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APPENDICES

A System Membership Information

B Summary of Plan Provisions

C Actuarial Assumptions and Methods

ADDENDUM

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October 12, 2016

Board of Trustees
Iowa Peace Officers' Retirement, Accident
and Disability System
215 East 7th Street
Des Moines, IA 50319

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Iowa Peace Officers' Retirement, Accident and Disability System as of July 1, 2016. The purpose of this report is to provide: (1) a summary of the funded status of the System as of July 1, 2016 and (2) determine the normal contribution rate as defined in Iowa Code Chapter 97A.8. There have been no changes to the plan provisions since last year's valuation. However, an experience study of the System's economic assumptions was performed in May, 2016. At the recommendation of the actuary, the Board adopted a new set of economic assumptions and a new method for addressing the administrative expenses of the System. These assumption and method changes, as well as their impact on the current valuation results, are discussed further in the Executive Summary section of the report. The valuation also reflects the impact of HF 2459 which was passed in the 2016 legislative session. This bill reduced the State supplemental contribution to the System for fiscal year 2017 from $5.0 million to $2.5 million. The supplemental contribution is expected to return to $5.0 million in fiscal year 2018 and beyond.

In preparing our report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, member data and financial information. We found this information to be reasonably consistent and comparable with information provided in prior years. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

We further certify that all costs, liabilities, rates of interest and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the System.

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Nevertheless, the emerging costs will vary from those presented in this report to the extent actual experience differs from that projected by the actuarial assumptions. The Board of Trustees has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

Actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the System. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes. Actuarial computations for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standard No. 67 are provided in a separate report.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

We respectfully submit the following report and look forward to discussing it with you.

Patrice Beckham

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

Brent A. Banister

Brent A. Banister, PhD, FSA, EA, FCA, MAAA
Chief Pension Actuary

Bryan K. Hoge, FSA, EA, FCA, MAAA
Senior Actuary

Purpose of the Report

This report presents the results of the July 1, 2016 actuarial valuation of the Iowa Peace Officers' Retirement, Accident and Disability System (PORS). The primary purposes of performing the valuation are as follows:

- to determine the normal contribution rate payable by the State under Chapter 97A.8(1)(b) of the Code of Iowa (referred to in this report as the "actuarial contribution rate");
- to evaluate the sufficiency of the statutory contribution rates to fund the System over the long term;
- to satisfy the reporting requirements under Chapter 97A.8 of the Code of Iowa;
- to disclose asset and liability measures indicating the current funded status of the System as of the valuation date; and
- to analyze and report on trends in System contributions, assets, and liabilities over the past several years.

While there have been no changes to the plan provisions since last year's valuation, an experience study on the System's economic assumptions was performed in May, 2016. As a result, the Board adopted a new set of economic assumptions:

- Price inflation assumption decreased from 3.00% to 2.75%.
- Wage inflation assumption decreased from 3.75% to 3.50%.
- Payroll growth assumption decreased from 3.75% to 3.00%.
- Investment return assumption decreased from 8.00% to 7.50%.

The price inflation assumption does not directly impact the valuation results, but is a component of other economic assumptions such as the wage inflation assumption and investment return assumption. The change to the wage inflation assumption impacts both the individual salary increase assumption and the post-retirement escalator assumption. In addition to the assumption changes outlined above, administrative expenses are now included as a component of the actuarial contribution rate. In the past, administrative expenses were netted against investment income, thus impacting the expected investment return. As a result of the assumption and method changes, the actuarial accrued liability (AAL) increased by $23.8 million and the total actuarial contribution rate increased by 7.06% of pay.

There was one bill in the 2016 legislative session that impacted the funding of the Iowa Peace Officers' Retirement, Accident and Disability System. House File 2459 reduced the State's supplemental contribution to the System from $5.0 million to $2.5 million for fiscal year 2017. The expectation is that the supplemental contribution will return to $5.0 million for fiscal year 2018 and continue until the System is 85% funded. The lower supplemental contribution of $2.5 million rather than the original scheduled amount of $5.0 million resulted in a contribution shortfall of 1.46% of payroll for fiscal year 2017 instead of a contribution margin of 4.12% of payroll .

The valuation results provide a "snapshot" view of the System's financial condition on July 1, 2016. The unfunded actuarial accrued liability (UAAL) increased from $141.6 million on July 1, 2015 to $152.0 million on July 1, 2016, primarily as a result of the changes to the economic assumptions noted above. A more detailed discussion of actual experience is included later in this section of the report.

The experience of both the System's assets and liabilities impacts the System's funding and the actuarial contribution rate. Experience that is more favorable than anticipated, based on actuarial assumptions, will generally lower the UAAL and the actuarial contribution rate, while experience that is less favorable than expected will generally increase the UAAL and the actuarial contribution rate. The State's actuarial contribution rate increased from 36.32% in last year's valuation to 42.04% this year, based on the member contribution rate of 11.40%. The State's actuarial contribution rate exceeds the fixed payroll-related contribution rate for FY 2017 of 35.00% by 7.04%. The State is expected to make supplemental contributions of $5.0 million per year until the System is at least 85% funded. However, for FY 2017 only, the State will reduce the supplemental contribution amount from $5.0 million to $2.5 million. When the State's supplemental contribution of $2.5 million for FY 2017 is included in the analysis, the contribution shortfall is reduced to 1.46%.

Several key factors impacted the actuarial contribution rate from last valuation:

- The rate of return on the market value of assets was –1.2%, which is lower than the assumed rate of return of 8.0% for fiscal year 2016. However, due to the use of an asset smoothing method, only part of the actuarial loss on assets for this year is recognized in the current valuation. Coupled with the recognition of deferred favorable investment experience from prior years, the rate of return on the actuarial value of assets was 9.2%. This produced an actuarial gain that decreased the UAAL by $5.0 million and lowered the actuarial contribution rate by 0.75% of pay. The actuarial (smoothed) value of assets is now 5.8% greater than the market value of assets, reflecting a net deferred investment loss.
- Actual contributions above the full actuarial contribution rate for FY 2016 resulted in a decrease in the UAAL of $3.6 million which decreased the actuarial contribution rate by 0.55% of pay.
- There was a liability gain, largely due to actual salary increases and post-retirement escalator increases that were lower than anticipated by the actuarial assumptions. As a result, the UAAL decreased by $5.6 million and the actuarial contribution rate declined by 0.84% of pay.
- There were a number of actuarial assumption/method changes since last year's valuation that increased the UAAL by $23.8 million and the actuarial contribution rate by 7.06% of pay.

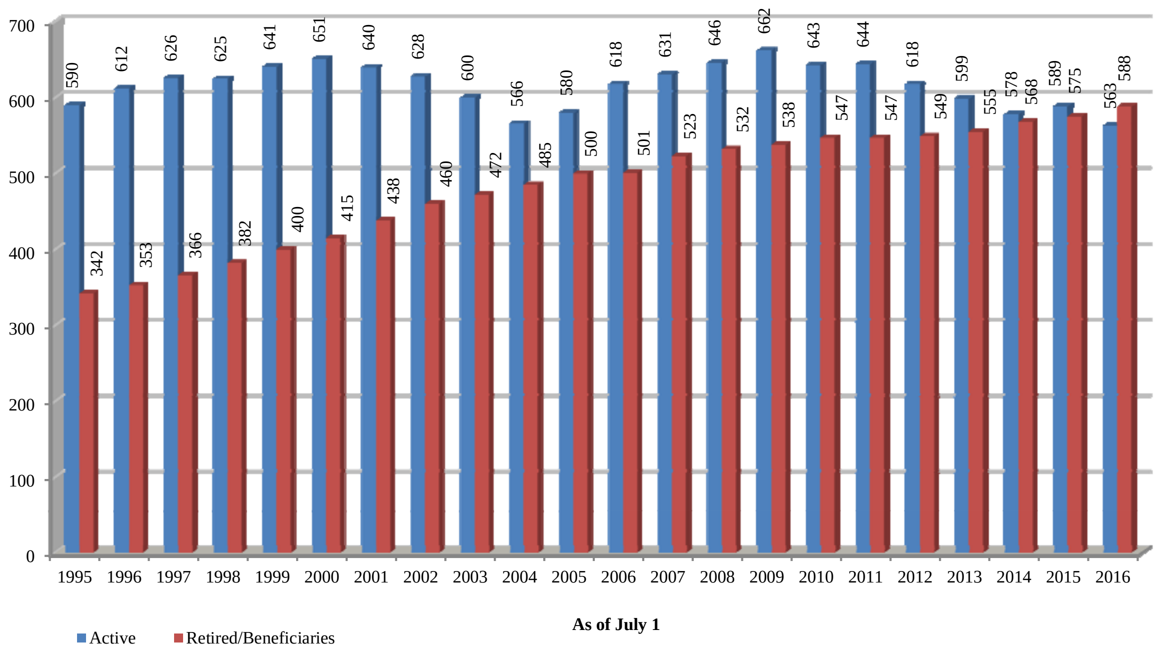
The statutory contribution rate for the State is scheduled to increase 2.0% per year until it reaches a maximum of 37.0% of pay in FY 2018. In addition, the State is required to make a supplemental contribution of $5.0 million per year beginning July 1, 2013 (changed from 2012 following the passage of HF 2465 in the 2012 legislative session) until the System is 85% funded. However, for FY 2017, HF 2459 reduced the supplemental contribution to $2.5 million. It is expected to return to $5.0 million for FY 2018 and thereafter. The supplemental contribution of $5.0 million is an important component of strengthening PORS' long-term funding, as it represents an additional funding source of approximately 11% of payroll. These changes in the State's contribution rate are expected to improve the System's long-term funding. If the State annual supplemental contribution returns to $5.0 million in FY 2018 and remains at that level until the System is 85% funded and all assumptions are met in the future, the System is estimated to reach a funded ratio of 100% in about 27 years (in the 2043 valuation).

