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STATE OF IOWA
PEACE OFFICERS'
RETIREMENT, ACCIDENT AND
DISABILITY SYSTEM

Actuarial Valuation Report
as of July 1, 2015

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Cavanaugh Macdonald
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October 6, 2015

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, 2015. The purpose of this report is to provide: (1) a summary of the funded status of the System as of July 1, 2015 and (2) determine the normal contribution rate as defined in Iowa Code Chapter 97A.8. There have been no changes to the plan provisions or actuarial assumptions and methods since last year's valuation.

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. 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.

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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

Purpose of the Report

This report presents the results of the July 1, 2015 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 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.

The valuation results provide a "snapshot" view of the System's financial condition on July 1, 2015. The unfunded actuarial accrued liability (UAAL) decreased from $156 million on July 1, 2014 to $142 million on July 1, 2015, indicating overall favorable experience for FY 2015. 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 which is more favorable than anticipated, based on actuarial assumptions, will generally lower the UAAL and the actuarial contribution rate and experience less favorable than expected will generally increase the UAAL and the actuarial contribution rate. The State's actuarial contribution rate decreased from 38.65% in last year's valuation to 36.32% this year, based on a member contribution rate of 11.40% for FY 2016. The State's actuarial contribution rate exceeds the fixed payroll-related contribution rate for FY 2016 of 33.00% by 3.32%. However, when the State's supplemental contribution of $5 million for FY 2016 is included in the analysis, the contribution shortfall is eliminated and the expected contributions exceed the actuarial contribution rate for the year.

Several factors impacted the actuarial contribution rate from last valuation:

- The rate of return on the market value of assets was 5.5%, which is lower than the assumed rate of return of 8%. However, due to the use of an asset smoothing method, only part of the actuarial loss on assets for this year was recognized in this valuation. Coupled with the recognition of favorable investment experience from prior years, the rate of return on the actuarial value of assets was 10%. This produced an actuarial gain on assets that decreased the UAAL by $8 million and the actuarial contribution rate by 1.09% of pay. The market value of assets continues to be greater than the actuarial (smoothed) value of assets although the difference between the two is smaller than last year.

- Actual contributions above the full actuarial contribution rate for FY 2015 resulted in a small decrease in the UAAL of $1.8 million and decreased the actuarial contribution rate by 0.26% 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 nearly $7 million and the actuarial contribution rate declined by 0.96% of pay.

The State's contribution rate has been lower than the actuarial contribution rate for more than ten years, which has, in most years, resulted in an increase in the UAAL and the actuarial contribution rate. With the changes passed by the 2010 legislature, the statutory contribution rate for the State increases 2% per year until it reaches a maximum of 37% of pay in fiscal year 2018. In addition, the State is scheduled to make supplemental contributions of $5 million per year beginning July 1, 2013 (changed from 2012 following the passage of HF 2465 in the 2012 legislative session). This supplemental contribution is an important component of strengthening PORS' long-term funding, as it represents an additional funding source of approximately 11% of payroll. These prior and future changes in the State's contribution rate are expected to improve the System's long-term funding. If all assumptions are met in the future, the System should attain a funded ratio of 100% within the next 20 years.

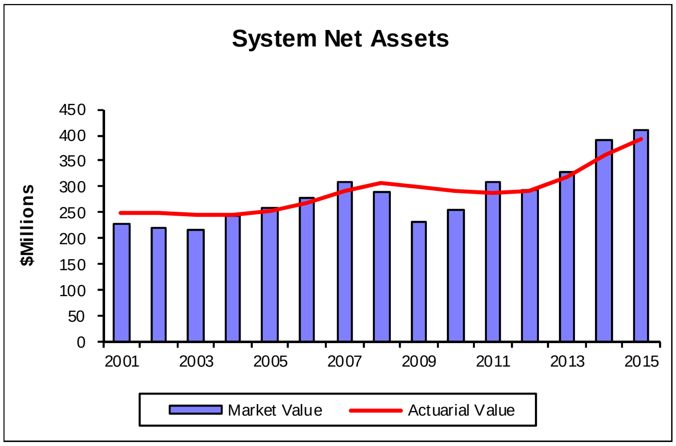
Assets

As of July 1, 2015, the System had total funds, measured on a market value basis, of $410,598,719. This was an increase of $18,403,759 from last year's market value of $392,194,960. 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 of 8%) 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:

