Actual market return: (2) - (3) - (4g) - (5d)	\$72,342,850	\$29,293,394
b. Assumed rate of return	7.75%	7.75%
c. Assumed amount of return	37,474,960	32,074,581
d. Amount subject to phase-in: (6a) - (6c)	\$34,867,890	(\$2,781,187)
7. Phase-in recognition of investment income:		
a. Current year: 0.20 * (6d)	\$6,973,578	(\$556,237)
b. First prior year	(556,237)	(9,318,216)
c. Second prior year	(9,318,216)	(2,909,087)
d. Third prior year	(2,909,087)	4,815,312
e. Fourth prior year	4,815,312	4,481,418
f. Total recognition	(\$994,650)	(\$3,486,810)
<b>8. Actuarial value of assets, end of year</b>		
a. Preliminary actuarial value of assets, end of year: (1) + (4g) + (5d) + (6c) + (7f)	\$625,562,038	\$590,466,391
b. Upper corridor limit: 120% * (2)	756,290,543	671,140,718
c. Lower corridor limit: 80% * (2)	504,193,695	447,427,146
d. Actuarial value of assets, end of year	\$625,562,038	\$590,466,391
9. Difference between market and actuarial value of assets	\$4,680,081	(\$31,182,459)
<b>10. Actuarial rate of return</b>	7.17%	6.68%
<b>11. Market rate of return*</b>	14.20%	7.60%
<b>12. Ratio of actuarial value to market value of assets</b>	99.26%	105.58%

\* Current year market rate of return is based on unaudited data and is supplied by the plan's investment consultant.

## Table 10

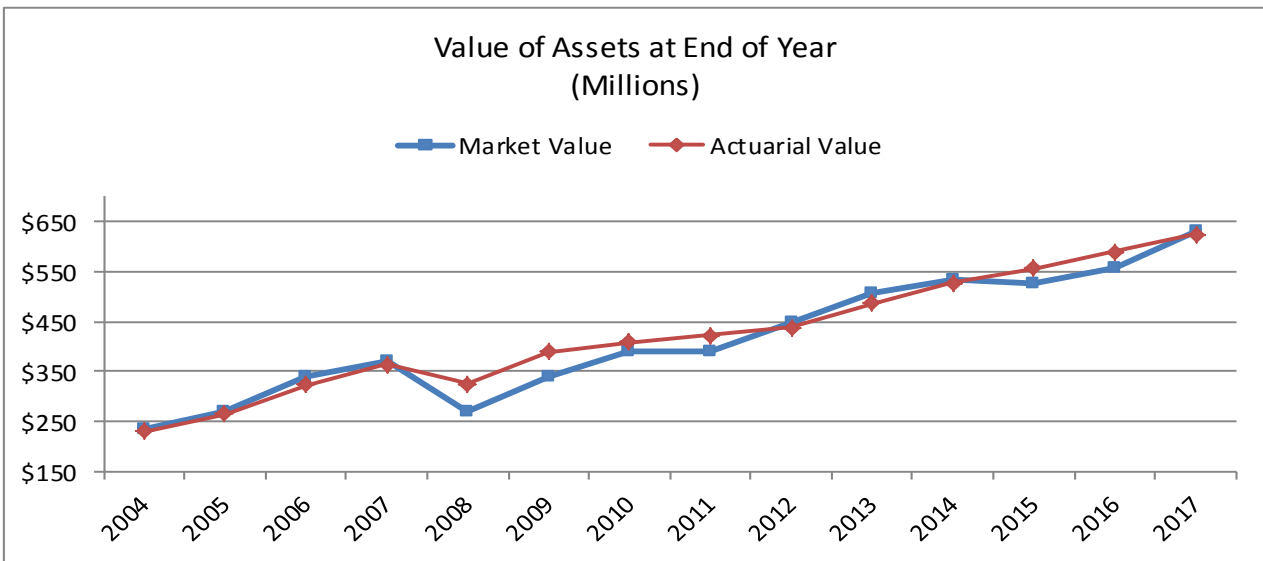
### History of Investment Returns

Plan Year (1)	Market Value (2)	Actuarial Value (3)
2004	11.54%	5.82%
2005	8.22%	7.08%
2006	12.63%	9.23%
2007	7.44%	10.54%
2008	-29.63%	-12.67%
2009	23.72%	17.23%
2010	13.80%	3.34%
2011	-0.90%	1.77%
2012	14.05%	2.91%
2013	13.53%	11.24%
2014	4.70%	8.64%
2015	-0.26%	5.89%
2016	7.60%	6.68%
2017	14.20%	7.17%

**Average returns:**

Last five years:	7.82%	7.91%
Last ten years:	5.02%	4.95%

The market returns above are gross of investment expenses and were provided by the plan's investment consultant. The actuarial returns above are based on the financial information provided by the plan's auditors.



**Table 11**  
**Solvency Test**

Valuation Date January 1	Total Active Member Contributions (1)	Inactive and Pensioner Liability (2)	Active Accrued Liability (3)	Actuarial Value of Assets	Percentage of Liabilities Covered by Assets		
					(1)	(2)	(3)
2005	\$61,842,876	\$87,958,000	\$110,225,000	\$230,698,495	100%	100%	73.4%
2006	66,827,791	109,836,100	119,969,000	264,962,712	100%	100%	73.6%
2007	72,004,612	130,672,200	128,806,000	322,969,528	100%	100%	93.4%
2008	74,889,713	163,621,400	141,901,000	364,723,051	100%	100%	88.9%
2009	82,306,146	173,849,000	134,790,000	325,945,852	100%	100%	51.8%
2010	92,241,086	166,797,234	121,992,468	389,358,007	100%	100%	100.0%
2011	100,333,051	186,200,382	123,626,373	409,567,029	100%	100%	99.5%
2012	106,871,965	210,366,572	123,266,327	422,202,959	100%	100%	85.2%
2013	116,002,787	229,727,100	127,814,770	437,235,498	100%	100%	71.6%
2014	121,915,804	260,467,214	144,399,452	486,817,860	100%	100%	72.3%
2015	128,198,774	286,399,991	149,642,588	528,542,864	100%	100%	76.1%
2016	133,911,728	309,474,214	153,470,235	557,125,768	100%	100%	74.1%
2017	137,264,555	335,396,840	155,423,417	590,466,391	100%	100%	75.8%
2018	140,028,844	389,301,860	179,627,128	625,562,038	100%	100%	53.6%

*Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.*

**Table 12**  
**Schedule of Funding Progress**

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Valuation Date January 1	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL) [(3) - (2)]	Funded Ratio [(2)/(3)]	Covered Payroll	UAAL as a Percentage of Covered Payroll [(4)/(6)]
2003	\$186,080,269	\$206,395,100	\$20,314,831	90.16%	\$79,217,700	25.64%
2004	204,892,219	236,441,300	31,549,081	86.66%	84,242,600	37.45%
2005	230,698,495	260,025,800	29,327,305	88.72%	89,351,600	32.82%
2006	264,962,712	296,633,400	31,670,688	89.32%	98,070,700	32.29%
2007	322,969,528	331,483,200	8,513,672	97.43%	108,350,000	7.86%
2008	364,723,051	380,413,100	15,690,049	95.88%	119,165,000	13.17%
2009	325,945,852	390,945,700	64,999,848	83.37%	132,701,500	48.98%
2010	389,358,007	381,030,788	(8,327,219)	102.19%	149,481,383	-5.57%
2011	409,567,029	410,159,806	592,777	99.86%	154,652,284	0.38%
2012	422,202,959	440,504,864	18,301,905	95.85%	155,481,933	11.77%
2013	437,235,498	473,544,657	36,309,158	92.33%	157,764,488	23.01%
2014	486,817,860	526,782,470	39,964,610	92.41%	154,071,943	25.94%
2015	528,542,864	564,241,353	35,698,489	93.67%	156,791,728	22.77%
2016	557,125,768	596,856,177	39,730,409	93.34%	161,357,314	24.62%
2017	590,466,391	628,084,812	37,618,421	94.01%	160,072,828	23.50%
2018	625,562,038	708,957,832	83,395,794	88.24%	155,696,162	53.56%

*Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.*

**Table 13**  
**Schedule of Contributions from the Employer(s) and Other Contributing Entities**

(1)	(2)	(3)	(4)	(5)	(6)
Fiscal Year Ending December 31	Actuarially Determined Contribution		Employer Contributions*		Percentage of Actuarially Determined Contributions Contributed [(5)/(3)]
	% of Payroll	Amount	% of Payroll	Amount	
2004	7.95%	\$6,693,300	15.32%	\$12,902,452	192.77%
2005	8.81%	7,873,900	12.48%	11,155,211	141.67%
2006	7.28%	7,138,000	34.90%	34,228,475	479.52%
2007	7.21%	7,810,100	9.78%	10,591,387	135.61%
2008	7.62%	9,084,200	9.95%	11,861,638	130.57%
2009	8.60%	11,413,400	8.88%	11,779,557	103.21%
2010	5.37%	8,029,651	8.81%	13,166,633	163.98%
2011	5.69%	8,806,599	8.73%	13,497,836	153.27%
2012	6.37%	9,899,466	8.60%	13,364,655	135.00%
2013	7.01%	11,071,525	8.59%	13,558,586	122.46%
2014	7.67%	11,812,078	8.76%	13,496,913	114.26%
2015	7.47%	11,708,248	8.10%	12,706,883	108.53%
2016	7.48%	12,063,684	8.76%	13,730,305	113.82%
2017	7.26%	11,623,441	8.51%	13,614,406	117.13%
2018	9.31%	14,493,422	-	-	-

*Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.*

\*Includes other funding sources but excludes member redeposits and member service purchase contributions.

**Table 14**  
**Reconciliation of Participant Data**

	Active Participants	Vested Former Participants	Retired Participants	Disabled	Beneficiaries	Participants Due Refunds	Total
<b>Number as of January 1, 2017</b>	<b>2,719</b>	<b>317</b>	<b>889</b>	<b>134</b>	<b>124</b>	<b>856</b>	<b>5,039</b>
New participants	260	-	-	-	-	53	313
Vested terminations	(65)	65	-	-	-	-	-
Retirements	(54)	(10)	64	-	-	-	-
Disability	(7)	-	-	7	-	-	-
Deceased with beneficiary	(1)	-	(9)	(2)	12	-	-
Deceased without beneficiary	(2)	(1)	(7)	-	(6)	(3)	(19)
Due refunds	(103)	-	-	-	-	103	-
Lump sum payoffs	(97)	(24)	-	-	(4)	(59)	(184)
Rehires/return to active	11	(3)	-	-	-	(8)	-
Certain period expired	-	-	-	-	-	-	-
Reclassifications	-	1	-	-	-	-	1
Data corrections	-	-	-	-	-	-	-
<b>Number as of January 1, 2018</b>	<b>2,661</b>	<b>345</b>	<b>937</b>	<b>139</b>	<b>126</b>	<b>942</b>	<b>5,150</b>



**Table 15**  
**Demographic Statistics**

	January 1		
	2018	2017	Change
<u>Active Participants</u>			
Number	2,661	2,719	-2.1%
<i>Vested</i>	1,808	1,816	
<i>Not vested</i>	853	903	
Average age (years)	39.64	39.50	0.4%
Average service (years)	8.61	8.32	3.5%
Average entry age (years)	31.03	31.18	-0.5%
Total payroll*	\$155,696,162	\$160,072,828	-2.7%
Average payroll*	\$58,510	\$58,872	-0.6%
Total employee contributions with interest	\$140,028,844	\$137,264,555	2.0%
Average employee contributions with interest	\$52,623	\$50,483	4.2%
<u>Vested Former Participants</u>			
Number	345	317	8.8%
Average age (years)	44.62	44.31	0.7%
Total employee contributions with interest	\$16,011,538	\$14,092,891	13.6%
Average employee contributions with interest	\$46,410	\$44,457	4.4%
<u>Service Retirees</u>			
Number	937	889	5.4%
Average age (years)	63.75	63.28	0.7%
Total annual benefits	\$24,428,312	\$22,948,720	6.4%
Average annual benefit	\$26,071	\$25,814	1.0%
<u>Disability Retirees</u>			
Number	139	134	3.7%
Average age (years)	56.97	56.68	0.5%
Total annual benefits	\$4,012,740	\$3,844,649	4.4%
Average annual benefit	\$28,869	\$28,691	0.6%
<u>Beneficiaries</u>			
Number	126	124	1.6%
Average age (years)	64.17	63.06	1.8%
Total annual benefits	\$2,071,836	\$1,872,448	10.6%
Average annual benefit	\$16,443	\$15,100	8.9%
<u>Participants Due Refunds</u>			
Number	942	856	10.0%
Total Refunds Due	\$3,905,960	\$3,490,923	11.9%