Membership

The number of active members in the current valuation (563) decreased by 4.4% from the number in the prior valuation (589). As a result, the covered payroll of the System declined by about 1% rather than increasing 3% as expected. The decline in the active membership payroll has an adverse impact on the funding of the System because fewer contribution dollars flow into the System to help fund the UAAL.

As the following graph indicates, the number of active members in the System is the lowest number in recent years, about the same level as in 2004. Over this period, the number of retirees has continually grown and the number of retirees is now larger than the number of actives. This is not necessarily problematic and such growth in the number of retirees is expected and factored into the valuation process. However, this demographic characteristic creates a funding challenge because the volatility in investment returns has a greater impact on the actuarial contribution rate.

Peace Officers' Retirement Membership



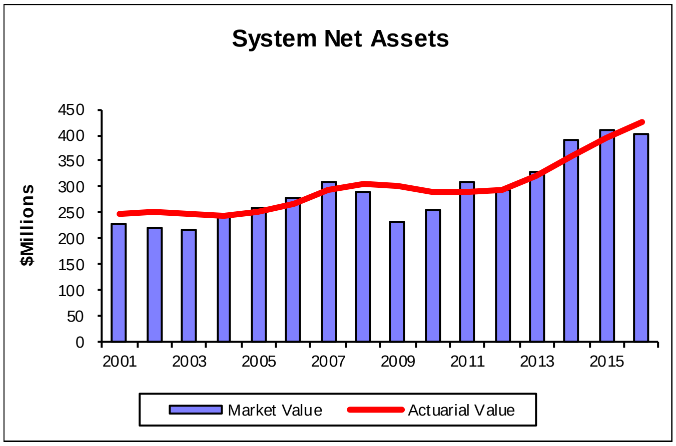
Assets

As of July 1, 2016, the System had total funds, measured on a market value basis, of $403,084,512. This is a decrease of $7,514,207 from last year's market value of $410,598,719. The market value of assets is not used directly in the calculation of the actuarial contribution rate. The System uses an asset valuation method to smooth the effects of market fluctuations. The actuarial value of assets spreads the difference between the actual return and the expected return (based on the actuarial assumption) on the market value of assets evenly over four years. See Tables 3 and 4 for a detailed development of the actuarial value of assets. The components of the change in the asset values are shown in the following table:

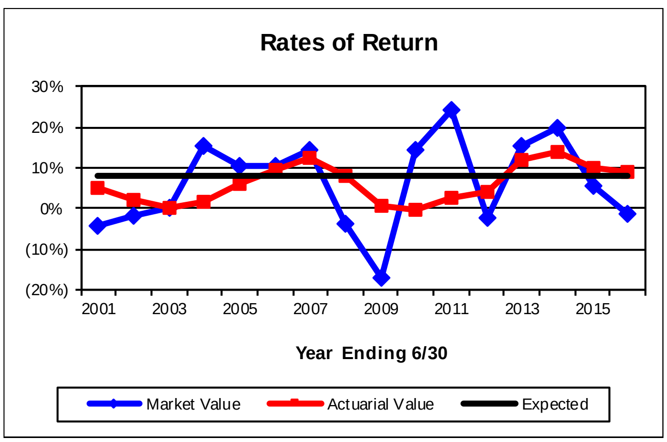
	Market Value	Actuarial Value
Net Assets, July 1, 2015	$410,598,719	$392,989,970
• Employer and Member Contributions	25,598,997	25,598,997
• Benefit Payments	(28,283,554)	(28,283,554)
• Administrative Expenses	(247,970)	(247,970)
• Investment Income	(4,581,680)	36,341,003
Net Assets, July 1, 2016	$403,084,512	$426,398,446

The dollar-weighted rate of return on the market value of assets for FY 2016, net of investment expenses, was –1.2%. Measured on the actuarial value of assets, the rate of return was 9.2% which resulted in an actuarial gain of $5.0 million.

The actuarial value of assets is currently $23.3 million, or 5.8%, greater than the market value of assets. This deferred asset loss will be recognized over the next three years, resulting in some increase in the actuarial contribution rate, unless offset by favorable experience in future years.



During this period, the actuarial value of assets has been both above and below the market value of assets, which is expected when using an asset smoothing method.



Rates of return on the market value of assets have been extremely volatile, while the return on the actuarial value of assets has been more stable. This illustrates the advantage of using an asset smoothing method.

System Liabilities

The actuarial accrued liability is that portion of the present value of future benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and asset values at the same date is referred to as the unfunded actuarial accrued liability (UAAL). The unfunded actuarial accrued liability will be reduced if the employer's contributions exceed the employer's normal cost for the year, after allowing for interest on the previous balance of the unfunded actuarial accrued liability. Benefit improvements, experience gains and losses, and changes in actuarial assumptions and methods will also impact the total actuarial accrued liability (AAL) and the unfunded portion thereof.

The unfunded actuarial accrued liability as of July 1, 2016 is as follows:

Actuarial Accrued Liability	$578,388,848
Actuarial Value of Assets	426,398,446
Unfunded Actuarial Accrued Liability	$151,990,402

See Table 7 for the detailed development of the Actuarial Accrued Liability and Table 11 for the calculation of the Unfunded Actuarial Accrued Liability.

Other factors influencing the UAAL from year to year include actual experience versus that expected based on the actuarial assumptions (for both assets and the actuarial liability), changes in actuarial assumptions, procedures or methods and any changes in benefit provisions. The actual experience measured in this valuation is that which occurred during the prior plan year (FY 2016). There was a $5.0 million experience gain on the actuarial value of assets and a $5.6 million net experience gain on the actuarial accrued liability, primarily due to salary increases and post-retirement escalator increases that were less than expected. The combined result of both asset and liability experience was a decrease in the UAAL of $10.6 million.

Between July 1, 2015 and July 1, 2016 the change in the unfunded actuarial accrued liability for the System was as follows (in millions):

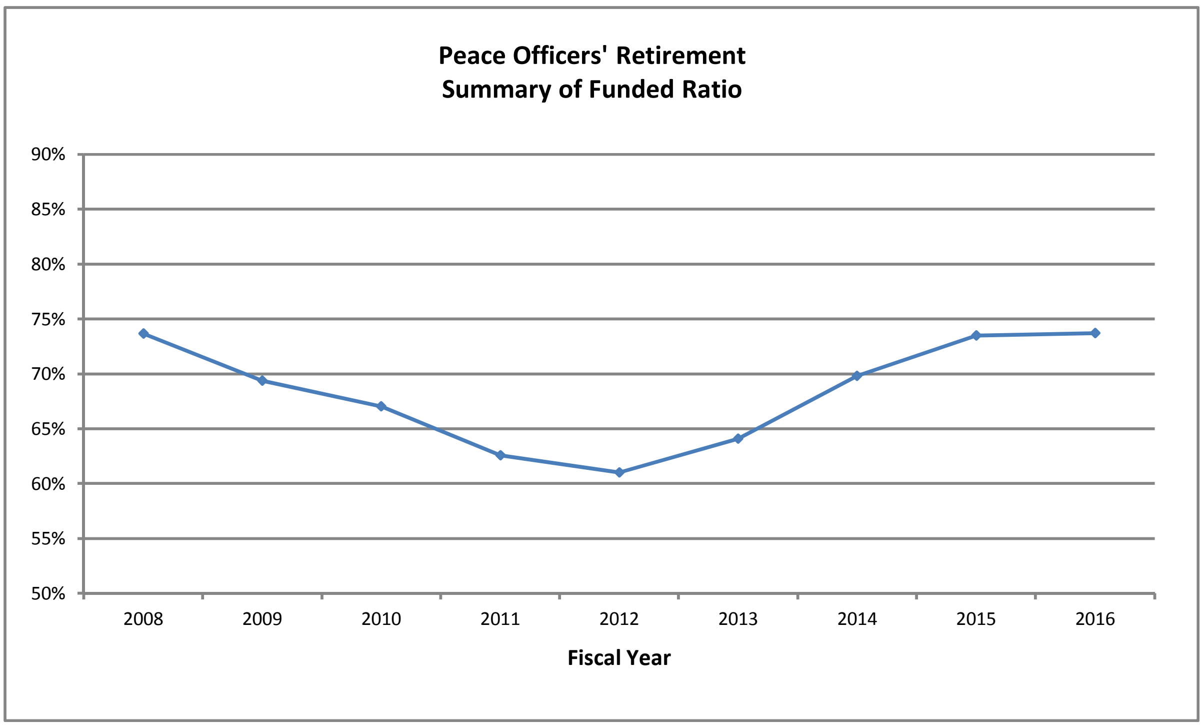
	$ millions
Unfunded Actuarial Accrued Liability, July 1, 2015	$141.6
• effect of contributions above the actuarial rate	(3.6)
• expected increase due to amortization method	1.3
• investment experience	(5.0)
• liability experience*	(5.6)
• assumption changes	23.8
• other experience	(0.5)
Unfunded Actuarial Accrued Liability, July 1, 2016	$152.0

* Liability gain is about 1.0% of total actuarial accrued liability.