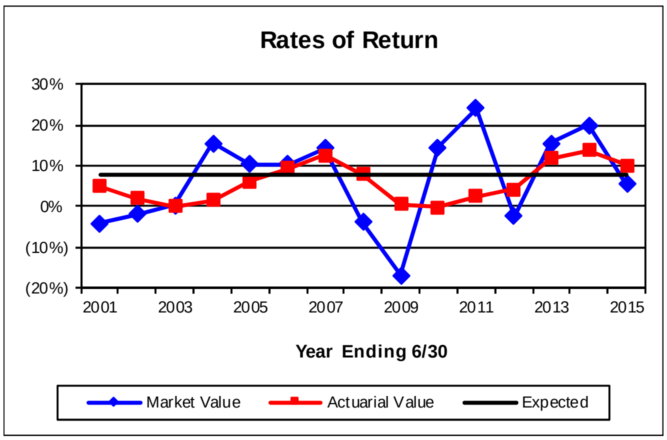
	Market Value	Actuarial Value
Net Assets, July 1, 2014	$392,194,960	$360,063,755
• Employer and Member Contributions	23,592,219	23,592,219
• Benefit Payments	(26,692,954)	(26,692,954)
• Administrative Expenses	(217,129)	(217,129)
• Investment Income	21,721,623	36,244,079
Net Assets, July 1, 2015	$410,598,719	$392,989,970

The dollar weighted rate of return measured on the market value of assets, net of expenses, was 5.5%. Measured on the actuarial value of assets, the rate of return was 10.0% which resulted in an actuarial gain of $8 million.

The market value of assets is currently about $18 million, or 4%, greater than the actuarial value of assets. Absent investment returns below 8%, this deferred asset gain will be recognized over the next two years, resulting in some decrease in the actuarial contribution rate.



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 earned 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, 2015 is as follows:

Actuarial Accrued Liability	$534,626,780
Actuarial Value of Assets	392,989,970
Unfunded Actuarial Accrued Liability	$141,636,810

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 2015). There was a $7.6 million experience gain on the actuarial value of assets and a $6.6 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 total result of all experience was a decrease of $14.2 million in the UAAL.

Between July 1, 2014 and July 1, 2015 the change in the unfunded actuarial accrued liability for the System was as follows (in millions):

	$ millions
Unfunded Actuarial Accrued Liability, July 1, 2014	$155.8
• effect of contributions above the actuarial rate	(1.8)
• expected increase due to amortization method	1.8
• investment experience	(7.6)
• liability experience*	(6.6)
• other experience	0.0
Unfunded Actuarial Accrued Liability, July 1, 2015	$141.6

* Liability gain is about 1.2% 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).

	7/1/2011	7/1/2012	7/1/2013	7/1/2014	7/1/2015
Using Actuarial Value of Assets:					
Funded Ratio	62.6%	61.0%	64.1%	69.8%	73.5%
Unfunded Actuarial Accrued Liability (UAAL)	$173	$187	$179	$156	$142
Using Market Value of Assets:					
Funded Ratio	66.9%	61.0%	66.2%	76.0%	76.8%
Unfunded Actuarial Accrued Liability (UAAL)	$153	$187	$169	$124	$124

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; and
- an "unfunded actuarial accrued liability contribution" for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets.