\* Projected payroll for the upcoming valuation year

## Table 16

### Distribution of Male Active Members by Age and by Years of Service

Average Age = 39.5      Average Service = 8.8

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 20</b>	Count	3	-	-	-	-	-	-	3
	Avg. Salary	*	-	-	-	-	-	-	*
<b>20-24</b>	Count	109	1	-	-	-	-	-	110
	Avg. Salary	\$44,392	*	-	-	-	-	-	\$44,376
<b>25-29</b>	Count	226	69	3	-	-	-	-	298
	Avg. Salary	48,830	\$54,496	*	-	-	-	-	50,319
<b>30-34</b>	Count	146	174	55	-	-	-	-	375
	Avg. Salary	49,558	59,205	\$67,268	-	-	-	-	56,631
<b>35-39</b>	Count	88	101	104	23	-	-	-	316
	Avg. Salary	49,783	59,491	65,563	\$69,145	-	-	-	59,488
<b>40-44</b>	Count	61	71	73	67	4	-	-	276
	Avg. Salary	53,025	58,463	64,312	68,149	\$68,490	-	-	61,305
<b>45-49</b>	Count	33	42	64	70	27	7	-	243
	Avg. Salary	53,322	56,299	63,846	71,270	76,172	\$93,530	-	65,475
<b>50-54</b>	Count	27	30	39	44	22	15	2	179
	Avg. Salary	53,251	61,117	64,168	69,173	71,305	78,089	*	65,657
<b>55-59</b>	Count	18	20	27	12	10	16	3	106
	Avg. Salary	50,689	54,907	63,569	62,299	68,500	79,713	*	63,670
<b>60-64</b>	Count	9	5	12	15	6	3	10	60
	Avg. Salary	51,267	58,556	59,326	60,202	68,794	*	\$78,255	63,106
<b>65-69</b>	Count	-	2	2	2	2	1	1	10
	Avg. Salary	-	*	*	*	*	*	*	65,979
<b>70 &amp; Over</b>	Count	-	-	-	1	-	1	-	2
	Avg. Salary	-	-	-	*	-	*	-	*
<b>Totals</b>	Count	<b>720</b>	<b>515</b>	<b>379</b>	<b>234</b>	<b>71</b>	<b>43</b>	<b>16</b>	<b>1,978</b>
	Avg. Salary	<b>\$49,182</b>	<b>\$58,190</b>	<b>\$64,770</b>	<b>\$68,445</b>	<b>\$72,182</b>	<b>\$80,339</b>	<b>\$85,712</b>	<b>\$58,591</b>

*Average Salary represents annualized salary earned in 2017 and is not shown for cells with counts less than or equal to three participants*

## Table 17

### Distribution of Female Active Members by Age and by Years of Service

Average Age = 40.1      Average Service = 8.2

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 20</b>	Count	3	-	-	-	-	-	-	3
	Avg. Salary	*	-	-	-	-	-	-	*
<b>20-24</b>	Count	42	-	-	-	-	-	-	42
	Avg. Salary	\$43,278	-	-	-	-	-	-	\$43,278
<b>25-29</b>	Count	84	19	-	-	-	-	-	103
	Avg. Salary	46,581	\$52,673	-	-	-	-	-	47,705
<b>30-34</b>	Count	60	29	17	-	-	-	-	106
	Avg. Salary	47,260	54,322	\$61,252	-	-	-	-	51,436
<b>35-39</b>	Count	32	25	39	8	-	-	-	104
	Avg. Salary	46,368	56,285	58,604	\$61,234	-	-	-	54,484
<b>40-44</b>	Count	28	23	27	19	2	-	-	99
	Avg. Salary	43,491	56,646	60,524	64,556	*	-	-	55,859
<b>45-49</b>	Count	19	28	15	21	5	-	-	88
	Avg. Salary	47,975	51,995	55,594	67,067	\$59,940	-	-	55,789
<b>50-54</b>	Count	10	17	12	13	4	4	1	61
	Avg. Salary	48,529	51,854	53,733	57,068	73,668	\$64,569	*	55,664
<b>55-59</b>	Count	7	8	11	13	9	1	-	49
	Avg. Salary	43,556	46,318	52,389	62,791	56,934	*	-	53,669
<b>60-64</b>	Count	3	2	6	5	4	3	-	23
	Avg. Salary	*	*	62,000	54,053	58,650	*	-	54,568
<b>65-69</b>	Count	-	-	1	1	-	2	1	5
	Avg. Salary	-	-	*	*	-	*	*	64,479
<b>70 &amp; Over</b>	Count	-	-	-	-	-	-	-	-
	Avg. Salary	-	-	-	-	-	-	-	-
<b>Totals</b>	Count	<b>288</b>	<b>151</b>	<b>128</b>	<b>80</b>	<b>24</b>	<b>10</b>	<b>2</b>	<b>683</b>
	Avg. Salary	<b>\$45,809</b>	<b>\$53,482</b>	<b>\$58,113</b>	<b>\$62,476</b>	<b>\$62,088</b>	<b>\$64,465</b>	<b>*</b>	<b>\$52,717</b>

*Average Salary represents annualized salary earned in 2017 and is not shown for cells with counts less than or equal to three participants*