An evaluation of the unfunded actuarial accrued liability on a pure dollar basis may not provide a complete analysis since only the difference between the assets and liabilities (which are both very large numbers) is reflected. Another way to evaluate the unfunded actuarial accrued liability and the progress made in its funding is to track the funded status, the ratio of the actuarial value of assets to the actuarial accrued liability. The funded status information, on both an actuarial and a market value basis, is shown on the following table (in millions). Note that the funded ratio does not indicate whether or not the System has sufficient funds to settle all current obligations, nor is it necessarily indicative of the need for future funding.

	7/1/2012	7/1/2013	7/1/2014	7/1/2015	7/1/2016
Using Actuarial Value of Assets:					
Funded Ratio	61.0%	64.1%	69.8%	73.5%	73.7%
Unfunded Actuarial Accrued Liability (UAAL)	$187	$179	$156	$142	$152
Using Market Value of Assets:					
Funded Ratio	61.0%	66.2%	76.0%	76.8%	69.7%
Unfunded Actuarial Accrued Liability (UAAL)	$187	$169	$124	$124	$175

The funded status of the System since 2008 (when the current Entry Age Normal cost method was adopted) is shown in the following graph. Strong investment returns and increasing contributions have strengthened the funded status of the System since 2012.



Contribution Rates

Under the Entry Age Normal cost method, the actuarial contribution rate consists of:

- a "normal cost" for the portion of projected liabilities allocated by the actuarial cost method to service of members during the current year;
- an "administrative expense" for the expenses expected to be paid from the trust for the year; and

- an "unfunded actuarial accrued liability contribution" for the excess of the actuarial accrued liability over the actuarial value of assets.

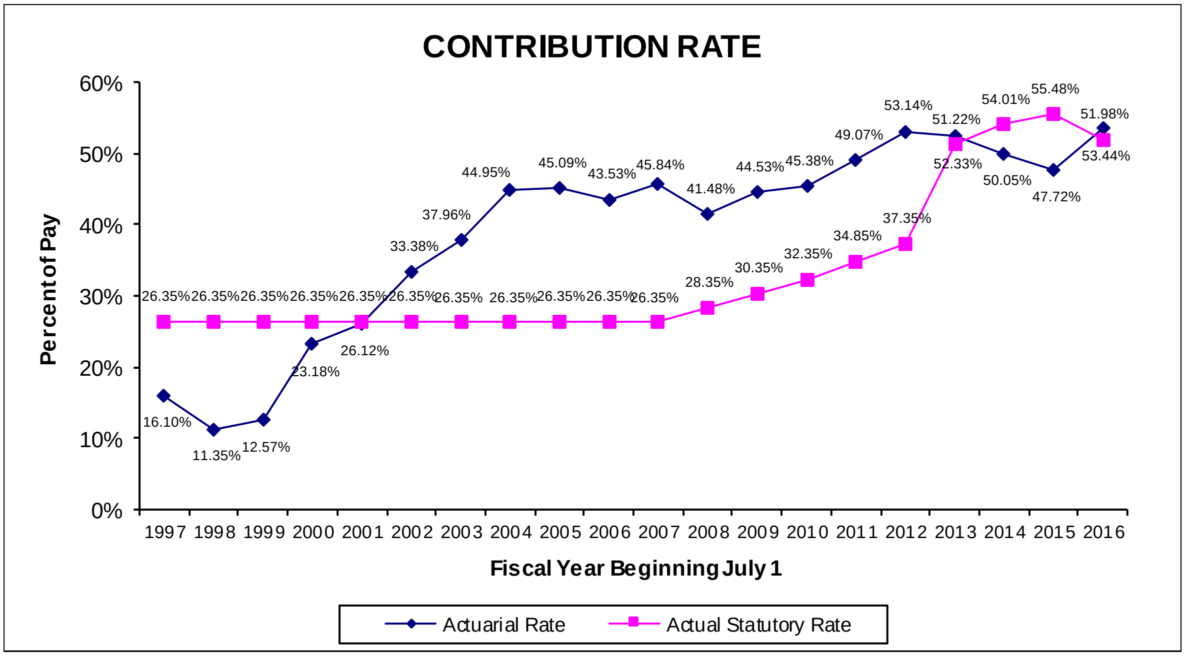
The Board elected to amortize the unfunded actuarial accrued liability, as a level percent of payroll, over a closed 30-year period beginning July 1, 2008. Twenty-two (22) years remain as of July 1, 2016.

The total contribution rate for the Plan Year beginning July 1, 2016 is 53.44% of covered payroll. Based on the member contribution rate of 11.40%, the State's portion of the actuarial contribution rate is 42.04%. The sources of change are shown in the following table:

	Plan Year Beginning	
	July 1, 2016	**July 1, 2015**
Prior year total contribution rate	47.72%	50.05%
• change due to asset (gains)/losses	(0.75%)	(1.09%)
• change due to liability experience	(0.84%)	(0.96%)
• change due to other actuarial experience	0.81%	(0.32%)
• change due to assumption and method changes	7.06%	0.00%
• change due to actual contribution rate (above)/below the actuarial rate	(0.55%)	(0.26%)
• change in normal cost rate	(0.01%)	0.30%
Current year total actuarial contribution rate	53.44%	47.72%
Members' contribution rate	(11.40%)	(11.40%)
State's actuarial contribution rate	42.04%	36.32%

Contributions to the System are made by both the members and the State. Historically, members contributed 9.35% of pay, but the member contribution rate increased to 9.85% for FY 2012, 10.35% for FY 2013, 10.85% for FY 2014 and to an ultimate rate of 11.35% in FY 2015 (changed to 11.40% by the 2014 legislature). The State's contribution rate was 17.00% of pay for many years, but began increasing 2.00% per year commencing July 1, 2008. In 2010, the Legislature passed a bill that continued the 2.00% annual increase with an ultimate contribution rate of 37.00% in FY 2018. It also provided for a supplemental State appropriation of $5.0 million per year beginning July 1, 2013 (originally July 1, 2012, but extended by the 2012 legislature) and ending June 30 of the fiscal year during which the System's funded ratio is at least 85%. However, HF 2459 in the 2016 session reduced the supplemental contribution for FY 2017 to $2.5 million. It is expected to return to $5.0 million for FY 2018 and thereafter. Current projections estimate that the supplemental contributions of $5.0 million will be needed for 12 more years, if all actuarial assumptions are met in the future. The State's statutory fixed contribution rate for FY 2017 is 35.00% and is scheduled to increase to its ultimate rate of 37.00% in FY 2018. The State's contribution rate, including the supplemental contributions, along with the member contribution rate are expected to address the long-term funding concerns of the System if all actuarial assumptions are met in the future.

The following graph shows the total actuarial contribution rate compared to the actual contribution rate in each year.



Following an eleven-year period in which actual contributions scheduled to be paid to the System were significantly less than the actuarial contribution rate, the contribution shortfall has been largely eliminated in the last four valuations, with a significant contribution margin occurring in two of the last four valuations. Had the State's supplemental contribution of $5.0 million not been reduced for FY 2017, a contribution margin would also have existed for the current fiscal year. The additional increase in the State contribution rate for FY 2018, along with the State's annual supplemental contribution of $5.0 million until the System is 85% funded, is expected to continue the positive trend for the System's funded status, absent adverse experience in future years.

Summary

While there have been no changes to the plan provisions since last year's valuation, an experience study on the System's economic assumptions was performed in May, 2016 and the Board adopted the recommended changes. These changes included a lower investment return assumption as well as lower projected salary increases and post-retirement escalator assumptions. In addition, administrative expenses are now included as a component of the contribution rate rather than netted against investment return. As a result of the changes from the experience study on economic assumptions, the actuarial accrued liability (AAL) increased by $23.8 million and the total actuarial contribution rate increased by 7.06%.

