

**ADAMS COUNTY RETIREMENT PLAN**  
**ACTUARIAL VALUATION REPORT**  
**AS OF JANUARY 1, 2017**



May 31, 2017

Ms. Pamela Mathisen  
Plan Administrator  
Adams County  
4430 South Adams County Parkway, Suite C3406  
Brighton, CO 80601-8202

**Re: Actuarial Valuation of the Adams County Retirement Plan as of January 1, 2017**

Dear Pam:

We are pleased to present our Report on the actuarial valuation of the Adams County Retirement Plan as of January 1, 2017.

This Report presents the results of the January 1, 2017 actuarial valuation of the Adams County Retirement Plan. The Report describes the current actuarial condition of the Adams County Retirement Plan, determines the Actuarially Determined Contribution (ADC), and analyzes changes in these required rates.

We certify that the information included herein and contained in our January 1, 2017 Actuarial Valuation Report is accurate and fairly presents the actuarial position of the Adams County Retirement Plan as of the valuation date.

All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board.

The valuation was based upon information, furnished by the Plan, concerning Plan benefits, financial transactions, active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not otherwise audit the data. This report and these calculations are not intended as legal or accounting advice, and we would recommend review by legal counsel for the compliance of these calculations with all relevant agreements.

The valuation results summarized in this report involve actuarial calculations that require assumptions about future events for the Pension Plan. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

Ms. Pamela Mathisen

May 31, 2017

Page 2

plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

The 9.00% employer and employee contribution are the rates that comply with law. 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.

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.

We believe that the assumptions and methods used in this report are reasonable and appropriate for the purpose for which they have been used. However, other assumptions and methods could also be reasonable and could result in materially different results. In addition, because it is not possible or practical to consider every possible contingency, we may use summary information, estimates or simplifications of calculations to facilitate the modeling of future events. We may also exclude factors or data that are deemed to be immaterial.

### ***Certification***

The undersigned are independent actuaries and consultants. Leslie Thompson and Paul Wood are actuaries and meet the Qualification Standards of the American Academy of Actuaries. Both of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,

**Gabriel, Roeder, Smith & Company**



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



Paul Wood, ASA, FCA, MAAA  
Consultant

*TABLE OF CONTENTS*

<b>Section</b>	
	<b>COVER LETTER</b>
<b>A</b>	<b>EXECUTIVE SUMMARY</b>
<b>B</b>	<b>VALUATION RESULTS</b>
<b>C</b>	<b>PLAN ASSETS</b>
<b>D</b>	<b>SUMMARY OF BENEFIT PROVISIONS</b>
<b>E</b>	<b>SUMMARY OF PARTICIPANT DATA</b>
<b>F</b>	<b>GASB ACCOUNTING SCHEDULES</b>
<b>G</b>	<b>ACTUARIAL ASSUMPTIONS AND METHODS</b>

---

**SECTION A**

**EXECUTIVE SUMMARY**

---

### **Actuarial Valuation**

Valuations are prepared annually, as of January 1 of each year, the first day of the fiscal year. The primary purposes of the valuation report are to measure the plan's liabilities, to determine the required contribution rate and to analyze changes in the Adams County Retirement Plan's actuarial position.

In addition, the report provides summaries of the member data, financial data, plan provisions, and actuarial assumptions and methods.

### **Financing Objectives**

The Adams County Retirement Plan is supported by member contributions, employer contributions, and net earnings on the investments of the fund. Contribution rates are set in ordinance, currently at 9.00% for members and employers.

The combined member and employer contributions are intended to be sufficient to pay the normal cost and to amortize the Unfunded Actuarial Accrued Liability (UAAL) over a period of 30 years from the valuation date.

### **Progress toward Realization of Financing Objectives**

The UAAL/(surplus) and the funded ratio (ratio of the actuarial value of assets to the actuarial accrued liability) illustrate the progress toward the realization of certain financing objectives. Based on the actuarial valuation as of January 1, 2017, the Plan has an unfunded liability of \$193.60 million and a funded ratio of 56.0%. The funded ratio decreased from 56.2% to 56.0% and the Net Employer Actuarially Determined Contribution decreased, from 13.91% of pay, to 13.50% of pay.

The net employer Actuarially Determined Contribution as a percentage of pay for the year beginning January 1, 2017 is 13.50%. The expected County contribution is 9.00% of pay which creates a contribution shortfall of 4.50% of pay. This compares to a shortfall in the prior year of 4.91% of pay.

The recent amendments to lower future benefit accruals help to decrease the future cost of the plan. The normal cost decreased from 9.55% of pay to 9.21% of pay. Projections indicate an improvement in funded status over time. However, projections are built on assumptions from which experience may vary over time. Ongoing monitoring of the funded levels of the plan is recommended.

### **Experience During the Year**

The plan experienced a liability loss of \$4.99 million during fiscal year 2016. This loss was largely due to more retirements than expected and salary increases that were higher than expected.

The plan experienced an actuarial asset loss of \$0.60 million during fiscal year 2016. This loss was due to the actuarial value of assets earning a return less than the assumed 7.5% return. The net

overall result of the liability loss and the actuarial asset loss was an unfunded liability \$5.59 million more than expected at January 1, 2017.

There was also a loss due to a contribution shortfall of \$5.21 million. This contribution shortfall decreased the funded ratio by 1.4% and increased the Actuarially Determined Contribution by 0.41% of pay. However, there was a decrease in the normal cost and a larger than expected increase in the total payroll. The net result of all these effects was a decrease in the actuarially determined contribution from 13.91% of pay to 13.50% of pay.

### **Assumptions and methods**

There have not been changes in actuarial assumptions since the prior valuation. The assumptions have been selected by the Adams County Board of Retirement based upon the actuary's analysis and recommendations from the 2013 Experience Study.

The results of any 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 rates and funding periods. The actuarial calculations presented in this Report are intended to provide information for rational decision making.

### **Benefit Provisions**

All of the benefit provisions reflected in this valuation are those which were in effect on January 1, 2017.

The benefit provisions are summarized in Section D of our Report.

### **Data**

Adams County staff supplied data for retired, active and inactive members as of January 1, 2017. We did not audit this data, but we did apply a number of tests to the data, and we have concluded that the data is reasonable and consistent with the prior year's data. Adams County staff also supplied asset data as of January 1, 2017.

**Financial Position**

Due mostly to liability losses from higher than expected salary increases and more retirements than expected, the funded ratio on and actuarial value of assets basis declined from January 1, 2016 to January 1, 2017. The funded ratio on a market value basis did improve slightly.