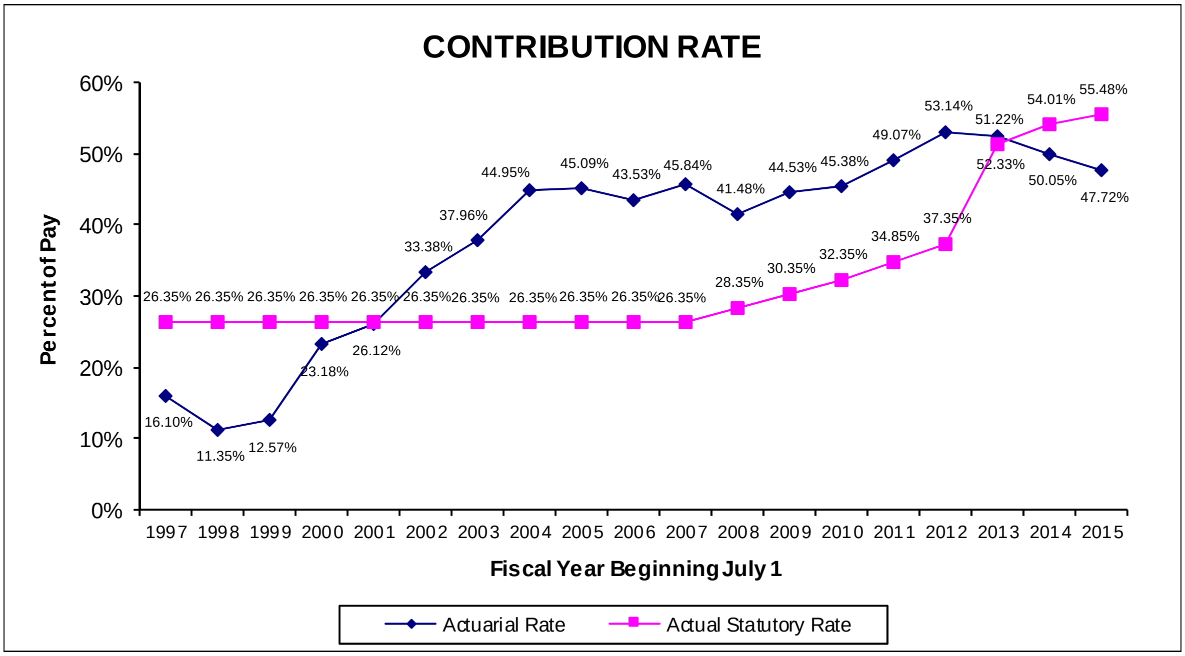
The Board has elected to amortize the unfunded actuarial accrued liability, as a level percent of payroll, over a closed 30-year period beginning July 1, 2008. Twenty-three (23) years remain as of July 1, 2015.

The total contribution rate for the Plan Year beginning July 1, 2015 is 47.72% of covered payroll. Based on the member contribution rate of 11.40% for FY 2016, the State's portion of the actuarial contribution rate is 36.32%. The sources of change are shown in the following table:

	Plan Year Beginning	
	July 1, 2015	**July 1, 2014**
Prior year total contribution rate	50.05%	52.33%
• change due to asset (gains)/losses	(1.09%)	(2.71%)
• change due to liability experience	(0.96%)	(1.10%)
• change due to other actuarial experience	(0.32%)	1.40%
• change due to new plan provisions	0.00%	0.04%
• change due to actual contribution rate (above)/below the actuarial rate	(0.26%)	0.07%
• change in normal cost rate	0.30%	0.02%
Current year total actuarial contribution rate	47.72%	50.05%
Members' contribution rate	(11.40%)	(11.40%)
State's actuarial contribution rate	36.32%	38.65%

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% of pay for many years, but began increasing 2% per year commencing July 1, 2008. In 2010, the Legislature passed a bill that continues the 2% annual increase with an ultimate contribution rate of 37% in FY 2018. 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%. Current projections estimate that the supplemental contributions will be needed for six more years if all actuarial assumptions are met in the future. The State's statutory fixed contribution rate for FY 2016 is 33%. The change in the State's contribution, including the supplemental contributions, along with the increases that have occurred in 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 eliminated and the scheduled contribution rate has exceeded the actuarial contribution rate in the last two valuations. Coupled with favorable investment returns in recent years, the System's funded status has begun to improve. The additional increases to the State contribution rate along with the $5 million supplemental contribution are expected to help continue the positive trend for the System's funded status, absent adverse experience in future years.

Summary

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 current contribution rate exceeds the actuarial contribution rate, indicating that the System is somewhat ahead of the scheduled target to achieve full funding. The State's contribution rate is scheduled to increase 2% for each of the next two years, reaching an ultimate rate of 37% in FY 2018. In addition, the State makes a supplemental contribution of $5 million to the System 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 outlook for the System and are expected to move the System toward fully funded status over the next 20 years, if all actuarial assumptions are met.

The State's actuarial contribution rate for FY 2015 was 38.65%, but the statutory contribution rate was only 31% of covered payroll. The $5 million supplemental contribution by the State for FY 2015 represents over 11% of payroll so the total expected contribution for FY 2015 was 42.61%. This resulted in contributions in excess of the actuarial contribution rate of 3.96% of payroll or $1.8 million. These contributions will 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 $5 million supplemental contribution will more than offset the shortfall between the actuarial contribution rate and the fixed State contribution of 33% of payroll for FY 2016.