## Table 18

### Distribution of Total Active Members by Age and by Years of Service

Average Age = 39.6      Average Service = 8.6

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 20</b>	Count	6	-	-	-	-	-	-	6
	Avg. Salary	\$37,997	-	-	-	-	-	-	\$37,997
<b>20-24</b>	Count	151	1	-	-	-	-	-	152
	Avg. Salary	\$44,082	*	-	-	-	-	-	44,073
<b>25-29</b>	Count	310	88	3	-	-	-	-	401
	Avg. Salary	48,220	\$54,103	*	-	-	-	-	49,647
<b>30-34</b>	Count	206	203	72	-	-	-	-	481
	Avg. Salary	48,888	58,507	\$65,847	-	-	-	-	55,487
<b>35-39</b>	Count	120	126	143	31	-	-	-	420
	Avg. Salary	48,873	58,855	63,665	\$67,103	-	-	-	58,249
<b>40-44</b>	Count	89	94	100	86	6	-	-	375
	Avg. Salary	50,026	58,018	63,289	67,355	\$70,447	-	-	59,867
<b>45-49</b>	Count	52	70	79	91	32	7	-	331
	Avg. Salary	51,368	54,577	62,279	70,300	73,636	\$93,530	-	62,900
<b>50-54</b>	Count	37	47	51	57	26	19	3	240
	Avg. Salary	51,975	57,767	61,713	66,413	71,669	75,243	*	63,117
<b>55-59</b>	Count	25	28	38	25	19	17	3	155
	Avg. Salary	48,692	52,453	60,333	62,555	63,022	77,928	*	60,508
<b>60-64</b>	Count	12	7	18	20	10	6	10	83
	Avg. Salary	47,625	53,507	60,217	58,665	64,737	68,044	\$78,255	60,740
<b>65-69</b>	Count	-	2	3	3	2	3	2	15
	Avg. Salary	-	*	*	*	*	*	*	65,479
<b>70 &amp; Over</b>	Count	-	-	-	1	-	1	-	2
	Avg. Salary	-	-	-	*	-	*	-	*
<b>Totals</b>	Count	<b>1,008</b>	<b>666</b>	<b>507</b>	<b>314</b>	<b>95</b>	<b>53</b>	<b>18</b>	<b>2,661</b>
	Avg. Salary	<b>\$48,218</b>	<b>\$57,122</b>	<b>\$63,089</b>	<b>\$66,924</b>	<b>\$69,632</b>	<b>\$77,344</b>	<b>\$85,383</b>	<b>\$57,083</b>

*Average Salary represents annualized salary earned in 2017 and is not shown for cells with counts less than or equal to three participants*

**Table 19**

**Distribution of Male Deferred Members by Age and by Years of Service**

Average Age = 44.5      Average Service = 7.8

Age Last Birthday	Whole Years of Service at Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	-	-	-	-	-	-	-	-
20-24	-	-	-	-	-	-	-	-
25-29	2	5	-	-	-	-	-	7
30-34	10	26	1	-	-	-	-	37
35-39	15	21	6	-	-	-	-	42
40-44	4	22	7	1	-	-	-	34
45-49	7	20	14	1	-	-	-	42
50-54	5	15	6	1	-	-	-	27
55-59	2	16	5	2	-	-	-	25
60-64	-	4	3	-	1	-	-	8
65-69	2	1	-	1	-	-	-	4
70 & Over	-	-	-	-	-	-	-	-
<b>Totals</b>	<b>47</b>	<b>130</b>	<b>42</b>	<b>6</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>226</b>

**Table 20**

**Distribution of Female Deferred Members by Age and by Years of Service**

Average Age = 44.8      Average Service = 8.4

Age Last Birthday	Whole Years of Service at Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
Less than 20	-	-	-	-	-	-	-	-
20-24	1	-	-	-	-	-	-	1
25-29	1	2	-	-	-	-	-	3
30-34	1	11	1	-	-	-	-	13
35-39	4	12	3	-	-	-	-	19
40-44	3	18	4	1	-	-	-	26
45-49	3	13	7	1	-	-	-	24
50-54	1	8	6	1	-	-	-	16
55-59	-	6	4	2	-	-	-	12
60-64	-	3	-	1	1	-	-	5
65-69	-	-	-	-	-	-	-	-
70 & Over	-	-	-	-	-	-	-	-
<b>Totals</b>	<b>14</b>	<b>73</b>	<b>25</b>	<b>6</b>	<b>1</b>	<b>-</b>	<b>-</b>	<b>119</b>

**Table 21**

**Distribution of Total Deferred Members by Age and by Years of Service**

Average Age = 44.6      Average Service = 8.0

Age Last Birthday	Whole Years of Service at Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 20</b>	-	-	-	-	-	-	-	-
<b>20-24</b>	1	-	-	-	-	-	-	1
<b>25-29</b>	3	7	-	-	-	-	-	10
<b>30-34</b>	11	37	2	-	-	-	-	50
<b>35-39</b>	19	33	9	-	-	-	-	61
<b>40-44</b>	7	40	11	2	-	-	-	60
<b>45-49</b>	10	33	21	2	-	-	-	66
<b>50-54</b>	6	23	12	2	-	-	-	43
<b>55-59</b>	2	22	9	4	-	-	-	37
<b>60-64</b>	-	7	3	1	2	-	-	13
<b>65-69</b>	2	1	-	1	-	-	-	4
<b>70 &amp; Over</b>	-	-	-	-	-	-	-	-
<b>Totals</b>	<b>61</b>	<b>203</b>	<b>67</b>	<b>12</b>	<b>2</b>	<b>-</b>	<b>-</b>	<b>345</b>

**Table 22**  
**Schedule of Pension Recipients Added to and Removed from Rolls**

Fiscal Year Ending December 31	Added to Rolls*		Removed from Rolls		Total		Percent	Average
	Annual		Annual		Annual		Increase in	Annual
	Count	Pension Benefits	Count	Pension Benefits	Count	Pension Benefits	Annual Pension Benefits	Pension Benefit
2008	72	\$1,651,841	11	(\$9,251)	610	\$13,605,759	13.91%	\$22,305
2009	55	1,154,341	9	(65,125)	656	14,694,975	8.01%	22,401
2010	75	1,881,618	12	(109,159)	719	16,467,434	12.06%	22,903
2011	93	2,330,905	7	(101,024)	805	18,697,315	13.54%	23,226
2012	54	1,418,567	7	(62,989)	852	20,052,893	7.25%	23,536
2013	77	2,048,141	12	(155,942)	917	21,945,092	9.44%	23,931
2014	98	2,598,158	14	(250,849)	1,001	24,292,401	10.70%	24,268
2016	83	2,229,651	14	(234,679)	1,070	26,287,373	8.21%	24,568
2016	91	2,618,016	14	(239,572)	1,147	28,665,817	9.05%	24,992
2017	83	2,325,313	28	(478,242)	1,202	30,512,888	6.44%	25,385

\* Includes cost-of-living increases



**Table 23**  
**Retired and Disabled Members by Option Code**

	Count			Monthly Benefit		
	Male	Female	Total	Male	Female	Total
<b>Option Code*</b>						
1	163	80	243	\$376,827	\$134,288	\$511,114
2	357	50	407	858,071	92,701	950,772
2P	144	24	168	310,769	45,512	356,281
3	28	7	35	64,044	16,548	80,592
3P	28	9	37	70,513	21,373	91,886
4	23	7	30	56,871	13,497	70,368
5	25	14	39	44,403	23,466	67,869
Other**	114	3	117	234,904	6,300	241,205
<b>Total</b>	<b>882</b>	<b>194</b>	<b>1,076</b>	<b>\$2,016,403</b>	<b>\$353,685</b>	<b>\$2,370,088</b>
<b>Beneficiaries</b>	<b>8</b>	<b>118</b>	<b>126</b>	<b>\$8,645</b>	<b>\$164,008</b>	<b>\$172,653</b>
<b>Grand Total</b>	<b>890</b>	<b>312</b>	<b>1,202</b>	<b>\$2,025,048</b>	<b>\$517,693</b>	<b>\$2,542,741</b>

\*See optional forms of payment in Appendix B.