<b>Funded Status Summary (\$ in millions)</b>		
<b>Valuation Date</b>	<b>January 1, 2017</b>	<b>January 1, 2016</b>
Accrued Liability	\$440.04	\$419.36
Actuarial Value of Assets (smoothed)	246.43	235.73
Unfunded Accrued Liability	\$193.60	\$183.63
Funded Ratio (AVA basis)	56.0%	56.2%
Market Value of Assets	\$237.46	\$224.98
Unfunded Accrued Liability	\$202.58	\$194.38
Funded Ratio (MVA basis)	54.0%	53.6%
Market Value Rate of Return	8.4%	(1.7%)
Actuarial Value Rate of Return	7.2%	6.4%



Investment losses increased the Total Actuarially Determined Contribution by roughly 0.04%. Liability losses increased the Total Actuarially Determined Contribution by approximately 0.33%. The Employer Net Annual Required Contribution of 13.91% of pay for Fiscal Year 2016 and 13.50% of pay for Fiscal Year 2017 are based on contributions being made throughout the year, consistent with the funding policy of the Plan.

<b>Contribution Requirement Summary</b>		
<b>All Numbers Reported Middle of Year, Percent of Pay</b>		
<b>Fiscal Year Beginning</b>	<b>January 1, 2017</b>	<b>January 1, 2016</b>
Total Normal Cost	9.21%	9.55%
Amortization of UAL	12.65%	12.69%
Assumed Expenses	0.64%	0.67%
Total Actuarially Determined Contribution	22.50%	22.91%
Estimated Member Contribution	9.00%	9.00%
Net Annual Required Contribution Mid-Year	13.50%	13.91%
Estimated County Contribution	9.00%	9.00%
Contribution Shortfall	4.50%	4.91%

Benefit changes were made as of January 1, 2014 which decrease the rate of benefits accrued for all service after January 1, 2014, both for current members and future members. The lower benefit accruals helped decrease the normal cost rate from 10.29% in 2014 to 9.21% this year and will have the effect of continuing to decrease the normal cost rate over time. So while a contribution shortfall exists this year, this contribution shortfall is expected to decrease over time.

<b>Exhibit A.1</b>		
<b>Adams County Retirement Plan</b>		
<b>Executive Summary</b>		
	<b>January 1, 2017</b>	<b>January 1, 2016</b>
<b>1. Actuarially Determined Contribution</b>		
a. Total	\$ 27,128,487	\$ 26,117,781
b. Net Employer Contribution	16,276,851	15,858,211
c. Net Employer %	13.50%	13.91%
<b>2. Funded Status</b>		
a. Actuarial Accrued Liability	\$ 440,035,366	\$ 419,358,970
b. Actuarial Value of Assets (AVA)	246,434,159	235,725,998
c. Unfunded Liability (AVA-basis)	193,601,207	183,632,972
d. Funded Ratio (AVA-basis)	56.0%	56.2%
e. Market Value of Assets (MVA)	\$ 237,457,658	\$ 224,983,164
f. Unfunded Liability (MVA-basis)	202,577,708	194,375,806
g. Funded Ratio (MVA-basis)	54.0%	53.6%
<b>3. Summary of Census Data</b>		
a. Actives		
i. Counts	2,030	1,986
ii. Total Annual Projected Compensation	\$ 120,573,734	\$ 113,995,220
iii. Average Projected Compensation	59,396	57,399
iv. Average Age	43.0	43.4
v. Average Service	8.2	8.4
b. Members with Refunds Due Counts	101	99
c. Deferred Vested Member Counts	189	186
d. Retired Member Counts	908	857
e. Beneficiary Counts	99	96
f. Disabled Retiree Counts	45	38
g. Total Members Included in Valuation	3,372	3,262

---

**SECTION B**

**VALUATION RESULTS**

---

<b>Exhibit B.1</b>		
<b>Adams County Retirement Plan</b>		
<b>Actuarial Valuation Results</b>		
<b>Accrued Accrued Liability</b>		
	<b>January 1, 2017</b>	<b>January 1, 2016</b>
<b>1. Active Members</b>		
a. Retirement Benefits	\$ 169,032,717	\$ 168,377,845
b. Withdrawal Benefits	(1,912,643)	(1,788,687)
c. Refund Benefits	(5,061,303)	(4,840,906)
d. Disability Benefits	7,514,429	7,348,813
e. Death Benefits	2,691,282	2,604,865
f. Total	<u>\$ 172,264,482</u>	<u>\$ 171,701,930</u>
<b>2. Members with Deferred Benefits</b>	\$ 14,214,546	\$ 13,378,913
<b>3. Members Receiving Benefits</b>	<u>\$ 253,556,338</u>	<u>\$ 234,278,127</u>
<b>4. Total</b>	\$ 440,035,366	\$ 419,358,970
<b>5. Actuarial Value of Assets</b>	<u>\$ 246,434,159</u>	<u>\$ 235,725,998</u>
<b>6. Unfunded Actuarial Accrued Liability</b>	\$ 193,601,207	\$ 183,632,972

<b>Exhibit B.2</b> <b>Adams County Retirement Plan</b> <b>Actuarial Valuation Results</b> <b>Normal Cost</b>		
	January 1, 2017	January 1, 2016
<b>1. Total Dollar Normal Cost</b>		
a. Retirement Benefits	\$ 7,452,620	\$ 7,403,289
b. Withdrawal Benefits	2,816,308	2,686,674
c. Disability Benefits	555,183	535,711
d. Death Benefits	278,582	264,451
e. Total	\$ 11,102,693	\$ 10,890,125
<b>2. Normal Cost as a Percentage of Pay</b>	9.21%	9.55%
<b>3. Normal Cost as a Percentage of Pay by Tier</b>		
a. Tier 1	11.87%	12.03%
b. Tier 2	10.35%	10.44%
c. Tier 3	6.97%	7.01%

<b>Exhibit B.3</b> <b>Adams County Retirement Plan</b> <b>Actuarial Valuation Results</b> <b>Present Value of Projected Benefits</b>		
	January 1, 2017	January 1, 2016
<b>1. Active Members</b>		
a. Retirement Benefits	\$ 227,305,013	\$ 225,541,045
b. Withdrawal Benefits	17,267,571	16,207,736
c. Disability Benefits	11,629,520	11,249,238
d. Death Benefits	5,068,197	4,819,213
e. Total	<u>\$ 261,270,301</u>	<u>\$ 257,817,232</u>
<b>2. Members with Deferred Benefits</b>	\$ 14,214,546	\$ 13,378,913
<b>3. Members Receiving Benefits</b>	<u>\$ 253,556,338</u>	<u>\$ 234,278,127</u>
<b>4. Total</b>	\$ 529,041,185	\$ 505,474,272