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%. 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, 2015 and July 1, 2014 are presented on the following page. More detail on each of these elements can be found in the following Sections of this report.

SUMMARY OF PRINCIPAL RESULTS
IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

	July 1, 2015 Valuation	July 1, 2014 Valuation	% Change
PARTICIPANT DATA			
Number of			
Active Members	589	578	1.9
Retirees/Beneficiaries/Disabled Members	575	568	1.2
Inactive Vested Members	46	48	(4.2)
Total Members	1,210	1,194	1.3
Projected Annual Salaries of Active Members	$ 45,128,506	$ 43,070,315	4.8
Average Annual Salary	$ 76,619	$ 74,516	2.8
Average Annual Benefit for Retired Members, Disabled Members and Beneficiaries	$ 47,769	$ 46,518	2.7
ASSETS AND LIABILITIES			
Total Actuarial Accrued Liability	$534,626,780	$515,859,721	3.6
Actuarial Value of Assets	392,989,970	360,063,755	9.1
Unfunded Actuarial Accrued Liability	141,636,810	155,795,966	(9.1)
Funded Ratio (Actuarial Value of Assets)	73.5%	69.8%	5.3
Market Value of Assets	410,598,719	392,194,960	4.7
Funded Ratio (Market Value of Assets)	76.8%	76.0%	1.1
CONTRIBUTION RATES			
Normal Cost Rate	26.43%	26.13%	1.1
Amortization of Unfunded Actuarial Accrued Liability (Level Percent of Payroll)	21.29%	23.92%	(11.0)
Actuarial Required Contribution Rate	47.72%	50.05%	(4.7)
Member Contribution Rate	(11.40%)	(11.40%)	0.0
Employer Actuarial Required Contribution Rate	36.32%	38.65%	(6.0)
Statutory State Fixed Contribution Rate	(33.00%)	(31.00%)	6.5
State Supplemental Contribution*	(11.08%)	(11.61%)	(4.6)
Contribution Shortfall	(7.76%)	(3.96%)	96.0

* The supplemental contribution is $5 million annually until the System is at least 85% funded.

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, 2015. 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, 2015 the market value of assets for the Retirement System was $410,598,719. Table 1 is a comparison, at market values, of System assets as of July 1, 2014 and July 1, 2015, in total and by investment category. Table 2 summarizes the change in the market value of assets from July 1, 2014 to July 1, 2015.

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, 2015		July 1, 2014	
	Amount	**% of Total**	**Amount**	**% of Total**
Pooled Cash	$ 9,168,382	2.1 %	$ 22,029,247	5.3 %
Receivables	2,663,631	0.6	2,771,313	0.7
Common Stocks	264,930,555	62.0	255,047,472	61.7
Securities on Loan	13,148,873	3.1	11,341,289	2.7
Bonds	93,780,951	21.9	83,968,539	20.3
Real Estate	43,820,150	10.3	38,352,403	9.3
Subtotal	$427,512,542	100.0 %	$413,510,263	100.0 %
Payables	(16,913,823)		(21,315,303)	
NET ASSETS	$410,598,719		$392,194,960	

TABLE 2

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

SUMMARY OF FUND ACTIVITY
(Market Value)

1.	**NET ASSETS ON JULY 1, 2014**	**$ 392,194,960**
2.	**CONTRIBUTIONS**	
	a. Member Contributions	4,991,460
	b. Employer Contributions	18,600,759
	c. Lump Sum Contributions	0
	d. Total Contributions	**$ 23,592,219**
3.	**BENEFIT PAYMENTS**	26,692,954
4.	**ADMINISTRATIVE EXPENSE**	217,129
5.	**INVESTMENT INCOME**	21,721,623
6.	**NET ASSETS ON JULY 1, 2015** **(1) + (2d) - (3) - (4) + (5)**	**$ 410,598,719**