Although the System's funded ratio remains fairly low (74%), the outlook for the long-term health and sustainability of the System is positive. The State's contribution rate is scheduled to increase 2.0% next year and reach the ultimate rate of 37.0% in FY 2018. In addition, the State will make supplemental contributions until the System reaches a funded ratio of 85%.

It takes many years for the impact of additional contributions to materially improve the System's funded ratios. However, these changes result in a much healthier future outlook for the System and are expected to move the System toward fully funded status in the coming years, <u>if all actuarial assumptions are met.</u>

The State's actuarial contribution rate for FY 2016 was 36.32%, but the State's statutory fixed contribution rate was only 33.00% of covered payroll. The $5.0 million supplemental contribution by the State for FY 2016 represented about 11% of payroll so the total expected contribution for FY 2016 was 44.08%. This resulted in contributions in excess of the actuarial contribution rate of 7.76% of payroll or $3.6 million. To the extent the supplemental contributions of $5.0 million continue to be paid by the State, they will either more rapidly fund the System, if all actuarial assumptions are met, or provide some cushion for the impact of adverse experience on the System's funding. Based on the current valuation results, the $2.5 million supplemental contribution for FY 2017 will offset much of the shortfall between the State's actuarial contribution rate and the fixed State contribution of 35.00% of payroll for FY 2017. As a result, the contribution shortfall is reduced from 7.04% to 1.46% of pay. We would note that had the full $5.0 million supplemental contribution been made for FY 2017, a contribution margin of 4.12% would have existed.

The long-term financial health of this, and all retirement systems, is heavily dependent on two key items: (1) future investment returns and (2) contributions to the System. The net investment experience for the past four years has been above the expected return of 8.0% on an actuarial basis, but with recent asset losses on a market value basis, the System has $23.3 million in deferred asset losses that will be recognized over the next few years. In addition, total contributions to the System have increased which is expected to improve the long-term funding outlook of the System. While the impact of increased contributions on the System's long-term funding will be significant, the improvement in the funded ratio and UAAL resulting from these changes will not be apparent in the funding results for many years.

A summary of key data elements and valuation results as of July 1, 2016 and July 1, 2015 are presented on the following page. More detail on each of these elements can be found in the following Sections of this report.

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

SUMMARY OF PRINCIPAL RESULTS

	July 1, 2016 Valuation	July 1, 2015 Valuation	% Change
PARTICIPANT DATA			
Number of			
Active Members	563	589	(4.4)
Retirees/Beneficiaries/Disabled Members	588	575	2.3
Inactive Vested Members	47	46	2.2
Total Members	1,198	1,210	(1.0)
Projected Annual Salaries of Active Members	$ 44,775,765	$ 45,128,506	(0.8)
Average Annual Salary	$ 79,531	$ 76,619	3.8
Average Annual Benefit for Retired Members, Disabled Members and Beneficiaries	$ 48,875	$ 47,769	2.3
ASSETS AND LIABILITIES			
Total Actuarial Accrued Liability	$578,388,848	$534,626,780	8.2
Actuarial Value of Assets	426,398,446	392,989,970	8.5
Unfunded Actuarial Accrued Liability	$151,990,402	$141,636,810	7.3
Funded Ratio (Actuarial Value of Assets)	73.7%	73.5%	0.3
Market Value of Assets	$403,084,512	$410,598,719	(1.8)
Funded Ratio (Market Value of Assets)	69.7%	76.8%	(9.2)
CONTRIBUTION RATES			
Normal Cost Rate	28.70%	26.43%	8.6
Administrative Expenses	0.57%	N/A	N/A
Amortization of Unfunded Actuarial Accrued Liability (Level Percent of Payroll)	24.17%	21.29%	13.5
Actuarial Required Contribution Rate	53.44%	47.72%	12.0
Member Contribution Rate	(11.40%)	(11.40%)	0.0
Employer Actuarial Required Contribution Rate	42.04%	36.32%	15.7
Statutory State Fixed Contribution Rate	(35.00%)	(33.00%)	6.1
State Supplemental Contribution*	(5.58%)	(11.08%)	(49.6)
Contribution Shortfall/(Margin)	1.46%	(7.76%)	(118.8)

* The supplemental contribution is $5 million annually (except for FY 2017) until the System is at least 85% funded. For FY 2017 only, the supplemental contribution is $2.5 million.

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is July 1, 2016. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the System, which are generally in excess of assets. The actuarial process leads to a method of determining the contributions needed by members and the employer in the future to balance the System assets and liabilities.

Market Value of Assets

The current market value represents the "snapshot" or "cash-out" value of System assets as of the valuation date. In addition, market values of assets provide a basis for measuring investment performance from time to time. At July 1, 2016 the market value of assets for the Retirement System was $403,084,512. Table 1 is a comparison, at market values, of System assets as of July 1, 2015 and July 1, 2016, in total and by investment category. Table 2 summarizes the change in the market value of assets from July 1, 2015 to July 1, 2016.

Actuarial Value of Assets

Neither the market value of assets, representing a "cash-out" value of System assets, nor the book value of assets, representing the cost of investments, may be the best measure of the System's ongoing ability to meet its obligations. To arrive at a suitable value for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens swings in the market value while still indirectly recognizing market values. The actuarial value of assets is equal to the market value of assets less a four year phase-in of the excess (shortfall) between expected investment return (based on the actuarial assumption) and actual investment return.

Tables 3 and 4 show the development of the actuarial value of assets (AVA) as of the valuation date.

TABLE 1

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ANALYSIS OF NET ASSETS AT MARKET VALUE

	July 1, 2016		July 1, 2015	
	Amount	**% of Total**	**Amount**	**% of Total**
Pooled Cash	$ 8,844,264	2.0 %	$ 9,168,382	2.1 %
Receivables	8,840,947	2.0	2,663,631	0.6
Common Stocks	247,425,621	56.4	264,930,555	62.0
Securities on Loan	23,977,572	5.5	13,148,873	3.1
Bonds	100,525,775	22.9	93,780,951	21.9
Real Estate	49,247,104	11.2	43,820,150	10.3
Subtotal	$438,861,283	100.0 %	$427,512,542	100.0 %
Payables	(35,776,771)		(16,913,823)	
NET ASSETS	$403,084,512		$410,598,719	

TABLE 2

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

SUMMARY OF FUND ACTIVITY
(Market Value)

1.	**NET ASSETS ON JULY 1, 2015**	**$ 410,598,719**
2.	**CONTRIBUTIONS**	
	a. Member Contributions	5,079,754
	b. Employer Contributions	20,519,243
	c. Lump Sum Contributions	0
	d. Total Contributions	**$ 25,598,997**
3.	**BENEFIT PAYMENTS**	28,283,554
4.	**ADMINISTRATIVE EXPENSE**	247,970
5.	**INVESTMENT INCOME**	(4,581,680)
6.	**NET ASSETS ON JULY 1, 2016** **(1) + (2d) - (3) - (4) + (5)**	**$ 403,084,512**

TABLE 3

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

CALCULATION OF EXCESS (SHORTFALL) INVESTMENT INCOME FOR ACTUARIAL VALUE OF ASSETS

		Plan Year Ending			
		2016	**2015**	**2014**	**2013**
1.	Market value of assets, beginning of year	$410,598,719	$392,194,960	$329,920,144	$292,823,296
2.	Contributions during year				
	a. Member	5,079,754	4,991,460	4,754,916	4,512,096
	b. Employer	20,519,243	18,600,759	17,715,097	11,777,661
	c. Lump sum payments	0	0	0	0
	d. Total	25,598,997	23,592,219	22,470,013	16,289,757
3.	Benefits paid during year	28,283,554	26,692,954	25,432,467	24,076,895
4.	Expected net investment income*				
	a. Market value of assets, beginning of year	32,847,898	31,375,597	26,393,612	23,425,864
	b. Contributions	1,004,261	925,534	881,509	639,055
	c. Benefits	(1,109,578)	(1,047,178)	(997,728)	(944,548)
	d. Total	32,742,581	31,253,953	26,277,393	23,120,371
5.	Expected Value of Assets (1) + (2d) - (3) + (4d)	440,656,743	420,348,178	353,235,083	308,156,529
6.	Market value of assets, end of year	403,084,512	410,598,719	392,194,960	329,920,144
7.	Excess (shortfall) of investment income for Year (6) - (5)	(37,572,231)	(9,749,459)	38,959,877	21,763,615

* Expected return is 8.0% for plan years ending in 2016 and earlier, and 7.5% for plan year's ending in 2017 or later.