<b>Exhibit B.4                      Adams County Retirement Plan                      Development of the Actuarially Determined Contribution</b>				
<b>Fiscal Year Beginning</b>	<b>January 1, 2017</b>		<b>January 1, 2016</b>	
	<b>Dollar</b>	<b>Percent of Pay</b>	<b>Dollar</b>	<b>Percent of Pay</b>
1. Total Normal Cost	\$ 11,102,693	9.21%	\$ 10,890,125	9.55%
2. Amortization of Unfunded Actuarial Accrued Liability Over 30 Years	15,248,794	12.65%	14,463,656	12.69%
3. Assumed Administrative Expenses	777,000	0.64%	764,000	0.67%
4. Actuarially Determined Contribution (ADC)	\$ 27,128,487	22.50%	\$ 26,117,781	22.91%
5. Estimated Member Contribution	10,851,636	9.00%	10,259,570	9.00%
6. Net ADC Mid-Year	\$ 16,276,851	13.50%	\$ 15,858,211	13.91%
7. Estimated County Contribution Mid-Year	10,851,636	9.00%	10,259,570	9.00%
8. Contribution Shortfall	\$ 5,425,215	4.50%	\$ 5,598,641	4.91%
9. Annual Projected Payroll	\$ 120,573,734		\$ 113,995,220	

<b>Exhibit B.5                      Adams County Retirement Plan                      Plan Experience for Fiscal Year 2016</b>		
<b>Liabilities</b>		
1. Actuarial Accrued Liability at January 1, 2016		\$ 419,358,970
2. Normal Cost for Fiscal Year 2016		10,890,125
3. Benefit Payments during Fiscal Year 2016		26,087,787
4. Interest on Items 1-3 to End of Year		30,882,010
5. Change in Actuarial Accrued Liability Due to Assumption Changes		-
6. Change in Actuarial Accrued Liability Due to Provision Changes		-
7. Expected Actuarial Accrued Liability at January 1, 2017		435,043,318
8. Actual Actuarial Accrued Liability at January 1, 2017		440,035,366
9. Liability Gain/(Loss)		(4,992,048)
<b>Assets</b>		
10. Actuarial Value of Assets at January 1, 2016		\$ 235,725,998
11. Benefit Payments and Expenses during Fiscal Year 2016		26,925,111
12. Contributions during Fiscal Year 2016		20,783,155
13. Interest on Items 10-12 to End of Year		17,449,127
14. Expected Actuarial Value of Assets at January 1, 2017		247,033,169
15. Actual Actuarial Value of Assets at January 1, 2017		246,434,159
16. Asset Gain/(Loss)		(599,010)
<b>Total</b>		
17. Total Gain/(Loss)		<b>\$ (5,591,058)</b>



<b>Exhibit B.6</b> <b>Adams County Retirement Plan</b> <b>Plan Experience for Fiscal Year 2016</b> <b>Gain/(Loss) by Source</b>	
1. Asset Gain/(Loss)	\$ (599,010)
2. Liability Gain/(Loss)	
a. Salary Gain/(Loss)	\$ (1,935,888)
b. New Members and Rehire Gain/(Loss)	(517,689)
c. Withdrawal Gain/(Loss)	(75,576)
d. Disability Gain/(Loss)	(244,388)
e. Retirement Gain/(Loss)	(834,339)
f. Annuitant Mortality Gain/(Loss)	(260,306)
g. LTD to Disability Retirement	(1,113,122)
h. Other Demographic	(10,740)
i. Total	\$ (4,992,048)
3. Total Gain/(Loss)	\$ (5,591,058)

---

**SECTION C**

**PLAN ASSETS**

---

<b>Exhibit C.1</b>		
<b>Adams County Retirement Plan</b>		
<b>Statement of Plan Net Assets</b>		
	<u>December 31, 2016</u>	<u>December 31, 2015</u>
<b>Assets</b>		
Investments, at fair value:		
Cash	\$ 19,855	\$ 25,360
Money market funds and cash equivalents	4,387,756	5,447,224
U.S. Government obligations	4,269,990	4,968,314
Foreign bonds	1,027,106	715,734
Corporate bonds	8,102,798	9,213,459
Municipal bonds	1,546,938	1,366,769
Equity securities	27,448,335	27,282,458
Foreign equity securities	-	-
Real estate	43,677,030	29,281,310
Hedge fund of funds	14,718,064	26,941,659
Partnerships/joint ventures	40,511,517	33,730,291
Mutual funds	91,793,089	85,993,962
Total cash and investments	<u>\$ 237,502,478</u>	<u>\$ 224,966,540</u>
Receivables:		
Dividends and Interest	145,504	162,090
Other Assets:		
Prepaid insurance for retirees	-	-
Total assets	<u>\$ 237,647,982</u>	<u>\$ 225,128,630</u>
<b>Liabilities and net assets held in trust for benefits</b>		
Accrued liabilities	190,324	145,466
Total payables	<u>\$ 190,324</u>	<u>\$ 145,466</u>
<b>Net assets held in trust for pension benefits</b>	<u>\$ 237,457,658</u>	<u>\$ 224,983,164</u>

**Exhibit C.2**  
**Adams County Retirement Plan**  
**Statement of Changes in Plan Net Assets**

	<u>Year Ended</u> <u>December 31, 2016</u>	<u>Year Ended</u> <u>December 31, 2015</u>
<b>Additions to Net Assets Attributed to:</b>		
Contributions:		
Employer contributions	\$ 10,316,491	\$ 9,709,230
Plan Members contributions	10,316,491	9,709,230
Plan Members for Purchase of service	150,173	111,955
Total contributions	<u>\$ 20,783,155</u>	<u>\$ 19,530,415</u>
Investment Income:		
Net appreciation in fair value of investments	\$ 16,305,478	\$ (6,089,002)
Interest	1,125,745	1,418,630
Dividends	2,743,886	2,259,684
Other	29,040	152,549
Total Investment Income	<u>\$ 20,204,149</u>	<u>\$ (2,258,139)</u>
Less Investment expense	<u>(1,587,699)</u>	<u>1,688,277</u>
Net investment income	<u>\$ 18,616,450</u>	<u>\$ (3,946,416)</u>
Total additions	<u>\$ 39,399,605</u>	<u>\$ 15,583,999</u>
<b>Deductions to Net Assets Attributed to:</b>		
Benefit payments	\$ 23,098,280	\$ 21,639,193
Refunds	2,989,507	3,086,203
Administrative expenses	837,324	687,810
Total deductions	<u>\$ 26,925,111</u>	<u>\$ 25,413,206</u>
Change in net assets	12,474,494	(9,829,207)
<b>Net assets held in trust for benefits:</b>		
Beginning of year	224,983,164	234,812,371
End of year	<u>\$ 237,457,658</u>	<u>\$ 224,983,164</u>