TABLE 3

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

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

		Plan Year Ending			
		2015	**2014**	**2013**	**2012**
1.	Market value of assets, beginning of year	$392,194,960	$329,920,144	$292,823,296	$308,607,733
2.	Contributions during year				
	a. Member	4,991,460	4,754,916	4,512,096	4,329,921
	b. Employer	18,600,759	17,715,097	11,777,661	10,741,204
	c. Lump sum payments	0	0	0	0
	d. Total	23,592,219	22,470,013	16,289,757	15,071,125
3.	Benefits paid during year	26,692,954	25,432,467	24,076,895	23,337,833
4.	Expected net investment income at 8%				
	a. Market value of assets, beginning of year	31,375,597	26,393,612	23,425,864	24,688,619
	b. Contributions	925,534	881,509	639,055	591,248
	c. Benefits	(1,047,178)	(997,728)	(944,548)	(915,554)
	d. Total	31,253,953	26,277,393	23,120,371	24,364,313
5.	Expected Value of Assets (1) + (2d) - (3) + (4d)	420,348,178	353,235,083	308,156,529	324,705,338
6.	Market value of assets, end of year	410,598,719	392,194,960	329,920,144	292,823,296
7.	Excess (shortfall) of investment income for Year (6) - (5)	(9,749,459)	38,959,877	21,763,615	(31,882,042)

TABLE 4

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

	Plan Year Ending June 30	
	2015	**2014**
Item		
1. Excess (Shortfall) of investment income for current and previous 2 years		
a. Current year	$ (9,749,459)	$ 38,959,877
b. One year ago	38,959,877	21,763,615
c. Two years ago	21,763,615	(31,882,042)
2. Deferral of excess (shortfall) of investment income		
a. Current year (75%)	(7,312,094)	29,219,908
b. One year ago (50%)	19,479,939	10,881,808
c. Two years ago (25%)	5,440,904	(7,970,511)
d. Total	17,608,749	32,131,205
3. Market value of plan net assets, end of year	410,598,719	392,194,960
4. Actuarial value of plan assets, end of year (3) - (2d)	$392,989,970	$360,063,755
5. Actuarial value divided by market value	95.7%	91.8%

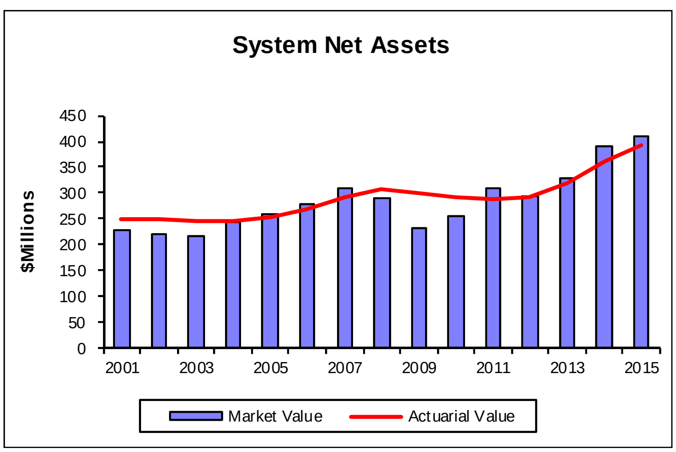
TABLE 5

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-01	227,402,298	(4.2%)	$249,226,895	4.9%
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%

* 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, 2015. 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 prepared in 2012. This set of assumptions, as adopted by the Board, is shown in Appendix C and was first used in the 2012 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, 2015

1.	Active employees	
	a. Retirement Benefit	$311,260,499
	b. Withdrawal Benefit	1,599,083
	c. Pre-Retirement Death Benefit	6,603,265
	d. Disability Benefit	24,681,581
	e. Total	$344,144,428
2.	Inactive Vested Members	5,409,143
3.	Disability Retirees	47,091,224
4.	Retirees and Beneficiaries	258,499,293
5.	Total Present Value of Future Benefits (1e) + (2) + (3) + (4)	$655,144,088

TABLE 7

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ACTUARIAL ACCRUED LIABILITY
AS OF JULY 1, 2015

1.	Present Value of Future Benefits			
	a.	Retirement Benefit	$311,260,499	
	b.	Withdrawal Benefit	1,599,083	
	c.	Pre-Retirement Death Benefit	6,603,265	
	d.	Disability Benefit	24,681,581	
	e.	Total		$344,144,428
2.	Present Value of Future Normal Costs			
	a.	Retirement Benefit	$ 93,013,899	
	b.	Withdrawal Benefit	2,100,718	
	c.	Pre-Retirement Death Benefit	6,467,392	
	d.	Disability Benefit	18,935,299	
	e.	Total		120,517,308
3.	Present Value of Future Benefits for Inactive Members			310,999,660
4.	Total Actuarial Accrued Liability (1e) - (2e) + (3)			$534,626,780

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, 2015.