\*\*66.67% joint and survivor option for grandfathered employees.

**Table 24**  
**Pensioners by Monthly Benefit and Option Code**

<b>Males</b>	<b>Option Code</b>								
<b>Benefit Amount</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4*</b>	<b>5</b>	<b>Other</b>	<b>Total</b>
<b>Under \$200</b>	2	1	-	-	-	-	-	-	3
<b>\$200-\$399</b>	8	4	6	1	-	6	2	-	27
<b>\$400-\$599</b>	3	14	10	3	-	1	4	1	36
<b>\$600-\$799</b>	12	10	7	-	1	1	2	2	35
<b>\$800-\$999</b>	2	7	6	1	-	1	3	3	23
<b>\$1,000-\$1,499</b>	11	30	13	2	5	-	2	10	73
<b>\$1,500-\$1,999</b>	22	49	21	4	4	1	1	38	140
<b>\$2,000-\$2,499</b>	31	86	26	2	6	4	5	34	194
<b>\$2,500 &amp; over</b>	72	156	55	15	12	13	10	26	359
<b>Total</b>	<b>163</b>	<b>357</b>	<b>144</b>	<b>28</b>	<b>28</b>	<b>27</b>	<b>29</b>	<b>114</b>	<b>890</b>
<b>Females</b>									
<b>Benefit Amount</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4*</b>	<b>5</b>	<b>Other</b>	<b>Total</b>
<b>Under \$200</b>	1	-	-	-	-	-	5	-	6
<b>\$200-\$399</b>	4	2	1	-	-	2	15	-	24
<b>\$400-\$599</b>	8	3	1	-	-	-	12	-	24
<b>\$600-\$799</b>	4	2	1	-	-	-	12	-	19
<b>\$800-\$999</b>	7	2	1	-	2	2	7	-	21
<b>\$1,000-\$1,499</b>	10	5	4	-	-	1	29	-	49
<b>\$1,500-\$1,999</b>	12	8	4	4	3	1	17	2	51
<b>\$2,000-\$2,499</b>	20	20	6	-	2	1	13	-	62
<b>\$2,500 &amp; over</b>	14	8	6	3	2	2	20	1	56
<b>Total</b>	<b>80</b>	<b>50</b>	<b>24</b>	<b>7</b>	<b>9</b>	<b>9</b>	<b>130</b>	<b>3</b>	<b>312</b>
<b>Males &amp; Females</b>									
<b>Benefit Amount</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4*</b>	<b>5</b>	<b>Other</b>	<b>Total</b>
<b>Under \$200</b>	3	1	-	-	-	-	5	-	9
<b>\$200-\$399</b>	12	6	7	1	-	8	17	-	51
<b>\$400-\$599</b>	11	17	11	3	-	1	16	1	60
<b>\$600-\$799</b>	16	12	8	-	1	1	14	2	54
<b>\$800-\$999</b>	9	9	7	1	2	3	10	3	44
<b>\$1,000-\$1,499</b>	21	35	17	2	5	1	31	10	122
<b>\$1,500-\$1,999</b>	34	57	25	8	7	2	18	40	191
<b>\$2,000-\$2,499</b>	51	106	32	2	8	5	18	34	256
<b>\$2,500 &amp; over</b>	86	164	61	18	14	15	30	27	415
<b>Total</b>	<b>243</b>	<b>407</b>	<b>168</b>	<b>35</b>	<b>37</b>	<b>36</b>	<b>159</b>	<b>117</b>	<b>1,202</b>

\*Includes 6 beneficiaries who are receiving a certain only benefit.

**Table 25**  
**Pensioners by Age and Option Code**

Average Age Male = 62.9      Average Age Female = 63.3      Average Age Total = 63.0

<b>Males</b>	<b>Option Code</b>								
<b>Age Last Birthday</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4*</b>	<b>5</b>	<b>Other</b>	<b>Total</b>
<b>Under 50</b>	22	35	13	1	3	7	-	-	81
<b>50-54</b>	16	38	13	9	1	4	3	1	85
<b>55-59</b>	23	61	23	2	5	3	5	3	125
<b>60-64</b>	28	93	35	4	9	4	2	28	203
<b>65-69</b>	34	77	34	7	4	6	13	34	209
<b>70-74</b>	29	44	20	3	3	3	3	21	126
<b>75-79</b>	9	8	3	1	3	-	2	18	44
<b>80-84</b>	1	1	3	1	-	-	1	6	13
<b>85 &amp; over</b>	1	-	-	-	-	-	-	3	4
<b>Total</b>	<b>163</b>	<b>357</b>	<b>144</b>	<b>28</b>	<b>28</b>	<b>27</b>	<b>29</b>	<b>114</b>	<b>890</b>
<b>Females</b>									
<b>Age Last Birthday</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4*</b>	<b>5</b>	<b>Other</b>	<b>Total</b>
<b>Under 50</b>	7	4	-	3	-	2	16	-	32
<b>50-54</b>	6	5	6	-	3	-	7	-	27
<b>55-59</b>	10	9	6	1	2	1	12	-	41
<b>60-64</b>	26	19	4	2	1	3	14	1	70
<b>65-69</b>	16	10	7	1	3	-	33	1	71
<b>70-74</b>	10	3	1	-	-	3	18	1	36
<b>75-79</b>	5	-	-	-	-	-	12	-	17
<b>80-84</b>	-	-	-	-	-	-	9	-	9
<b>85 &amp; over</b>	-	-	-	-	-	-	9	-	9
<b>Total</b>	<b>80</b>	<b>50</b>	<b>24</b>	<b>7</b>	<b>9</b>	<b>9</b>	<b>130</b>	<b>3</b>	<b>312</b>
<b>Males &amp; Females</b>									
<b>Age Last Birthday</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4*</b>	<b>5</b>	<b>Other</b>	<b>Total</b>
<b>Under 50</b>	29	39	13	4	3	9	16	-	113
<b>50-54</b>	22	43	19	9	4	4	10	1	112
<b>55-59</b>	33	70	29	3	7	4	17	3	166
<b>60-64</b>	54	112	39	6	10	7	16	29	273
<b>65-69</b>	50	87	41	8	7	6	46	35	280
<b>70-74</b>	39	47	21	3	3	6	21	22	162
<b>75-79</b>	14	8	3	1	3	-	14	18	61
<b>80-84</b>	1	1	3	1	-	-	10	6	22
<b>85 &amp; over</b>	1	-	-	-	-	-	9	3	13
<b>Total</b>	<b>243</b>	<b>407</b>	<b>168</b>	<b>35</b>	<b>37</b>	<b>36</b>	<b>159</b>	<b>117</b>	<b>1,202</b>