<b>Exhibit C.3</b>					
<b>Adams County Retirement Plan</b>					
<b>Development of the Actuarial Value of Assets</b>					
<b>Item</b>					<b>Year Ending December 31, 2016</b>
1.	Actuarial value of assets, at beginning of year (prior to corridor)				\$ 235,725,998
2.	Market value of assets, at beginning of year				\$ 224,983,164
3.	Net new investments				
	a.	Contributions received for prior plan year		\$ 20,783,155	
	b.	Benefits paid and administrative expenses		(26,925,111)	
	c.	Net		\$ (6,141,956)	
4.	Market value of assets, at end of year				\$ 237,457,658
5.	Net MVA earnings [ (4) - (2) - (3c) ]				\$ 18,616,450
6.	Assumed investment return rate				7.50%
7.	Expected return [ (6)*(2)+(6)*(3c)/2 ]				\$ 16,643,414
8.	Excess return [ (5) - (7) ]				\$ 1,973,036
9.	Expected actuarial value of assets as of December 31, 2016 [ (1) + (3c) + (7) ]				\$ 246,227,456
10.	Deferred amounts for fiscal year ending December 31,				
			20% Recognized	Percent	
	<u>Year</u>	<u>Gain/(Loss)</u>	<u>This Year</u>	<u>Deferred</u>	<u>Amount Deferred</u>
	a. 2016	\$ 1,973,036	\$ 394,607	80%	\$ 1,578,429
	b. 2015	(21,336,739)	(4,267,348)	60%	(12,802,043)
	c. 2014	(882,249)	(176,450)	40%	(352,899)
	d. 2013	13,000,059	2,600,012	20%	2,600,012
	e. 2012	<u>8,279,413</u>	<u>1,655,882</u>	0%	-
	f. Total	\$ 1,033,520	\$ 206,703		\$ (8,976,501)
11.	Asset gain/(loss) to be recognized as of December 31, 2016				\$ 206,703
12.	80% of Market Value				\$ 189,966,126
13.	120% of Market Value				\$ 284,949,190
14.	Actuarial value of assets [(Item 9 + Item 11), but not more than Item 13 or less than Item 12]				\$ 246,434,159

Exhibit C.4 Average Annual Rates of Investment Return				
Fiscal Year Ended December 31,	Actuarial Value		Market Value	
	Annual	Cumulative	Annual	Cumulative
1994	9.1 %	10.3 %	(1.6) %	6.1 %
1995	12.1	10.7	22.9	10.1
1996	11.6	10.9	12.0	10.4
1997	13.0	11.3	17.0	11.5
1998	12.2	11.4	9.0	11.1
1999	12.0	11.5	4.0	10.2
2000	8.7	11.2	2.6	9.4
2001	6.2	10.7	(1.6)	8.2
2002	(4.5)	9.2	(10.9)	6.3
2003	9.7	9.2	22.4	7.6
2004	4.3	8.8	11.0	7.8
2005	4.4	8.5	6.2	7.7
2006	7.6	8.5	14.2	8.1
2007	11.1	8.6	8.2	8.1
2008	(7.9)	7.6	(26.2)	5.7
2009	11.6	7.8	12.5	6.1
2010	1.9	7.5	9.5	6.3
2011	(0.1)	7.1	(0.5)	5.9
2012	0.4	6.8	12.1	6.2
2013	9.3	6.9	14.1	6.6
2014	8.7	6.9	7.1	6.6
2015	6.4	6.8	(1.7)	6.1
2016	7.2	6.6	8.4	6.0

---

**SECTION D**

**SUMMARY OF BENEFIT PROVISIONS**

---

## SUMMARY OF BENEFIT PROVISIONS

BASED ON THE PLAN ORIGINALLY EFFECTIVE JULY 1, 1968 AND AMENDED AND  
RESTATED EFFECTIVE JANUARY 1, 2014

### Participation

Membership in the Retirement Plan is automatic upon the first day of Covered Employment. You are in Covered Employment when you are (1) an elected or appointed County official or deputy, or staff of such person, (2) an employee of an Employer who is in a regular position regularly scheduled to work or budgeted for at least 30 hours each week, or (3) an employee of the Retirement Board who meets these requirements. Any employee of the Retirement Board who meets these requirements is considered an employee of the County for purposes of the Plan.

You are not eligible to participate in the Retirement Plan if you are (1) an employee in a position regularly scheduled to work or budgeted for less than 30 hours each week, (2) a leased employee, (3) an independent contractor, or (4) in a position that does not meet the criteria in the above paragraph, such as a position designated as temporary, seasonal, provisional, regular part-time scheduled to work less than 30 hours per week, project designated full-time, project designated part-time, or an election judge.

### Member Contributions

Effective January 1, 2015, each member contributes 9.00% of compensation on a monthly basis. Interest on contributions is credited at a rate of 3.0% per annum compounded monthly.

Contribution Accumulation means the total of the member Pre-2014 Contribution Accumulation and Post- 2013 Contribution Accumulation. The Pre-2014 Contribution Accumulation means the total of the member contributions to the retirement fund prior to January 1, 2014, plus interest. The Post-2013 Contribution Accumulation means the total of the member contributions to the retirement fund on or after January 1, 2014, plus interest. The Contribution Accumulation does not include any amounts paid to purchase previous service credit.

After December 31, 1983 member contributions are picked up and paid by the County as provided in Code Section 414(h).

### County Contributions

The County will match member contributions.



### **Credited Service**

All service completed during the elapsed time from the member's date of employment, excluding any breaks in service, to the member's date of termination on the basis of 1/365th year for each day of employment after January 1, 1965, provided an employee joined the plan on the first date eligible. Service prior to January 1, 1970 will be included (up to five years) provided the employee became a Member on the first date of eligibility.

Service is credited while a member is on long-term disability or is eligible for disability benefits from Social Security, even if the member does not receive disability benefits from Social Security because they are reduced to zero due to other disability benefits received. No credited service will be granted if the member chooses to receive a lump-sum payment from the Employer's LTD plan unless the member qualifies for disability benefits from Social Security (regardless of whether or not the member actually receives Social Security disability benefits).