1.	Expected actuarial accrued liability			
	a.	Actuarial accrued liability at July 1, 2014	$	515,859,721
	b.	Normal cost for year ending June 30, 2015		10,969,452
	c.	Benefit payments for fiscal year ending June 30, 2015		(26,692,954)
	d.	Interest on (a), (b), and (c)		41,099,156
	e.	Expected actuarial accrued liability at July 1, 2015 (a) + (b) + (c) + (d)	$	541,235,375
2.	Actuarial accrued liability at July 1, 2015		$	534,626,780
3.	Actuarial accrued liability gain/(loss) (1e) - (2)		$	6,608,595
4.	Expected actuarial value of assets			
	a.	Actuarial value of assets at July 1, 2014	$	360,063,755
	b.	Contributions for fiscal year ending June 30, 2015		23,592,219
	c.	Benefit payments and administrative expenses for fiscal year ending June 30, 2015		(26,910,083)
	d.	Interest on (a), (b), and (c)		28,674,939
	e.	Expected actuarial value of assets at July 1, 2015 (a) + (b) + (c) + (d)	$	385,420,830
5.	Actuarial value of assets at July 1, 2015		$	392,989,970
6.	Actuarial value of assets gain/(loss) (5) - (4e)		$	7,569,140
7.	Net actuarial gain/(loss) (3) + (6)		$	14,177,735

TABLE 9

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ACTUARIAL BALANCE SHEET
AS OF JULY 1, 2015

ASSETS

Actuarial value of assets	$392,989,970
Present value of future normal costs	120,517,308
Unfunded actuarial accrued liability	141,636,810
Total Net Assets	$655,144,088

LIABILITIES

Present Value of Future Benefits		
Retired Members, Disabled Members and Beneficiaries		$305,590,517
Active Members		
Retirement	$311,260,499	
Withdrawal	1,599,083	
Death	6,603,265	
Disability	24,681,581	
Total		344,144,428
Inactive Vested Members		5,409,143
Total Liabilities		$655,144,088

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 and (2) 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, 2015

1.	Normal Cost		% of Pay
	a. Retirement Benefit	$ 8,718,765	20.38%
	b. Withdrawal Benefit	198,921	0.47%
	c. Pre-Retirement Death Benefit	624,785	1.46%
	d. Disability Benefit	1,760,193	4.12%
	e. Total	$11,302,664	26.43%
2.	Expected Payroll in FY16 for Current Actives	$42,767,091	
3.	Normal Cost Rate [(1e)/(2)]	26.43%	

TABLE 11

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

UNFUNDED ACTUARIAL ACCRUED LIABILITY CONTRIBUTION RATE AS OF JULY 1, 2015

1.	Actuarial Present Value of Future Benefits	$ 655,144,088
2.	Actuarial Present Value of Future Normal Costs	120,517,308
3.	Actuarial Accrued Liability (1) -(2)	$ 534,626,780
4.	Actuarial Value of Assets	392,989,970
5.	Unfunded Actuarial Accrued Liability (UAAL) (3) - (4)	$ 141,636,810
6.	Amortization of UAAL over a closed 30-year period starting July 1, 2008 (assumed mid-year)*, with 23 years remaining	$ 9,608,613
7.	Total Estimated Payroll for Year Ending June 30, 2016	$ 45,128,506
8.	Amortization as a Percent of Payroll	21.29%

*The UAAL is amortized as a level percent of payroll, assuming payroll increases of 3.75% per year.