\*Includes 6 beneficiaries who are receiving a certain only benefit.

**Table 26**  
**Pensions Awarded in 2017 by Option Code**

Average Age = 55.7

<b>Males &amp; Females</b>	<b>Option Code</b>								
<b>Benefit Amount</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4</b>	<b>5</b>	<b>Other</b>	<b>Total</b>
Under \$200	-	-	-	-	-	-	-	-	0
\$200-\$399	2	2	-	-	-	-	1	-	5
\$400-\$599	1	2	-	-	-	-	-	-	3
\$600-\$799	-	2	-	-	-	-	2	-	4
\$800-\$999	1	-	1	-	-	-	-	-	2
\$1,000-\$1,499	1	2	1	-	1	-	2	-	7
\$1,500-\$1,999	1	2	3	1	2	-	2	-	11
\$2,000-\$2,499	7	4	2	-	-	-	3	-	16
\$2,500 & over	8	16	4	-	3	-	4	-	35
<b>Total</b>	<b>21</b>	<b>30</b>	<b>11</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>83</b>
<b>Males &amp; Females</b>									
<b>Age Last Birthday</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4</b>	<b>5</b>	<b>Other</b>	<b>Total</b>
Under 50	6	8	2	-	1	-	2	-	19
50-54	4	2	1	-	1	-	2	-	10
55-59	3	7	1	-	2	-	2	-	15
60-64	8	10	5	1	-	-	3	-	27
65-69	-	2	2	-	2	-	2	-	8
70-74	-	1	-	-	-	-	2	-	3
75-79	-	-	-	-	-	-	-	-	0
80-84	-	-	-	-	-	-	1	-	1
85 & over	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>21</b>	<b>30</b>	<b>11</b>	<b>1</b>	<b>6</b>	<b>-</b>	<b>14</b>	<b>0</b>	<b>83</b>

**Table 27**

**Retirees and Disabled Members by Service at Retirement and Years Since Retirement**

Average Service at Retirement = 15.3      Average Years Since Retirement = 8.9

Service at Retirement		Years Elapsed Since Retirement							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 5</b>	Count	7	15	26	42	29	13	15	147
	Avg. Benefit	\$410	\$3,809	\$3,531	\$3,532	\$2,190	\$1,905	\$1,216	\$1,863
<b>5-9</b>	Count	44	45	26	3	-	-	-	118
	Avg. Benefit	774	975	1,000	390	-	-	-	890
<b>10-14</b>	Count	64	35	29	3	-	1	-	132
	Avg. Benefit	1,798	1,644	1,549	700	-	1,233	-	1,674
<b>15-19</b>	Count	30	29	39	1	1	-	-	100
	Avg. Benefit	2,044	1,910	1,710	400	1,506	-	-	1,853
<b>20-24</b>	Count	127	112	111	19	4	-	-	373
	Avg. Benefit	2,689	2,440	2,131	1,986	1,887	-	-	2,404
<b>25-29</b>	Count	52	38	46	5	2	-	-	143
	Avg. Benefit	3,571	3,193	2,733	2,517	2,559	-	-	3,150
<b>30-34</b>	Count	25	18	13	-	1	-	-	57
	Avg. Benefit	3,814	3,957	3,499	-	3,030	-	-	3,774
<b>35 &amp; Over</b>	Count	4	2	-	-	-	-	-	6
	Avg. Benefit	4,128	3,105	-	-	-	-	-	3,787
<b>Totals</b>	Count	<b>353</b>	<b>294</b>	<b>290</b>	<b>73</b>	<b>37</b>	<b>14</b>	<b>15</b>	<b>1,076</b>
	Avg. Benefit	<b>\$2,415</b>	<b>\$2,203</b>	<b>\$2,046</b>	<b>\$2,078</b>	<b>\$2,181</b>	<b>\$1,857</b>	<b>\$1,216</b>	<b>\$2,203</b>

## Table 28

### Retirees and Disabled Members by Year of Retirement

January 1, 2018 Total = 1,076

Year of Retirement	Count	Year of Retirement	Count
Under 1960	-	1989	4
1960	-	1990	3
1961	-	1991	4
1962	-	1992	1
1963	-	1993	8
1964	-	1994	4
1965	-	1995	11
1966	-	1996	9
1967	-	1997	5
1968	-	1998	11
1969	-	1999	4
1970	-	2000	9
1971	-	2001	10
1972	-	2002	31
1973	1	2003	37
1974	-	2004	73
1975	-	2005	59
1976	-	2006	52
1977	-	2007	72
1978	1	2008	60
1979	1	2009	43
1980	1	2010	60
1981	2	2011	76
1982	1	2012	53
1983	2	2013	63
1984	-	2014	79
1985	2	2015	81
1986	1	2016	71
1987	3	2017*	66
1988	2		