### **Service Purchase**

Eligible members may purchase additional years of service credit for any full-time, non-vested previous employment with any public or private employer in the United States, subject to certain restrictions.

### **Classification of Tiers**

- *Tier 1* - Members hired prior to January 1, 2005
- *Tier 2* - Members hired on or after January 1, 2005 but before January 1, 2010
- *Tier 3* - Members hired on or after January 1, 2010

### **Compensation**

Compensation is the total regular compensation paid to the member, reflecting the normal regular salary or hourly wage rate, before any payroll deductions for income tax, Social Security, group insurance, or any other purpose, excluding bonuses, extra pay, overtime pay, workers' compensation, single-sum payments received in lieu of accrued vacation and sick leave upon termination of employment or during the course of employment, required contributions by the County under this Plan, or for Social Security, group insurance, retainers' fees under contract, or the like, but including compensation deferred under Sections 125, 403(b), 414(h), or 457 of the Internal Revenue Code.

**Final Average Monthly Compensation**

- *Tier 1 - Members hired prior to January 1, 2005:*

Average of the highest 36 consecutive calendar months of compensation during the last 120 months of employment.

- *Tier 2 - Members hired on or after January 1, 2005 but before January 1, 2010:*

Average of the highest 60 consecutive calendar months of compensation during the last 120 months of employment.

**Career Compensation**

- *Tier 3 - Members hired on or after January 1, 2010:*

Pensionable Compensation from date of participation to retirement.

- *Tiers 1 & 2 - Members hired prior to January 1, 2010:*

Pensionable Compensation from January 1, 2014 to retirement.

**Career Monthly Compensation**

Career Compensation divided by Credited Service accrued during the period. If hired before January 1, 2010 and become disabled before January 1, 2014, special calculations apply. For members with a qualified military leave of absence, career compensation will include compensation credited at a rate that would have been in effect during the leave.

**Accrued Benefit (Monthly)**

Effective January 1, 2014, the accrued benefit for Tier 1 and Tier 2 members is composed of “Component A” benefit plus a “Component B” benefit. Component A shall mean the benefit attributable to service credit earned prior to January 1, 2014. Component B shall mean the benefit attributable to service credit earned on or after January 1, 2014.

*Tiers 1 & 2 - Members hired prior to January 1, 2010:*

- *Component A Benefit::*

2.5% of Final Average Monthly Compensation multiplied by Credited Service prior to January 1, 2014 including purchased service.

- *Component B Benefit:*

Greater of 1.75% of Career Compensation divided by 12, or 1.75% of Career Monthly Compensation times Credited Service earned on or after January 1, 2014.

*Tier 3 - Members hired on or after January 1, 2010:*

- 1.75% of Career Compensation divided by 12 or 1.75% of Career Monthly Compensation times Credited Service, if greater.

The minimum monthly accrued benefit for all members is \$25 per month per year of Credited Service.

**Vested Accrued Benefit**

- *Tiers 1 & 2 - Members hired prior to January 1, 2010:*  
Five years of Credited Service
- *Tier 3 - Members hired on or after January 1, 2010:*  
Ten years of Credited Service

*Benefit:*

100% of the Accrued Benefit determined as of the date of termination. The benefit may be reduced if payment commences before the Normal Retirement Date or the Special Early Retirement Date.

**Normal Retirement**

*Eligibility:*

Attainment of age 65.

*Benefit:*

Accrued Benefit up to a maximum of 80% of the member's average monthly compensation during any consecutive 12-month period in which the member receives their highest average monthly compensation.

### **Regular Early Retirement**

*Eligibility:*

- *Tier 1 - Members hired prior to January 1, 2005:*  
Attainment of age 55 and 5 years of Credited Service.
- *Tiers 2 & 3 - Members hired on or after January 1, 2005:*  
Attainment of age 55 and 10 years of Credited Service.

*Benefit:*

- *Tier 1 - Members hired prior to January 1, 2005:*  
Vested Accrued Benefit determined as of the Early Retirement Date, reduced by 1/6 of 1% for each of the first 36 months and 1/4 of 1% for each additional month payments commence prior to the Normal Retirement Date.
- *Tiers 2 & 3 - Members hired on or after January 1, 2005:*  
Vested Accrued Benefit determined as of the Early Retirement Date, reduced by 1/3 of 1% for each of the first 36 months and 5/12 of 1% for each additional month payments commence prior to the Normal Retirement Date.

### **Special Early Retirement**

*Eligibility:*

- *Tier 1 - Members hired prior to January 1, 2005:*  
Attainment of any age and age plus credited service equals 70 or more at termination.
- *Tier 2 - Members hired on or after January 1, 2005 and prior to January 1, 2010:*  
Attainment of age 50 and age plus credited service equals 70 or more at termination.
- *Tier 3 - Members hired on or after January 1, 2010:*  
Attainment of age 55 and age plus credited service equals 80 or more at termination.

*Benefit:*

Vested Accrued Benefit determined as of the Special Early Retirement Date, unreduced for early payment.

### **Disability Retirement**

*Eligibility:*

Total and permanent disability. Member qualifies for disability under the County's long-term disability plan or under Title II of the Social Security Act.

*Benefit:*

Normal Retirement Benefit considering annual rate of compensation at disability and Credited Service that would have accumulated if employment had continued uninterrupted to the later of the Normal Retirement Date, or the date that the County's long-term disability benefits end. The Component A Benefit will be based on Credited Service attributable to the period ending on December 31, 2013 (including any period through December 31, 2013 while the member was disabled), and the Average Monthly Compensation when the member became disabled. The Component B Benefit will be based on Credited Service attributable to the period beginning on January 1, 2014 and ending on retirement or the date payments under the Employer's LTD plan end, whichever is later (including the period on or after January 1, 2014 while the member was disabled), and the Career Monthly Compensation when the member became disabled.

Benefits commence at Normal Retirement Date, or if later, the first day of the month after payments cease under the County's long-term disability insurance contract.

### **Termination Benefit**

*Eligibility:*

- *Tiers 1 & 2 - Members hired prior to January 1, 2010:*

Members with less than five years of Credited Service receive a refund of the member's contributions. Members who have completed at least five years of Credited Service are eligible to receive their Vested Accrued Benefit payable at Normal Retirement Date.

- *Tier 3 - Members hired on or after January 1, 2010:*

Members with less than ten years of Credited Service receive a refund of the member's contributions. Members who have completed at least ten years of Credited Service are eligible to receive their Vested Accrued Benefit payable at Normal Retirement Date.