TABLE 4

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

	Plan Year Ending June 30	
	2016	**2015**
Item		
1. Excess (Shortfall) of investment income for current and previous 2 years		
a. Current year	($37,572,231)	($9,749,459)
b. One year ago	(9,749,459)	38,959,877
c. Two years ago	38,959,877	21,763,615
2. Deferral of excess (shortfall) of investment income		
a. Current year (75%)	(28,179,173)	(7,312,094)
b. One year ago (50%)	(4,874,730)	19,479,939
c. Two years ago (25%)	9,739,969	5,440,904
d. Total	(23,313,934)	17,608,749
3. Market value of plan net assets, end of year	403,084,512	410,598,719
4. Actuarial value of plan assets, end of year (3) - (2d)	$426,398,446	$392,989,970
5. Actuarial value divided by market value	105.8%	95.7%

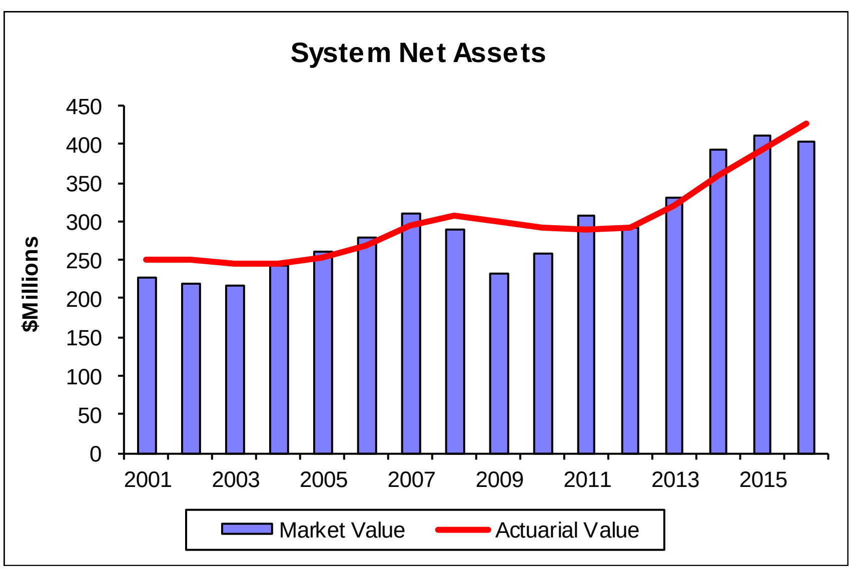
TABLE 5

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

HISTORICAL COMPARISON

Value As of	Market Value of Net Assets	Estimated Rate of Return (MVA)*	Actuarial Value of Assets	Estimated Rate of Return (AVA)
1-Jul-02	219,373,555	(2.0%)	$250,914,077	2.1%
1-Jul-03	215,454,491	0.4%	246,443,660	0.1%
1-Jul-04	242,279,998	15.6%	244,161,533	1.6%
1-Jul-05	260,104,910	10.4%	251,828,813	6.1%
1-Jul-06	278,940,737	10.3%	267,813,445	9.4%
1-Jul-07	310,489,530	14.2%	293,374,805	12.6%
1-Jul-08	290,306,257	(3.8%)	307,291,608	7.8%
1-Jul-09	233,187,738	(16.9%)	300,262,337	0.6%
1-Jul-10	256,873,773	14.4%	290,558,596	(0.2%)
1-Jul-11	308,607,733	24.1%	309,330,330	2.5%
1-Jul-12	292,823,296	(2.5%)	292,909,884	4.3%
1-Jul-13	329,920,144	15.5%	319,441,635	11.9%
1-Jul-14	392,194,960	19.9%	360,063,755	13.7%
1-Jul-15	410,598,719	5.5%	392,989,970	10.0%
1-Jul-16	403,084,512	(1.2%)	426,398,446	9.2%

* Net of Expenses



In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of assets of the System as of the valuation date, July 1, 2016. In this section, the discussion will focus on the commitments of the System, which are referred to as its liabilities.

Table 6 contains an analysis of the actuarial present value of all future benefits (PVFB) for contributing members, inactive members, retirees and their beneficiaries. The analysis is provided for each group.

The liabilities summarized in Table 6 include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measures of both benefits already earned and future benefits expected to be earned. For all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and for the lives of the surviving beneficiaries.

The actuarial assumptions used to determine liabilities are based on the results of an Experience Study on economic assumptions prepared in May, 2016. This set of assumptions, as adopted by the Board, is shown in Appendix C and was first used in the current valuation. The Board's election to change the actuarial cost method from Aggregate to Entry Age Normal was first reflected in the July 1, 2008 valuation.

Actuarial Liabilities

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to the period in which benefits are earned, rather than to the period of benefit distribution. An actuarial cost method is a mathematical technique that allocates the present value of future benefits into annual costs. In order to do this allocation, it is necessary for the funding method to "breakdown" the present value of future benefits into two components:

(1) that which is attributable to the past and

(2) that which is attributable to the future.

Actuarial terminology calls the part attributable to the past the "past service liability" or the "actuarial accrued liability". The portion allocated to the future is known as the present value of future normal costs, with the specific piece of it allocated to the current year being called the "normal cost". Table 7 contains the calculation of actuarial accrued liability.

TABLE 6

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

PRESENT VALUE OF FUTURE BENEFITS
AS OF JULY 1, 2016

1.	Active employees	
	a. Retirement Benefit	$338,116,298
	b. Withdrawal Benefit	1,718,201
	c. Pre-Retirement Death Benefit	6,775,337
	d. Disability Benefit	25,499,351
	e. Total	$372,109,187
2.	Inactive Vested Members	6,047,077
3.	Disability Retirees	50,023,177
4.	Retirees and Beneficiaries	278,066,266
5.	Total Present Value of Future Benefits (1e) + (2) + (3) + (4)	$706,245,707

TABLE 7

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ACTUARIAL ACCRUED LIABILITY
AS OF JULY 1, 2016

1.	Present Value of Future Benefits for Active Members		
	a. Retirement Benefit	$338,116,298	
	b. Withdrawal Benefit	1,718,201	
	c. Pre-Retirement Death Benefit	6,775,337	
	d. Disability Benefit	25,499,351	
	e. Total		$372,109,187
2.	Present Value of Future Normal Costs		
	a. Retirement Benefit	$ 98,918,524	
	b. Withdrawal Benefit	2,718,145	
	c. Pre-Retirement Death Benefit	6,672,741	
	d. Disability Benefit	19,547,449	
	e. Total		127,856,859
3.	Present Value of Future Benefits for Inactive Members		334,136,520
4.	Total Actuarial Accrued Liability (1e) - (2e) + (3)		$578,388,848

TABLE 8

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM
CALCULATION OF ACTUARIAL GAIN/(LOSS)

The actuarial gain/(loss) is comprised of both the liability gain/(loss) and the actuarial asset gain/(loss). Each of these represents the difference between the expected and actual values as of July 1, 2016.

1.	Expected actuarial accrued liability			
	a.	Actuarial accrued liability at July 1, 2015	$	534,626,780
	b.	Normal cost for year ending June 30, 2016		11,302,664
	c.	Benefit payments for fiscal year ending June 30, 2016		(28,283,554)
	d.	Interest on (a), (b), and (c)		42,564,778
	e.	Assumption changes		23,790,918
	f.	Expected actuarial accrued liability at July 1, 2016	$	584,001,586
2.	Actuarial accrued liability at July 1, 2016		$	578,388,848
3.	Actuarial accrued liability gain/(loss) (1f) - (2)		$	5,612,738
4.	Expected actuarial value of assets			
	a.	Actuarial value of assets at July 1, 2015	$	392,989,970
	b.	Contributions for fiscal year ending June 30, 2016		25,598,997
	c.	Benefit payments and administrative expenses for fiscal year ending June 30, 2016		(28,531,524)
	d.	Interest on (a), (b), and (c)		31,324,153
	e.	Expected actuarial value of assets at July 1, 2016	$	421,381,596
5.	Actuarial value of assets at July 1, 2016		$	426,398,446
6.	Actuarial value of assets gain/(loss) (5) - (4e)		$	5,016,850
7.	Net actuarial gain/(loss) (3) + (6)		$	10,629,588

TABLE 9

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ACTUARIAL BALANCE SHEET
AS OF JULY 1, 2016

ASSETS

Actuarial value of assets	$426,398,446
Present value of future normal costs	127,856,859
Unfunded actuarial accrued liability	151,990,402
Total Net Assets	$706,245,707

LIABILITIES

Present Value of Future Benefits		
Retired Members, Disabled Members and Beneficiaries		$328,089,443
Active Members		
Retirement	$338,116,298	
Withdrawal	1,718,201	
Death	6,775,337	
Disability	25,499,351	
Total		372,109,187
Inactive Vested Members		6,047,077
Total Liabilities		$706,245,707

The previous two sections were devoted to a discussion of the assets and liabilities of the System. A comparison of Tables 4 and 6 indicates that current assets fall short of meeting the present value of future benefits (total liability). This is expected in all but a fully closed down fund, where no further contributions are anticipated.

In an active system, there will almost always be a difference between the actuarial value of assets and total liabilities. This deficiency has to be made up by future contributions and investment returns. An actuarial valuation sets out a schedule of future contributions that will deal with this deficiency in an orderly fashion.

The method used to determine the incidence of the contributions in various years is called the actuarial cost method. Under an actuarial cost method, the contributions required to meet the difference between current assets and current liabilities are allocated each year between two elements: (1) the normal cost, (2) administrative expenses and (3) the payment on the unfunded actuarial accrued liability.