*\*May include retirements as of January 1, 2018*

**Table 29**  
**Thirty Year Projected Benefit Payments**

<b>Year Ending December 31</b>	<b>Actives</b>	<b>Retirees*</b>	<b>Total</b>
<b>2018</b>	\$ 4,522,398	\$ 30,629,659	\$ 35,152,056
<b>2019</b>	6,523,787	30,551,845	37,075,632
<b>2020</b>	8,447,805	30,468,857	38,916,662
<b>2021</b>	10,489,057	30,370,344	40,859,400
<b>2022</b>	12,852,040	30,237,082	43,089,122
<b>2023</b>	15,285,619	30,082,033	45,367,651
<b>2024</b>	17,833,770	29,917,542	47,751,312
<b>2025</b>	20,456,130	29,726,295	50,182,425
<b>2026</b>	23,168,599	29,547,109	52,715,709
<b>2027</b>	26,019,867	29,335,903	55,355,770
<b>2028</b>	29,067,302	29,186,559	58,253,860
<b>2029</b>	32,201,709	28,948,477	61,150,186
<b>2030</b>	35,427,281	28,706,230	64,133,511
<b>2031</b>	38,656,580	28,397,051	67,053,631
<b>2032</b>	41,893,975	28,085,799	69,979,774
<b>2033</b>	45,115,546	27,738,973	72,854,520
<b>2034</b>	48,309,322	27,329,005	75,638,327
<b>2035</b>	51,469,574	26,875,194	78,344,768
<b>2036</b>	54,590,081	26,394,924	80,985,006
<b>2037</b>	57,612,465	25,874,277	83,486,742
<b>2038</b>	60,438,012	25,313,882	85,751,894
<b>2039</b>	62,937,096	24,676,600	87,613,696
<b>2040</b>	65,109,022	24,053,273	89,162,295
<b>2041</b>	66,992,174	23,339,372	90,331,547
<b>2042</b>	68,602,994	22,634,147	91,237,141
<b>2043</b>	69,877,099	21,874,040	91,751,139
<b>2044</b>	70,888,393	21,080,219	91,968,613
<b>2045</b>	71,682,747	20,234,204	91,916,951
<b>2046</b>	72,214,208	19,363,621	91,577,830
<b>2047</b>	72,499,279	18,483,490	90,982,769

\* Includes Disabled Members, Beneficiaries, and Deferred Vested Members. Retirement benefit payments for deferred vested members are assumed to commence at age 60.

## APPENDIX A

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### SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS



## Summary of Actuarial Assumptions and Methods

The following methods and assumptions were used in preparing the January 1, 2018 actuarial valuation report.

### 1. Valuation Date

The valuation date for any given year is January 1<sup>st</sup>, the first day of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

### 2. Actuarial Cost Method

The actuarial valuation uses the Entry Age Normal (EAN) actuarial cost method, amortized as a level percentage of payroll. Under this method, the employer contribution rate is the sum of (i) the employer normal cost rate, and (ii) the rate that will amortize the unfunded actuarial accrued liability (UAAL).

- a. The valuation is prepared on the projected benefit basis, under which the present value, at the investment return rate assumed to be earned in the future (currently 7.00%), of each participant's expected benefit payable at retirement or death is determined, based on his/her age, service, sex and compensation. The calculations take into account the probability of a participant's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his/her terminating with a service, disability, or survivor's benefit. Future salary increases are also anticipated. The present value of the expected benefits payable for the active participants is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits payable from the Fund on account of the present group of participants and beneficiaries.
- b. The employer contributions required to support the benefits of the Fund are determined using a level funding approach, and consist of a normal cost contribution and a unfunded accrued liability contribution.
- c. The normal cost contribution is determined using the "entry age normal" actuarial cost method. Under this method, a calculation is made to determine the average uniform and constant percentage rate of employer contribution which, if applied to the compensation of each new participant during the entire period of his/her anticipated covered service, would be required to meet the cost of all benefits payable on his/her behalf based on the benefits provisions applicable for the individual member.

- d. The unfunded actuarial accrued liability contributions are determined by subtracting the actuarial value of assets from the actuarial accrued liability and amortizing the result over 30 years from the valuation date.

### 3. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income, with interest, dividends, and other income recognized immediately. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses. An adjustment is made if the actuarial value is not within 20% of the Market Value. For any year following a year in which the 20% of market value adjustment was applied, the actuarial value is determined as if the adjustment was not applied in the previous year.

### 4. Economic Assumptions

#### a. Investment return

7.00% per year, compounded annually, composed of an assumed 2.25% inflation rate and a 4.75% net real rate of return. This rate represents the assumed return, net of investment expenses.

#### b. Salary increase rate

Age	Rate
20	7.00%
25	6.50%
30	5.00%
35	4.25%
40	4.25%
45	4.00%
50	3.50%
55	3.25%
60	3.00%

#### c. Payroll growth rate

In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 2.50% per year. This increase rate is solely due to the effect of inflation on salaries, with no allowance for future membership growth.

d. Cost-of-Living adjustment

No cost-of-living adjustment is assumed since the policy for providing the benefit requires Board approval to make the recommendation to the Joint Appropriations Committee and the funded level of the plan shows a cost-of-living requirement would not be permitted.

5. Demographic Assumptions

a. Rates Before Retirement

Healthy Pre-Retirement Mortality:

RP-2014 Mortality Table for Healthy Employees, fully generational, projected with Scale MP-2017

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 100%

Healthy Post-Retirement Mortality:

RP-2014 Mortality Table for Healthy Annuitants, fully generational, projected with Scale MP-2017

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 88%

Disabled Mortality:

RP-2014 Disabled Mortality Table, fully generational, projected with Scale MP-2017

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 100%

Age	Pre-Retirement		Post-Retirement		Disabled	
	Projected to 2018 using Scale BB					
	Male	Female	Male	Female	Male	Female
20	0.04%	0.02%	0.04%	0.01%	0.05%	0.02%
25	0.05%	0.02%	0.06%	0.03%	0.20%	0.09%
30	0.05%	0.02%	0.09%	0.06%	0.51%	0.24%
35	0.06%	0.03%	0.13%	0.09%	0.91%	0.45%
40	0.06%	0.04%	0.19%	0.14%	1.31%	0.68%
45	0.09%	0.06%	0.27%	0.18%	1.63%	0.90%
50	0.16%	0.11%	0.39%	0.24%	1.94%	1.16%
55	0.27%	0.17%	0.56%	0.32%	2.28%	1.46%
60	0.47%	0.25%	0.78%	0.47%	2.68%	1.74%
65	0.83%	0.36%	1.11%	0.70%	3.19%	2.06%
70	1.35%	0.61%	1.64%	1.09%	3.94%	2.71%
75			2.58%	1.77%	5.23%	3.95%
80			4.31%	2.98%	7.38%	5.94%
85			7.50%	5.22%	10.97%	8.86%
90			13.21%	9.25%	16.82%	13.02%
95			21.17%	15.41%	23.94%	19.15%
100			30.66%	23.44%	31.90%	27.35%