*Benefit:*

Vested Accrued Benefit determined as of the date of termination but not less than the actuarial equivalent value, determined as of the benefit commencement date, of the Accumulated Contributions as of the Normal Retirement Date.

**Refund of Accumulated Contributions**

Upon termination prior to any type of retirement, in lieu of a monthly pension benefit, the member may elect to receive a refund of a percentage of the Pre-2014 accumulated contributions (excluding service purchase contributions) according to the following schedule, plus 100% of the Post-2013 accumulated contributions:

Completed Years of Service	Percent Vested of Pre-2014 Contributions Accumulated At Termination		
	Hired Prior to 1/1/2005	Hired 2005-2010	Hired on or after January 1, 2010
Less Than 5	100%	100%	100%
5	110%	100%	100%
6	125%	110%	100%
7	140%	120%	100%
8	155%	130%	100%
9	170%	140%	100%
10	185%	150%	100%
11	200%	160%	100%
12	200%	170%	100%
13	200%	180%	100%
14	200%	190%	100%
15 or more	200%	200%	100%

**Pre-Retirement Death Benefit**

- *Member is single:*

Beneficiary receives two times member’s accumulated contributions at date of death (excluding service purchase contributions).

- *Member is married:*

Spouse receives two times member’s accumulated contributions at date of death (excluding service purchase contributions); or

A monthly benefit equal to 60% of the member’s vested accrued benefit, commencing the first day of the month after the member’s death or age 50 (55 for Terminated Vested Members) whichever is later.

**Normal Form**

- *Tier 1* - 10-year certain and life
- *Tier 2* - 10-year certain and life
- *Tier 3* - Single life annuity

**Optional Forms**

- 100% joint and survivor annuity
- 50% joint and survivor annuity
- 66-2/3% last survivor annuity
- 100% joint and survivor annuity with pop up
- 50% joint and survivor annuity with pop up
- For members in Tier 1 and Tier 2 only: Single life annuity
- For members in Tier 3 only: 10-year certain and life

**Optional Form Conversion Factors**

Optional annuity forms are actuarially equivalent based on 7.50% interest and the 1983 Group Annuity Mortality table blended 50% male and 50% female.

**Payment Date**

Benefits are paid on the first day of the month following eligibility for receipt.

**Rehires**

Effective January 1, 2017, any employee who terminates employment and is reemployed and was otherwise entitled to the Rule of 70 (with or without a minimum age of 50), and who is reemployed on or after January 1, 2017, shall be eligible for a Special Early Retirement (a) with respect to the portion of such employee's accrued benefit attributable to Credited Service earned prior to the period of reemployment when the sum of his age plus service (including purchase of service) equals 70 or more and he is not employed by any Employer as an employee, and (b) with respect to the portion of such employee's accrued benefit attributable to Credited Service earned after the period of reemployment when the sum of his age plus service (including purchase of service) equals 80 or more and he is not employed by any Employer as an employee, if the Rule of 80 date is not earlier than the date the employee would have been eligible for a Special Early Retirement if the employee had remained in-service since December 31, 2016.

---

**SECTION E**

**SUMMARY OF PARTICIPANT DATA**

---



<b>Exhibit E.1</b>		
<b>Adams County Retirement Plan</b>		
<b>Summary of Census Data</b>		
	<b>January 1, 2017</b>	<b>January 1, 2016</b>
<b>1. Active Members</b>		
a. Counts		
Tier 1	572	642
Tier 2	348	381
Tier 3	1,110	963
Total	2,030	1,986
b. Annual Projected Compensation	\$ 120,573,734	\$ 113,995,220
c. Average Annual Compensation	\$ 59,396	\$ 57,399
d. Average Age	43.0	43.4
e. Average Service	8.2	8.4
f. Accumulated Member Contributions with Interest	\$ 74,617,709	\$ 71,041,826
<b>2. NonVested Members with Refunds Due</b>		
a. Counts	101	99
b. Amount of Refunds Due	\$ 601,800	\$ 514,091
<b>3. Deferred Vested Members*</b>		
a. Counts	189	186
b. Annual Deferred Benefits	\$ 2,492,818	\$ 2,504,590
c. Average Benefit	\$ 13,190	\$ 13,466
<b>4. Retired Members</b>		
a. Counts	908	857
b. Annual Benefits	\$ 21,975,182	\$ 20,463,946
c. Average Benefit	\$ 24,202	\$ 23,879
<b>5. Beneficiaries</b>		
a. Counts	99	96
b. Annual Benefits	\$ 1,277,239	\$ 1,177,082
c. Average Benefit	\$ 12,901	\$ 12,261
<b>6. Disabled Retirees</b>		
a. Counts	45	38
b. Annual Benefits	\$ 763,320	\$ 639,705
c. Average Benefit	\$ 16,963	\$ 16,834
<b>7. Total Members Included in Valuation</b>	<b>3,372</b>	<b>3,262</b>

\*Includes 26 deferred disableds in 2017 and 31 deferred disableds in 2016.

<b>Exhibit E.2                      Summary of Changes in Participant Status                      During Fiscal Year 2016</b>							
	Active Members	With Deferred Benefits <sup>1</sup>	With Refunds Due	Retirees	Disabled Retirees	Beneficiaries	Total
As of January 1, 2016	1,986	186	99	857	38	96	3,262
Age retirements	(66)	(5)		71			0
Disability retirements		(9)			9		0
Deferred disability	(6)	6					0
Deaths	(3)			(20)	(2)	(9)	(34)
Vested terminations	(20)	20					0
Rehires	3		(2)	(1)			0
Cashouts	(128)	(9)	(63)				(200)
Expiration of benefits							
Terminated nonvested with refunds due	(45)		45				0
New beneficiary or Alternate Payee						12	12
New entrants during the year <sup>2</sup>	309		22	1			332
Data correction							
Net change	44	3	2	51	7	3	110
As of January 1, 2017	2,030	189	101	908	45	99	3,372

<sup>1</sup> Includes 26 deferred disabled members at January 1, 2017

<sup>2</sup> Includes 22 members hired and terminated in 2016 with refunds due.