The term "fully funded" is often applied to a system in which contributions at the normal cost rate are sufficient to pay for the benefits of existing employees as well as for those of new employees. More often than not, systems are not fully funded, either because of past benefit improvements that have not been completely funded and/or because of actuarial deficiencies that have occurred because experience has not been as favorable as anticipated. Under these circumstances, an unfunded actuarial accrued liability (UAAL) exists.

Description of Rate Components

Effective with the July 1, 2008 valuation, the actuarial cost method used by the System changed from Aggregate to the traditional Entry Age Normal (EAN) – level percent of pay cost method. Under the EAN cost method, the actuarial present value of each member's projected benefit is allocated on a level basis over the member's compensation between the entry age of the member and the assumed exit ages. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The actuarial present value of benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.

The UAAL is amortized as a level percent of payroll over a closed 30-year period commencing July 1, 2008. Given a stable active workforce, the level percent of payroll amortization method is expected to produce a payment stream that is constant as a percent of covered payroll.

Contribution Rate Summary

The normal cost rate is developed in Table 10. Table 11 develops the contribution rate for amortization of the unfunded actuarial accrued liability. Table 12 develops the total actuarial contribution rate.

TABLE 10

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

NORMAL COST RATE
AS OF JULY 1, 2016

			% of Pay
1.	Normal Cost		
	a. Retirement Benefit	$ 9,401,548	22.19%
	b. Withdrawal Benefit	262,120	0.62%
	c. Pre-Retirement Death Benefit	652,579	1.54%
	d. Disability Benefit	1,843,187	4.35%
	e. Total	$12,159,434	28.70%
2.	Expected Payroll in FY17 for Current Actives	$42,362,420	
3.	Normal Cost Rate [(1e)/(2)]	28.70%	

TABLE 11

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

UNFUNDED ACTUARIAL ACCRUED LIABILITY CONTRIBUTION RATE AS OF JULY 1, 2016

1.	Actuarial Present Value of Future Benefits	$ 706,245,707
2.	Actuarial Present Value of Future Normal Costs	127,856,859
3.	Actuarial Accrued Liability (1) - (2)	$ 578,388,848
4.	Actuarial Value of Assets	426,398,446
5.	Unfunded Actuarial Accrued Liability (UAAL) (3) - (4)	$ 151,990,402
6.	Amortization of UAAL over a closed 30-year period starting July 1, 2008 (assumed mid-year)*, with 22 years remaining	$ 10,820,072
7.	Total Estimated Payroll for Year Ending June 30, 2017	$ 44,775,765
8.	Amortization as a Percent of Payroll	24.17%

*The UAAL is amortized as a level percent of payroll, assuming payroll increases of 3.00% per year.

TABLE 12

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ACTUARIAL CONTRIBUTION RATE
FOR FISCAL YEAR ENDING JUNE 30, 2017

1.	Total Normal Cost Rate	28.70%
2.	Administrative Expenses	0.57%
3.	Amortization of UAAL*	24.17%
4.	Total Actuarial Contribution Rate (1) + (2) + (3)	53.44%
5.	Member Contribution Rate	(11.40%)
6.	State Actuarial Contribution Rate (4) - (5)	42.04%

*Amortization of UAAL is as a level percent of payroll assuming a 3.00% annual increase in payroll.

In the past, Governmental Accounting Standards Board (GASB) Statements No. 25, *Financial Reporting for Defined Benefit Pension Plans*, and Statement No. 27, *Accounting for Pensions by State and Local Governmental Employers*, applied to the preparation of financial reports of pension plans for state and local governments.

GASB 67, which was first effective for the plan year ending June 30, 2014, replaced GASB 25. A separate report that contains all of the information and exhibits of an actuarial nature that are necessary for the System's financial reporting under GASB 67, will be prepared shortly after this funding report is issued.

GASB 68, which replaced GASB 27, first applied to financial reporting by the employer (State of Iowa) for fiscal year 2015. A separate report that contains all of the information and exhibits of an actuarial nature that are necessary for the State's financial reporting under GASB 68 will be prepared shortly after this funding report is issued.

In this section, we have included some exhibits that reflect the historical funding of the System (reflecting some information formerly disclosed under GASB 25) and the expected benefit payments for the next 30 years.

TABLE 13

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (P/R) (c)	UAAL as a Percentage of Covered P/R [(b-a)/(c)]
7/1/2006	$267,813,495	$358,844,655	$ 91,031,160	74.63%	$ 36,231,639	251.25%
7/1/2007	293,374,805	392,022,773	98,647,968	74.84%	37,268,060	264.70%
7/1/2008	307,193,608	417,176,049	109,982,441	73.64%	40,829,801	269.37%
7/1/2009	300,262,337	432,894,495	132,632,158	69.36%	41,862,395	316.83%
7/1/2010	290,558,596	433,402,131	142,843,535	67.04%	41,954,599	340.47%
7/1/2011	288,851,354	461,594,916	172,743,562	62.58%	43,493,715	397.17%
7/1/2012	292,909,884	480,157,072	187,247,188	61.00%	43,902,429	426.51%
7/1/2013	319,441,635	498,468,989	179,027,354	64.08%	43,984,577	407.02%
7/1/2014	360,063,755	515,859,721	155,795,966	69.80%	43,070,315	361.72%
7/1/2015	392,989,970	534,626,780	141,636,810	73.51%	45,128,506	313.85%
7/1/2016	426,398,446	578,388,848	151,990,402	73.72%	44,775,765	339.45%

Note: Results for valuations prior to 2010 were prepared by the prior actuary.

TABLE 14

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Ending	Annual Required Contribution	Actual Employer Contribution	Percentage of ARC Contribution
6/30/2006	$12,231,109	$5,817,819	47.57%
6/30/2007	12,592,216	6,262,951	49.74%
6/30/2008	14,373,922	6,696,538	46.59%
6/30/2009	13,356,536	7,898,356	59.13%
6/30/2010	14,237,049	8,498,523	59.69%
6/30/2011	14,966,571	9,554,014	63.84%
6/30/2012	16,623,087	10,741,204	64.62%
6/30/2013	18,665,412	11,777,661	63.10%
6/30/2014	18,186,973	17,715,097	97.41%
6/30/2015	16,957,075	18,600,759	109.69%
6/30/2016	17,080,573	20,519,243	120.13%

TABLE 15

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

PROJECTED BENEFIT PAYMENTS

Fiscal Year End	Actives at 6/30/2016	Inactives at 6/30/2016	Total
2017	$ 580,000	$28,669,000	$29,249,000
2018	1,584,000	28,901,000	30,485,000
2019	2,937,000	28,941,000	31,878,000
2020	4,557,000	28,938,000	33,495,000
2021	6,312,000	28,917,000	35,229,000
2022	8,215,000	28,893,000	37,108,000
2023	10,099,000	28,759,000	38,858,000
2024	12,093,000	28,580,000	40,673,000
2025	14,324,000	28,378,000	42,702,000
2026	16,840,000	28,137,000	44,977,000
2027	19,880,000	27,850,000	47,730,000
2028	23,056,000	27,497,000	50,553,000
2029	26,396,000	27,134,000	53,530,000
2030	29,978,000	26,654,000	56,632,000
2031	33,710,000	26,169,000	59,879,000
2032	37,238,000	25,599,000	62,837,000
2033	40,146,000	24,980,000	65,126,000
2034	42,832,000	24,283,000	67,115,000
2035	45,346,000	23,555,000	68,901,000
2036	47,762,000	22,760,000	70,522,000
2037	50,720,000	21,940,000	72,660,000
2038	54,250,000	21,081,000	75,331,000
2039	57,836,000	20,166,000	78,002,000
2040	61,182,000	19,228,000	80,410,000
2041	64,071,000	18,243,000	82,314,000
2042	66,812,000	17,228,000	84,040,000
2043	69,408,000	16,195,000	85,603,000
2044	71,724,000	15,171,000	86,895,000
2045	73,813,000	14,124,000	87,937,000
2046	75,594,000	13,082,000	88,676,000

Note: Cash flows are the expected future non-discounted payments to current members. These numbers exclude refund payouts to current nonvested inactives and assume future retirees elect the normal form of payment and future withdrawals elect refunds according to valuation assumptions.