30% of active deaths are assumed to be duty-related

b. Disability and Withdrawal

Age	Disability		Withdrawal		Withdrawal		
	Male	Female	Ultimate		Service	First five years	
			Male	Female		Male	Female
20	0.07%	0.07%	15.00%	15.00%	1	24%	25%
25	0.07%	0.07%	11.00%	11.00%	2	20%	22%
30	0.07%	0.07%	8.50%	8.50%	3	15%	19%
35	0.08%	0.08%	6.50%	6.50%	4	13%	18%
40	0.18%	0.18%	5.50%	5.50%	5	12%	15%
45	0.38%	0.38%	5.00%	5.00%			
50	0.67%	0.67%	3.00%	3.00%			
55	1.14%	1.14%	3.00%	3.00%			
60	2.22%	2.22%	3.00%	3.00%			

30% of active disabilities are assumed to be duty-related

c. Retirement Rates

Age	Reduced Rate	Unreduced Rate	Age	Reduced Rate	Unreduced Rate
50	2.0%	20.0%	61	NA	17.0%
51	2.0%	13.0%	62	NA	17.0%
52	2.0%	13.0%	63	NA	20.0%
53	2.0%	13.0%	64	NA	20.0%
54	2.0%	13.0%	65	NA	50.0%
55	2.0%	15.0%	66	NA	50.0%
56	2.0%	15.0%	67	NA	50.0%
57	2.0%	15.0%	68	NA	50.0%
58	2.0%	20.0%	69	NA	50.0%
59	2.0%	20.0%	70	NA	100.0%
60	NA	20.0%			

10% is assumed for members with at least 20 years of service before age 50

6. Other Assumptions

- Percent married: 85.00% of employees are assumed to be married. (No beneficiaries other than the spouse assumed.)
- Age difference: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.
- Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an annuity.
- Percent electing deferred termination benefit: It is assumed that 45% of active members who terminate with a vested deferred benefit will elect to have their contributions refunded.

- e. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at the first age at which unreduced benefits are available, which for this plan is age 60.
- f. No benefit data is available for members entitled to deferred benefits. The benefit is estimated using the final average compensation and service provided by WRS.
- g. There will be no recoveries once disabled.
- h. No children are assumed for purposes of valuing the ordinary death benefit.
- i. Administrative expenses: Assumed to be the average of the prior two years, with each year projected at 2.5% to the valuation date.
- j. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported pay represents amount paid to members during the year ended on the valuation date.
- k. Decrement timing: Decrements of all types are assumed to occur mid-year.
- l. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
- m. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in the report, and the actual payroll payable at the time contributions are made.
- n. Benefit Service: All members are assumed to accrue one year of service each year.

## **APPENDIX B**

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### **SUMMARY OF PLAN PROVISIONS**

## Summary of Plan Provisions

<b>Covered Members</b>	County sheriffs, deputy county sheriffs, municipal police officers; Investigator of the Wyoming Livestock Board; meeting the specifications of W.S.7-2-101(a)(iv)(E), investigators employed by the Wyoming State Board of Outfitters and professional guides meeting the specifications of W.S. 7-2-101(a)(iv)(J); Correctional officers, probation and parole agents employed by the Wyoming Department of Corrections, Wyoming Law Enforcement Academy instructors, University of Wyoming campus police officers; And full-time dispatchers or detention officers for law enforcement agencies.
<b>Final Average Salary</b>	Employee's average annual salary for the highest paid five continuous years of service.
<b>Service Retirement</b>	
Eligibility	Age 60 with four or more years of service as a law enforcement officer or any age with at least twenty years of service as a law enforcement officer. Early retirement benefits are payable to any law enforcement officer who has at least four but less than twenty years of service and are at least age 50. Early retirement benefits are actuarially reduced by 5% per year before age 60.
Monthly Benefit	2.50% of employee's highest five-year average salary for each year of credited service, not to exceed 75.0% of final average salary.
Vesting	Any employee who has left employment with four or more years of service, and who has not withdrawn accumulated contributions, is eligible to receive the above benefit or can elect to receive a lump-sum refund of contributions with interest. An employee who terminates with less than four years of service is only eligible for the lump-sum benefit.
<b>Duty Disability Retirement</b>	
Eligibility	No age or service eligibility requirements. Partial or total disability resulting from an individual and specific act, the type of which would normally occur only while employed as an employee, or as otherwise defined under W.S. 9-3-432(h).
Monthly Benefit	62.5% of Final Salary.
<b>Non-duty Disability Retirement</b>	
Eligibility	10 years of credited service. Partial or total disability, but not eligible for duty disability.
Monthly Benefit	50.0% of Final Salary.

### **Pre-retirement Duty Death Benefit**

Eligibility	No age or service requirements.
Monthly Benefit	62.5% of member's final actual salary, payable to the surviving spouse plus 6% of the member's final actual salary for each unmarried child under 18. Payment shall not exceed the member's final actual salary.

### **Pre-retirement Non-duty Death Benefit**

Eligibility	No age or service requirements.
Monthly Benefit	50% of the member's final actual salary payable to the surviving spouse plus 6% of the member's final actual salary for each unmarried child under 18. Payment shall not exceed 100% of the member's final actual salary.

### **Contributions**

Employee	8.6% of salary. The employer may subsidize all or part of the employee contributions.
Employer	8.6% of salary.
Interest	3.0% annually effective January 1, 2016.

### **Cost-of-Living Improvements**

W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change.



## Optional Forms of Payment

Option 1	Monthly benefit for life with a lump-sum death benefit equal to the excess (if any) of the employee contributions with interest over the total benefits received.
Option 2	Monthly benefit for life. Upon death, 100% of the benefit continues to be paid to the beneficiary.
Option 2P	Monthly benefit for life. Upon death, 100% of the benefit continues to be paid to the beneficiary. Benefit reverts to Option 1 amount but without the cash refund feature upon beneficiary death.
Option 3	Monthly benefit for life. Upon death, 50% of the benefit continues to be paid to the beneficiary.
Option 3P	Monthly benefit for life. Upon death, 50% of the benefit continues to be paid to the beneficiary. Benefit reverts to Option 1 amount but without the cash refund feature upon beneficiary death.
Option 4	Monthly benefit for life with a guarantee of 120 monthly payments
Option 5	The largest possible monthly benefit payable for life with no lump-sum death benefit.
Other	Grandfathered group of retirees has an optional form which, upon death, 66.67% of the benefit continues to be paid to the beneficiary.