Exhibit E.3 Active Member Counts by Age and Service as of January 1, 2017								
Age	Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	Over 30	
Under 20	4	0	0	0	0	0	0	4
20-24	73	0	0	0	0	0	0	73
25-29	222	9	0	0	0	0	0	231
30-34	220	49	26	3	0	0	0	298
35-39	143	59	62	14	0	0	0	278
40-44	106	43	57	46	9	0	0	261
45-49	89	35	65	55	18	4	0	266
50-54	76	29	56	49	17	16	7	250
55-59	54	25	32	29	17	18	13	188
60-64	29	13	29	19	12	10	13	125
65-69	6	10	6	8	8	2	3	43
Over 70	3	1	3	2	1	0	3	13
<b>Total</b>	1,025	273	336	225	82	50	39	2,030

<b>Exhibit E.4</b>								
<b>Active Member Average Salary at Valuation Date by Age and Service<sup>1</sup></b>								
Age	Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	Over 30	
<b>Under 20</b>								
20-24	\$38,701							\$38,701
25-29	44,249	\$53,950						44,627
30-34	48,964	62,424	\$57,044					51,853
35-39	49,296	62,624	68,605	\$59,698				56,955
40-44	58,161	58,736	69,091	68,787	\$71,342			62,970
45-49	52,020	54,707	64,977	70,000	74,353			61,267
50-54	50,351	55,683	65,298	63,634	71,007	\$82,895	\$84,869	61,375
55-59	53,877	52,422	55,188	57,152	66,876	76,354	75,464	59,232
60-64	52,449	52,643	61,567	56,952	66,580	70,380	64,601	59,324
65-69	61,453	65,313	55,908	52,960	68,026			63,275
<b>Over 70</b>								62,461
<b>Total</b>	\$48,943	\$58,592	\$64,422	\$63,782	\$69,952	\$77,415	\$76,302	\$56,523

<sup>1</sup> Average Salary not shown if group contains less than five members

<b>Exhibit E.5</b>			
<b>10-Year Projected Benefit Payments (Closed Group)</b>			
<b>Fiscal Year Ended December 31,</b>	<b>Actives</b>	<b>Inactives</b>	<b>Total</b>
2017	\$ 2,596,809	\$24,559,098	\$27,155,907
2018	4,237,903	24,450,006	28,687,909
2019	5,629,751	24,302,867	29,932,617
2020	7,061,539	24,179,276	31,240,815
2021	8,503,900	23,952,978	32,456,878
2022	9,935,233	23,750,490	33,685,723
2023	11,427,179	23,494,576	34,921,755
2024	12,989,598	23,172,415	36,162,013
2025	14,646,095	22,840,932	37,487,027
2026	16,414,708	22,457,903	38,872,611

<b>Exhibit E.6</b>	
<b>History of Refunds</b>	
<b>Fiscal Year Ended December 31,</b>	<b>Refund Amount</b>
2005	\$ 1,231,836
2006	1,225,048
2007	1,187,708
2008	1,220,911
2009	1,043,307
2010	910,161
2011	1,761,213
2012	1,870,042
2013	2,029,377
2014	3,253,473
2015	3,086,203
2016	2,989,507

---

**SECTION F**

**HISTORICAL SCHEDULES**

---

Exhibit F.1 Adams County Retirement Plan Schedule of Funding Progress						
Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a Percentage of Covered Payroll
(1)	(2)	(3)	(4)=(3)-(2)	(5)=(2)/(3)	(6)	(7)=(4)/(6)
1/1/2008	\$ 194,027,237	\$ 287,832,266	\$ 93,805,029	67.4%	\$ 87,215,518	107.6%
1/1/2009	179,216,396	316,117,270	136,900,874	56.7%	94,396,658	145.0%
1/1/2010	200,975,215	340,984,767	140,009,552	58.9%	98,982,060	141.4%
1/1/2011	204,666,912	356,275,436	151,608,524	57.4%	95,737,553	158.4%
1/1/2012	201,712,397	371,702,160	169,785,105	54.3%	94,160,223	180.3%
1/1/2013	199,076,191	386,835,357	187,759,166	51.5%	96,443,158	194.7%
1/1/2014	214,140,815	379,802,962	165,662,147	56.4%	102,088,234	162.3%
1/1/2015	227,350,888	398,075,505	170,724,617	57.1%	107,861,819	158.3%
1/1/2016	235,725,998	419,358,970	183,632,972	56.2%	113,995,220	161.1%
1/1/2017	246,434,159	440,035,366	193,601,207	56.0%	120,573,734	160.6%

<b>Exhibit F.2</b>			
<b>Adams County Retirement Plan</b>			
<b>Schedule of Employer Contributions</b>			
<b>Fiscal Year Ended December 31,</b>	<b>Actuarially Determined Contribution</b>	<b>Actual County Contribution</b>	<b>Percentage Contributed</b>
2005	\$ 9,359,536	\$ 4,597,297	49.1%
2006	10,110,243	5,175,320	51.2%
2007	11,320,501	5,740,166	50.7%
2008	11,542,116	6,445,284	55.8%
2009	16,237,097	7,048,276	43.4%
2010	16,856,144	7,153,366	42.4%
2011	17,559,138	7,235,764	41.2%
2012	18,762,499	7,533,395	40.2%
2013	19,659,013	8,289,767	42.2%
2014	15,406,279	8,964,812	58.2%
2015	15,254,244	9,709,230	63.6%
2016	15,858,211	10,316,491	65.1%
2017	16,276,851	TBD	TBD



<b>Exhibit F.3</b> <b>Adams County Retirement Plan</b> <b>Supplementary Information</b>	
Valuation Date	January 1, 2017
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Dollar Open
Remaining Amortization Periods	30 Years
Asset Valuation Method	5-Year Smoothed Market
Actuarial Assumptions:	
Investment Rate of Return	7.50%
Projected Salary Increases	Service-based increases from 3.8% to 9.30%
Inflation	2.80%
Cost of Living Adjustments	N/A

---

**SECTION G**

**ACTUARIAL ASSUMPTIONS AND METHODS**

---

## SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

### I. Valuation Date

The valuation date is January 1st 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.

### II. Actuarial Cost Method

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

1. The valuation is prepared on the projected benefit basis. The present value of each participant's expected benefit payable at retirement or termination is determined, based on age, service, sex, compensation, and the interest rate assumed to be earned in the future (7.50%). 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 terminating with a service benefit. Future salary increases are also anticipated. The present value of the expected benefits payable on account of 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 Plan on account of the present group of participants and beneficiaries.
2. The employer contributions required to support the benefits of the Plan are determined following a level funding approach, and consist of a normal cost contribution and an accrued liability contribution.
3. The normal contribution is determined using the Entry Age Normal 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 anticipated covered service, would be required in addition to the contributions of the participant to meet the cost of all benefits payable on their behalf.
4. The unfunded 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 as a level dollar. It is assumed that payments are made throughout the year.