TABLE 12

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ACTUARIAL CONTRIBUTION RATE
FOR FISCAL YEAR ENDING JUNE 30, 2016

1.	Total Normal Cost Rate	26.43%
2.	Amortization of UAAL*	21.29%
3.	Total Actuarial Contribution Rate (1) + (2)	47.72%
4.	Member Contribution Rate	(11.40%)
5.	State Actuarial Contribution Rate (3) - (4)	36.32%

*Amortization of UAAL is as a level percent of payroll assuming a 3.75% 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, applies 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

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)]
7/1/2009	$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%

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

TABLE 14

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year Ending	Annual Required Contribution	Percentage of ARC Contribution
6/30/2005	$11,577,021	47.01%
6/30/2006	11,914,592	48.83%
6/30/2007	12,383,974	50.57%
6/30/2008	13,599,115	49.24%
6/30/2009	13,118,615	60.21%
6/30/2010	14,727,191	57.71%
6/30/2011	15,116,242	63.20%
6/30/2012	16,826,611	63.83%
6/30/2013	18,785,849	62.69%
6/30/2014	18,244,803	97.10%
6/30/2015	16,646,677	111.74%

Note: Results before July 1, 2010 were calculated by the prior actuary

TABLE 15

PROJECTED BENEFIT PAYMENTS

Fiscal Year End	Actives at 6/30/2015	Inactives at 6/30/2015	Total
2016	$ 445,000	$ 27,417,000	$ 27,862,000
2017	1,428,000	27,564,000	28,992,000
2018	2,591,000	27,821,000	30,412,000
2019	4,076,000	27,885,000	31,961,000
2020	5,792,000	27,906,000	33,698,000
2021	7,659,000	27,908,000	35,567,000
2022	9,692,000	27,919,000	37,611,000
2023	11,710,000	27,805,000	39,515,000
2024	13,835,000	27,644,000	41,479,000
2025	16,193,000	27,458,000	43,651,000
2026	18,842,000	27,230,000	46,072,000
2027	22,069,000	26,954,000	49,023,000
2028	25,490,000	26,608,000	52,098,000
2029	29,105,000	26,249,000	55,354,000
2030	32,948,000	25,769,000	58,717,000
2031	36,956,000	25,224,000	62,180,000
2032	40,760,000	24,655,000	65,415,000
2033	43,913,000	24,009,000	67,922,000
2034	46,828,000	23,296,000	70,124,000
2035	49,549,000	22,550,000	72,099,000
2036	52,169,000	21,734,000	73,903,000
2037	55,350,000	20,891,000	76,241,000
2038	59,162,000	19,994,000	79,156,000
2039	63,051,000	19,057,000	82,108,000
2040	66,714,000	18,087,000	84,801,000
2041	69,908,000	17,082,000	86,990,000
2042	72,905,000	16,051,000	88,956,000
2043	75,752,000	15,007,000	90,759,000
2044	78,404,000	13,959,000	92,363,000
2045	80,841,000	12,912,000	93,753,000

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, 2014 to July 1, 2015

	Active Members	Members & Beneficiaries Receiving Benefits	Former Members with Deferred Benefits	Children Receiving Benefits	Total
Members as of July 1, 2014	578	566	48	2	1,194
Began Receiving Benefits	(12)	17	0	0	5
Terminated Without Further Benefit Eligibility	0	0	(2)	0	(2)
Terminated With Benefit Eligibility	0	0	0	0	0
Returned to Active Status	0	0	0	0	0
Deceased	0	(9)	0	0	(9)
Benefits Ended	0	0	0	(1)	(1)
Newly Hired	23	0	0	0	23
Adjustments	0	0	0	0	0
Members as of July 1, 2015	589	574	46	1	1,210

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

AGE AND SERVICE DISTRIBUTION AS OF JULY 1, 2015 FOR ACTIVE PARTICIPANTS

Males and Females

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	17	44,770	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	44,770
25-29	27	50,851	15	58,642	0	0	0	0	0	0	0	0	0	0	0	0	42	53,634
30-34	6	57,030	61	63,022	12	67,496	1	75,640	0	0	0	0	0	0	0	0	80	63,401
35-39	3	55,638	28	64,533	19	73,950	22	78,396	1	85,736	0	0	0	0	0	0	73	71,087
40-44	0	0	13	65,208	11	74,744	78	82,155	44	84,787	0	0	0	0	0	0	146	80,881
45-49	0	0	5	64,507	1	67,602	19	81,581	72	86,795	16	85,378	0	0	0	0	113	84,562
50-54	0	0	1	62,996	0	0	3	85,090	26	84,486	47	90,467	16	92,992	0	0	93	88,760
55-59	0	0	0	0	0	0	0	0	4	78,340	13	89,431	6	98,033	0	0	23	89,746
60-64	0	0	0	0	0	0	0	0	0	0	2	85,216	0	0	0	0	2	85,216
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	53	49,871	123	63,123	43	72,204	123	81,413	147	85,548	78	89,116	22	94,367	0	0	589	76,619