APPENDIX A

SYSTEM MEMBERSHIP

INFORMATION

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

RECONCILIATION OF MEMBER STATUS
FROM JULY 1, 2015 TO JULY 1, 2016

	Active Members	Members & Beneficiaries Receiving Benefits	Former Members with Deferred Benefits	Children Receiving Benefits	Total
Members as of July 1, 2015	589	574	46	1	1,210
Began Receiving Benefits	(17)	26	(3)	0	6
Terminated Without Further Benefit Eligibility	(2)	0	(3)	0	(5)
Terminated With Benefit Eligibility	(7)	0	7	0	0
Returned to Active Status	0	0	0	0	0
Deceased	0	(12)	0	0	(12)
Benefits Ended	0	0	0	(1)	(1)
Newly Hired	0	0	0	0	0
Adjustments	0	0	0	0	0
Members as of July 1, 2016	563	588	47	0	1,198

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

AGE AND SERVICE DISTRIBUTION FOR ACTIVE PARTICIPANTS AS OF JULY 1, 2016

Years of Service

	0 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 & over		Total	
Age	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary
Under 25	14	47,343	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	47,343
25-29	18	53,685	9	59,139	2	62,476	0	0	0	0	0	0	0	0	0	0	29	55,984
30-34	4	54,233	32	62,776	37	68,606	0	0	0	0	0	0	0	0	0	0	73	65,263
35-39	0	0	15	65,642	39	71,612	23	82,508	0	0	0	0	0	0	0	0	77	73,703
40-44	0	0	4	64,790	14	73,295	67	84,023	37	85,968	0	0	0	0	0	0	122	82,751
45-49	0	0	2	64,172	6	72,648	17	83,799	86	89,676	7	88,137	0	0	0	0	118	87,440
50-54	0	0	1	67,011	0	0	4	79,321	35	86,808	54	90,172	8	95,016	1	94,015	103	88,796
55-59	0	0	0	0	0	0	0	0	6	83,753	10	89,940	9	100,058	0	0	25	92,098
60-64	0	0	0	0	0	0	0	0	0	0	2	94,015	0	0	0	0	2	94,015
65-69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70 & over	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	36	51,280	63	63,178	98	70,594	111	83,505	164	88,011	73	90,050	17	97,685	1	94,015	563	79,531

Average Age: 42.3
Average Years of Service: 17.1

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ANALYSIS OF INACTIVE PARTICIPANTS
AS OF JULY 1, 2016

Number of Participants

Age	Service Retirement	Accidental Disability	Ordinary Disability	Vested Retirement	Child Beneficiary	Contingent Beneficiary	Inactive Vested	Total
Under 40	0	0	0	0	0	0	15	15
40 to 44	0	4	0	0	0	0	12	16
45 to 49	0	7	0	0	0	0	10	17
50 to 54	0	8	1	0	0	3	10	22
55 to 59	50	4	0	6	0	5	0	65
60 to 64	52	7	2	2	0	7	0	70
65 to 69	71	12	6	4	0	11	0	104
70 to 74	64	15	1	5	0	22	0	107
75 to 79	47	14	0	7	0	21	0	89
80 to 84	37	7	2	0	0	24	0	70
85 to 89	17	2	0	0	0	22	0	41
90 to 94	11	0	0	0	0	6	0	17
95 to 99	0	0	0	0	0	1	0	1
100 & over	0	0	0	0	0	1	0	1
Totals	349	80	12	24	0	123	47	635

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ANALYSIS OF INACTIVE PARTICIPANTS
AS OF JULY 1, 2016

Average Annual Benefits of Participants

Age	Service Retirement	Accidental Disability	Ordinary Disability	Vested Retirement	Child Beneficiary	Contingent Beneficiary	Inactive Vested
Under 40	0	0	0	0	0	0	10,102
40 to 44	0	40,750	0	0	0	0	16,302
45 to 49	0	45,607	0	0	0	0	16,427
50 to 54	0	48,347	37,921	0	0	33,659	35,515
55 to 59	74,009	57,347	0	24,067	0	39,970	0
60 to 64	71,938	47,595	49,136	24,913	0	33,960	0
65 to 69	67,281	48,642	45,779	12,020	0	25,812	0
70 to 74	58,089	47,969	51,596	9,717	0	24,289	0
75 to 79	49,822	44,995	0	12,540	0	21,793	0
80 to 84	44,990	40,605	34,154	0	0	23,590	0
85 to 89	39,717	43,217	0	0	0	21,230	0
90 to 94	39,496	0	0	0	0	23,371	0
95 to 99	0	0	0	0	0	26,886	0
100 & over	0	0	0	0	0	27,079	0
Totals	60,320	46,693	44,231	15,778	0	24,731	18,438

APPENDIX B

SUMMARY OF PLAN PROVISIONS

Chapter 97A of the Iowa code sets out the benefit provisions of the Iowa Peace Officers' Retirement, Accident and Disability System, which are briefly summarized as follows:

Retirement Benefit

Eligibility Age 55 with 22 years of service.

Average Final Compensation Average of the member's regular compensation, including longevity and per diem, during the high three (3) years of service.

Monthly Annuity The sum of (1) and (2):

(1)
a. For retirement prior to July 1, 1990, 50% of average final compensation at retirement. Average final compensation equals average of highest three years of compensation.

b. For retirement after June 30, 1990 and before July 1, 1992, 54% of average final compensation at retirement.

c. For retirement after June 30, 1992 and before July 1, 1993, 56% of average final compensation at retirement.

d. For retirement after June 30, 1993 and before July 1, 1994, 58% of average final compensation at retirement.

e. For retirement after June 30, 1994, and before July 1, 2000, 60% of average final compensation at retirement.

f. For retirement after July 1, 2000, 60.5% of average final compensation at retirement.

(2) For members who do not withdraw member contributions:

a. For retirement after June 30, 1990 and before July 1, 1991, 0.3% of average final compensation for each year of service over 22 years (up to 8 years). Service after age 55 is excluded.

b. For retirement after June 30, 1991 and before October 16, 1992, 0.6% of average final compensation for each year of service over 22 years (up to 8 years). Service after age 55 is excluded.

c. For retirement after October 15, 1992 and before July 1, 1996, 0.6% of average final compensation for each year of service over 22 years (up to 8 years).

d. For retirement after June 30, 1996, 1.5% of average final compensation for each year of service over 22 years (up to 8 years).

e. For retirement after June 30, 1998, 1.5% of average final compensation for each year of service over 22 years (up to 10 years).

f. For retirement after June 30, 2000, 2.75% of average final compensation for each year of service over 22 years (up to 10 years).

Early Retirement Benefit

Eligibility Effective July 1, 1996, age 50 (but not age 55) with 22 years of service.

Monthly Annuity The benefit provided as a retirement benefit actuarially reduced for commencement prior to age 55.

Deferred Vested Benefit

Eligibility Four years of service.

Monthly Annuity At age 55. The benefit provided as a retirement benefit at termination times a service ratio. The service ratio equals service at termination divided by 22 (not greater than 1.0).

Ordinary Disability Benefit

Eligibility None.

Benefit

(1) If service at disability is greater than or equal to 5 years, the greater of 50% of average final compensation at disability or the benefit amount calculated under a service retirement.

(2) If service at disability is less than 5 years, 25% of average final compensation at disability.

Accidental Disability Benefit

Eligibility None.

Benefit

(1) For retirement prior to July 1, 1990, 66-2/3% of average final compensation at disability.

(2) For retirement after June 30, 1990, but before July 1, 1998, 60% of average final compensation at disability. If the service amount at disability is greater than or equal to 22 years, the greater of 60% of average final compensation at disability or the benefit amount calculated under a service retirement.

(3) For retirement after July 1, 1998, the greater of 60% of average final compensation at disability or the benefit amount calculated under a service retirement.

Ordinary Death Benefit

Eligibility For member in service: None.
For member not in service: Four years of service.

Benefit

(1) A lump sum equal to 50% of compensation during the last year of employment, or

(2) A pension based on 40% of average final compensation but not less than 25% of compensation paid to an active member having the rank of senior patrol officer of the state patrol. For members not in service, benefit is multiplied by the ratio of service at termination to 22 years (not greater than 1.0).

(3) Additional benefit for members in service of 6% of compensation payable to an active member having the rank of senior patrol officer of the state patrol for each child.

Payment Date

(1) For members in service: Immediately upon death of member.

(2) For member not in service: Payable when member would have been age 55. If there are children of the member, payable commencing at the member's death until children reach age 18 or 22. Pension resumes when member would have been age 55.

Accidental Death Benefit

Eligibility

In actual performance of duty.

Benefit

(1) 50% of average final compensation payable to surviving spouse, children or dependent parents.

(2) If there is not surviving spouse, children or dependent parents, or if accidental death occurs while not in the actual performance of duty, an Ordinary Death Benefit is payable.

(3) Additional benefit for members in service of 6% of compensation payable to an active member having the rank of senior patrol officer of the state patrol, for each child.

(4) If the death meets specified criteria, a lump sum of $100,000 payable to surviving spouse, children, dependent parents, or estate.

Death After Retirement

Benefit

(1) 50% of retirement allowance of retired member but not less than 25% of compensation paid to an active member having the rank of senior patrol officer of the state patrol.

(2) Additional benefit of 6% of compensation payable to an active member having the rank of senior patrol officer of the state patrol, for each child.