III. Actuarial Value of Assets

The actuarial value of assets is based on recognizing gains and losses over a five-year period where gains and losses are determined by comparing the projected market value of assets (based on the prior year’s market value of assets, cash flows during the year and expected investment returns on those amounts) to the current year’s market value of assets. The actuarial value of assets must be between 80% and 120% of market value.

IV. Actuarial Assumptions

A. Economic Assumptions

1. Investment return: 7.50% per annum, compounded annually, composed of an assumed 2.80% inflation rate and a 4.70% real rate of return. This rate represents the assumed return, net of all investment expenses.
2. Salary increase rate: Inflation rate of 2.80%, plus productivity component of 1.00%, plus step-rate/ promotional component as shown (adopted December 2013).

Completed Years of Service	Percentage Increase in Salary		
	Merit	Wage Inflation	Total
0	5.50 %	3.80 %	9.30 %
5	1.50	3.80	5.30
10	0.25	3.80	4.05
15	0.00	3.80	3.80
20	0.00	3.80	3.80
25	0.00	3.80	3.80
30	0.00	3.80	3.80
35	0.00	3.80	3.80
40	0.00	3.80	3.80

**B. Demographic Assumptions**

1. Mortality rates (pre- and post-retirement) – The valuation assumes fully generational mortality. The base mortality table used is the RP-2000 Blue Collar Healthy Annuitant Generational Mortality Table. Future mortality improvements are assumed each year using Scale BB. Rates are set back one year for females for post-retirement mortality. The following are sample rates for 2017 (adopted December 2013):

Sample Attained Ages	Probability of Death Pre-Retirement	
	Men	Women
20	0.05 %	0.02 %
25	0.06	0.02
30	0.07	0.03
35	0.10	0.05
40	0.13	0.08
45	0.17	0.13
50	0.23	0.19
55	0.32	0.26
60	0.47	0.33
65	0.64	0.42
70	0.77	0.55
75	0.00	0.00
80	0.00	0.00
85	0.00	0.00
90	0.00	0.00

Sample Attained Ages	Probability of Death Post-Retirement	
	Men	Women
20	0.05 %	0.02 %
25	0.06	0.02
30	0.07	0.03
35	0.10	0.04
40	0.13	0.08
45	0.17	0.12
50	0.53	0.17
55	0.69	0.23
60	0.94	0.44
65	1.35	0.83
70	2.07	1.37
75	3.34	2.30
80	5.46	3.61
85	8.90	6.08
90	15.06	10.16

2. Mortality rates (post-disablement) – RP-2000 Disabled Male and Female No Collar Mortality Table. Sample rates shown below:

Sample Attained Ages	Probability of Death Post-Disability	
	Men	Women
20	2.26 %	0.75 %
25	2.26	0.75
30	2.26	0.75
35	2.26	0.75
40	2.26	0.75
45	2.26	0.75
50	2.90	1.15
55	3.54	1.65
60	4.20	2.18
65	5.02	2.80
70	6.26	3.76
75	8.21	5.22
80	10.94	7.23
85	14.16	10.02
90	18.34	14.00

3. Disability rates. Sample rates shown below:

Sample Attained Ages	Probability of Disablement Next Year	
	Men	Women
25	0.04 %	0.04 %
30	0.06	0.06
35	0.10	0.10
40	0.16	0.16
45	0.26	0.26
50	0.45	0.45
55	0.85	0.85
60	1.20	1.20

4. Termination rates (for causes other than death, disability or retirement): Termination rates are based on service. Termination rates are not applied after a member becomes eligible for a retirement benefit. Rates at selected ages are shown (adopted December 2013):

Completed Years of Service	Probability of Termination Next Year	
	Men	Women
0	20.00 %	20.00 %
5	8.00	8.00
10	3.00	3.00
15	2.00	2.00
20	1.00	1.00
25	1.00	1.00
30	1.00	1.00
35	1.00	1.00

5. Retirement rates (adopted December 2013).

Age	Tier 1		Tier 2		Tier 3	
	Age-based	Rule-based	Age-based	Rule-based	Age-based	Rule-based
< 46		18.00%				
46		18.00%				
47		15.00%				
48		12.00%				
49		12.00%				
50		8.00%		15.00%		
51		8.00%		8.00%		
52		8.00%		8.00%		
53		8.00%		8.00%		
54		8.00%		8.00%		
55	2.00%	8.00%	2.00%	8.00%	2.00%	20.00%
56	2.00%	8.00%	2.00%	8.00%	2.00%	8.00%
57	2.00%	8.00%	2.00%	8.00%	2.00%	8.00%
58	2.00%	10.00%	2.00%	10.00%	2.00%	10.00%
59	6.00%	10.00%	6.00%	10.00%	6.00%	10.00%
60	8.00%	10.00%	8.00%	10.00%	8.00%	10.00%
61	8.00%	10.00%	8.00%	10.00%	8.00%	10.00%
62	9.00%	25.00%	9.00%	25.00%	9.00%	25.00%
63	9.00%	15.00%	9.00%	15.00%	9.00%	15.00%
64	9.00%	20.00%	9.00%	20.00%	9.00%	20.00%
65	9.00%	20.00%	9.00%	20.00%	9.00%	20.00%
66	9.00%	20.00%	9.00%	20.00%	9.00%	20.00%
67	15.00%	20.00%	15.00%	20.00%	15.00%	20.00%
68	15.00%	20.00%	15.00%	20.00%	15.00%	20.00%
69	15.00%	20.00%	15.00%	20.00%	15.00%	20.00%
70+	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

C. Expense Loading. Based on the prior three year average, rounded to the nearest \$1,000.

	Noninvestment
Year	Expenses
2014	\$806,310
2015	687,810
2016	837,324
	\$2,331,444 ÷ 3 = \$777,148
Average	\$777,148
Loading	\$777,000



D. Other Assumptions

1. Percent married: 85% of employees are assumed to be married.
2. 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.
3. Cost of living adjustment: None.
4. Optional forms: Members are assumed to elect the normal form of benefit.
5. Vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
6. Current and future deferred vested participants are assumed to retire at the earlier of age 55 or the age they meet special early retirement eligibility. Deferred disabled participants are assumed to commence benefits at age 65.
7. Pay increase timing: Middle of year.
8. Decrement timing: Decrements of all types are assumed to occur mid-year.
9. 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.
10. Decrement relativity: Decrement rates are used directly, without adjustment for multiple decrement table effects.
11. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.