Average Age: 41.6
Average Years of Service: 16.4

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ANALYSIS OF INACTIVE MEMBERS
As of July 1, 2015
Males and Females

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	1	0	13	14
40 to 44	0	3	0	0	0	0	13	16
45 to 49	0	8	0	0	0	1	10	19
50 to 54	1	5	1	0	0	1	9	17
55 to 59	45	6	0	3	0	6	1	61
60 to 64	60	7	3	3	0	7	0	80
65 to 69	70	12	5	3	0	14	0	104
70 to 74	60	17	1	6	0	18	0	102
75 to 79	45	11	0	6	0	26	0	88
80 to 84	33	7	2	0	0	20	0	62
85 to 89	19	2	1	0	0	18	0	40
90 to 94	9	0	0	0	0	7	0	16
95 to 99	0	0	0	0	0	1	0	1
100 & over	0	0	0	0	0	1	0	1
Totals	342	78	13	21	1	120	46	621

IOWA PEACE OFFICERS' RETIREMENT, ACCIDENT AND DISABILITY SYSTEM

ANALYSIS OF INACTIVE MEMBERS
As of July 1, 2015
Males and Females

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	4,656	0	9,364
40 to 44	0	38,337	0	0	0	0	12,801
45 to 49	0	43,402	0	0	0	35,877	21,072
50 to 54	53,344	47,235	37,322	0	0	20,936	34,172
55 to 59	74,612	52,361	0	34,890	0	38,664	4,563
60 to 64	68,848	48,698	47,209	21,059	0	32,336	0
65 to 69	64,120	48,468	45,187	11,576	0	25,008	0
70 to 74	56,515	46,133	50,714	9,324	0	23,479	0
75 to 79	47,384	44,935	0	13,404	0	22,375	0
80 to 84	43,716	39,977	33,555	0	0	22,538	0
85 to 89	40,171	42,518	32,714	0	0	20,777	0
90 to 94	36,253	0	0	0	0	22,453	0
95 to 99	0	0	0	0	0	26,308	0
100 & over	0	0	0	0	0	26,475	0
Totals	58,730	45,878	42,725	16,140	4,656	24,203	17,630

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.

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, 50% of average final compensation at disability.

(2) If service at disability is greater than or equal to 22 years, the greater of (1) or the benefit amount calculated under a service retirement. Effective July 1, 1998, the service requirement does not apply.

(3) 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, 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.

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.

State Contributions

The State will contribute 33% of pay in FY2016. This will increase by 2% each year 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%.

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 8%) evenly over four years.

Actuarial Assumptions

Investment Return: 8% per year.

Price Inflation: 3.0% per year.

Payroll Growth: 3.75% 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	7.25%
5	7.25%
10	7.25%
15	6.50%
20	5.25%
25+	4.25%

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 3.75%.

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.

Interest Credited to Member Contributions: 4% per year.

Marriage Assumption: 90% married, with males 4 years older than females.

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, 2015, for the fiscal year ending June 30, 2016. The results of the valuation are set forth in this addendum, which reflects the benefit provisions in effect on July 1, 2015.

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, 2015 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, 2015 valuation. The July 1, 2015 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 6, 2015 Date

Brent A. Banister

Brent A. Banister, PhD, FSA, EA, FCA, MAAA	October 6, 2015 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, 2015, 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 3.75%.

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

	Actuarial Valuation as of	
	July 1, 2015	**July 1, 2014**
Summary of Costs		
Normal cost	26.43%	26.13%
UAAL amortization	18.33%	21.13%
Total	44.76%	47.26%
Less Employee Contribution Rate	(11.40%)	(11.40%)
State Required Contribution	33.36%	35.86%
Funded Status		
Actuarial accrued liability	$534,626,780	$515,859,721
Actuarial value of assets	392,989,970	360,063,755
Unfunded actuarial accrued liability	$141,636,810	$155,795,966
Funded Ratio	73.51%	69.80%
Asset Values		
Market value of assets (MVA)	$410,598,719	$392,194,960
Actuarial value of assets (AVA)	392,989,970	360,063,755
MVA/AVA	104.48%	108.92%