Adjustments to Pensions

Each July 1 and January 1, if applicable, the following adjustments are made: Monthly earnable compensation payable to an active member, of the same rank and position in the salary scale as was held by the retired or deceased member at the time of the member's retirement or death, for July of the current year less that of the preceding July, times the following percentages:

(1) 40% for members receiving a service retirement allowance and for beneficiaries receiving an accidental death benefit.

(2) 40% for members with five or more years of membership who are receiving an ordinary disability benefit.

(3) 40% for member receiving an accidental disability benefit.

(4) 24% for members with less than five years of membership who are receiving an ordinary disability benefit and for beneficiaries receiving an ordinary death benefit.

(5) 50% of the amount which would have been added to the benefit of the retired member, for surviving spouses, but not less than 25% of the monthly earnable compensation paid to an active member having the rank of senior patrol officer.

Additionally, the following amounts will be added to a member or beneficiary monthly pension as follows:

Years Since Retired*	Amount
0-4	$15
5-9	20
10-14	25
15-19	30
20 or more	35

*Measured in whole years.

There was a change in the way the flat escalator was applied effective July 1, 2010. Prior to 2010, the amount increased for each year after retirement.

Surviving children's pensions are adjusted each July to equal 6% of monthly earnable compensation payable to an active member having the rank of senior patrol officer of the state patrol.

No pension adjustments are granted to members who retired with less than 22 years of membership.

State Contributions

The State will contribute 35% of pay in FY2017. This will increase by 2% to an ultimate contribution rate of 37% in FY2018. It also provides for a supplemental State appropriation of $5 million per year beginning July 1, 2013 (originally July 1, 2012 but extended by the 2012 legislature) and ending June 30 of the fiscal year during which the System's funded ratio is at least 85%. For FY 2017, the supplemental contribution has been reduced to $2.5 million, but is expected to return to $5.0 million for FY 2018 and thereafter.

Member Contributions

The following percentage of earnable compensation will be paid as member contributions:

Period	Member Contribution Rate
January 1, 1995 - June 30, 1995	8.35%
July 1, 1995 – June 20, 2011	9.35%
July 1, 2011 – June 30, 2012	9.85%
July 1, 2012 – June 30, 2013	10.35%
July 1, 2013 – June 30, 2014	10.85%
July 1, 2014 forward	11.40%

Withdrawal of Member Contributions

Effective July 1, 1990, members who terminate service, other than by death or disability, can elect to withdraw their accumulated contributions with interest in lieu of any benefits to which the member may be entitled from the System.

Transfers With Statewide Fire and Police Retirement System

Beginning July 1, 1996, vested members of an eligible retirement system who terminate employment and, within one year, commences covered employment under another eligible retirement system, may elect to transfer the average accrued benefit or the refund liability earned from the former system to the current system. Once such transfer is completed, service under the former system shall be treated as membership service under the current system.

APPENDIX C

ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Cost Method

Liabilities and contributions shown in this report are computed using the Individual Entry Age method of funding.

Sometimes called "funding method," this is a particular technique used by actuaries for establishing the amount of the annual actuarial cost of pension System benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily the annual contribution to the System is comprised of (1) the normal cost and (2) an amortization payment on the unfunded actuarial accrued liability.

Under the Entry Age Actuarial Cost Method, the **Normal Cost** is computed as the level percentage of pay which, if paid from the earliest time each member would have been eligible to join the System if it then existed (thus, entry age) until his retirement or termination, would accumulate with interest at the rate assumed in the valuation to a fund sufficient to pay all benefits under the System.

The **Actuarial Accrued Liability** under this method at any point in time is the theoretical amount of the fund that would have accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The **Unfunded Actuarial Accrued Liability (UAAL)** is the excess of the actuarial accrued liability over the actuarial value of System assets on the valuation date.

Under this method experience gains or losses, i.e. decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

UAAL Amortization Method

The Board has elected to amortize the unfunded actuarial accrued liability, as a level percent of payroll, over a closed 30-year period beginning July 1, 2008.

Asset Valuation Method

The System uses an asset valuation method to smooth the effects of market fluctuations. The actuarial value of assets spreads the difference between the actual return and the expected return (based on the actuarial assumption of 7.5%, effective July 1, 2016) evenly over four years.

Actuarial Assumptions

Investment Return: 7.50% per year.

Price Inflation: 2.75% per year.

Payroll Growth: 3.00% per year, including price inflation.

Active Members:

1. Ordinary death rate — RP-2000 Mortality Table for Employees with Generational Projection, using Scale AA.

2. Accidental death rate — 8.5 deaths per 10,000 exposed for one year.

3. Disability rates

Age	Accidental Disability	Ordinary Disability
22	0.16%	0.07%
27	0.18%	0.08%
32	0.23%	0.10%
37	0.28%	0.12%
42	0.34%	0.14%
47	0.42%	0.18%
52	0.54%	0.23%

4. Withdrawal rate — The following table is used:

Service	Rate
0	5.0%
1-2	3.5%
3	3.0%
4	2.5%
5	2.0%
6	1.5%
7-14	1.0%
15-19	0.5%
20	0.0%

5. Retirement age

30 or More Years of Service

Age	Probability of Retirement
55-61	60%
62	100%

Less than 30 Years of Service

Age	Probability of Retirement
55-59	30%
60-61	50%
62	100%

Inactive vested members are assumed to begin receiving benefits at age 55.

6. Salary scale

Year	Increase
1	7.00%
5	7.00%
10	7.00%
15	6.25%
20	5.00%
25+	4.00%

7. Post-retirement adjustments — Same as for retired members.

Retired Members and Other Beneficiaries:

1. Mortality rate - Service retirees — Service retirements and beneficiaries: RP-2000 Mortality Table for Healthy Annuitants with Generational Projection using Scale AA - Male and Female.

2. Mortality rate - Disabled retirees — Disability retirements: RP-2000 Mortality Table for Healthy Annuitants with Generational Projection, using Scale AA, and a 5 year age set forward.

3. Annual readjustment of pensions — Wages for the same rank are assumed to increase 3.50%.

Dependency Ratios:

1. Ordinary death benefit	Alternate benefits payable to widow and minor children in 90% of cases.
2. Pension to spouse and children of deceased pensioned member	In 90% of cases, with 1 child per member.
Interest Credited to Member Contributions:	4.00% per year.
Marriage Assumption:	90% married, with males 4 years older than females.
Administrative Expenses:	Based on actual amount for the prior year increased with inflation.

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM CERTIFICATION

We have prepared an actuarial valuation of the Iowa Peace Officers' Retirement, Accident and Disability System as of July 1, 2016, for the fiscal year ending June 30, 2017. The results of the valuation are set forth in this addendum, which reflects the benefit provisions in effect on July 1, 2016.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete, or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

The results in this Addendum have been prepared for the sole purpose of providing the information required under Chapter 97 D.5 of the Iowa code. Calculations are based on the following prescribed methods:

Actuarial cost method: Entry Age Normal
Amortization method: Level percent of payroll
Amortization period: 30 years, open period

All other assumptions, methodologies, and System provisions used are consistent with those used in the regular July 1, 2016 valuation for the Iowa Peace Officers' Retirement, Accident and Disability System.

The results shown in this Addendum may not be consistent with those in the regular July 1, 2016 valuation. The July 1, 2016 valuation results were determined in accordance with generally accepted actuarial principles and practices that are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying opinion and supporting recommendations of the American Academy of Actuaries. The results shown in this Addendum are not necessarily based on the methodologies adopted by the System.

We are available to answer any questions on the material contained in this report, or to provide explanations or further details as may be appropriate.

The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Patrice Beckham

Patrice A. Beckham, FSA, EA, FCA, MAAA

October 12, 2016
Date

Brent A. Banister

Brent A. Banister, PhD, FSA, EA, FCA, MAAA

October 12, 2016
Date

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

SUMMARY OF VALUATION RESULTS UNDER PRESCRIBED METHODOLOGY

This addendum report has been prepared to present the results of a valuation of the Iowa Peace Officers' Retirement, Accident and Disability System as of July 1, 2016, based on the prescribed methodology under current statutes and regulations issued thereunder.

The unfunded actuarial accrued liability has been amortized as a level percent of payroll over 30 years. The payroll growth assumption used was 3.00%.

A summary of principal valuation results from the current and the prior valuation follows.

	Actuarial Valuation as of	
	July 1, 2016	**July 1, 2015**
Summary of Costs		
Normal cost	28.70%	26.43%
Administrative Expenses	0.57%	N/A
UAAL amortization	20.38%	18.33%
Total	49.65%	44.76%
Less Employee Contribution Rate	(11.40%)	(11.40%)
State Required Contribution	38.25%	33.36%
Funded Status		
Actuarial accrued liability	$578,388,848	$534,626,780
Actuarial value of assets	426,398,446	392,989,970
Unfunded actuarial accrued liability	$151,990,402	$141,636,810
Funded Ratio	73.72%	73.51%
Asset Values		
Market value of assets (MVA)	$403,084,512	$410,598,719
Actuarial value of assets (AVA)	426,398,446	392,989,970
MVA/AVA	94.53%	104.48%