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**STATE OF IOWA
JUDICIAL RETIREMENT SYSTEM**

**Actuarial Valuation Report
as of July 1, 2017**





TABLE OF CONTENTS

<u>SECTION</u>	<u>Page</u>
Certification Letter	
I. Executive Summary	1
II. Summary of Valuation Results	
TABLE 1 – Statement of Changes in Plan Net Assets	11
TABLE 2 – Development of Actuarial Value of Assets	12
TABLE 3 – Present Value of Future Benefits	13
TABLE 4 – Unfunded Actuarial Accrued Liability	14
TABLE 5 – Actuarial Balance Sheet	15
TABLE 6 – Actuarial Gain/(Loss)	16
TABLE 7 – Actuarial Gain/(Loss) by Source	17
TABLE 8 – Summary of Amortization Bases	18
TABLE 9 – Determination of Required Contribution Rate	19
III. Other Information	
TABLE 10 – Schedule of Funding Progress	20
TABLE 11 – Schedule of Employer Contributions	21
<u>APPENDICES</u>	
A Actuarial Assumptions and Methods	22
B Summary of Plan Provisions	26
C System Membership Information	30
<u>ADDENDUM</u> Statutory Reporting	35



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October 3, 2017

Mr. Todd Nuccio
State of Iowa Judicial Retirement System
State Court Administrator's Office
1111 E. Court Ave.
Des Moines, IA 50319

Dear Mr. Nuccio:

At your request, we have performed an actuarial valuation of the Iowa Judicial Retirement System prepared as of July 1, 2017. The major findings are included in this report. The purpose of this report is to provide a summary of the funded status of the System as of July 1, 2017 and to evaluate the sufficiency of the current statutory contribution rates. While not verifying the data at its source, the actuary has performed tests for consistency and reasonability.

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 used for other purposes. 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.

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Mr. Todd Nuccio

October 3, 2017

Page 2

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.

Respectfully submitted,

A handwritten signature in blue ink that reads 'Patrice Beckham'.

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

A handwritten signature in blue ink that reads 'Bryan K. Hoge'.

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

PB:BH/kc



SECTION I – EXECUTIVE SUMMARY

This report presents the results of the July 1, 2017 actuarial valuation for the State of Iowa Judicial Retirement System (System). The primary purposes of performing an actuarial valuation are to:

- measure and disclose asset and liability measures as of the valuation date;
- determine the contribution rate required to fund the System on an actuarial basis;
- determine the experience of the System since the last valuation date; and
- 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 the valuation date, July 1, 2017. The unfunded actuarial accrued liability (UAAL) decreased from \$24.7 million on July 1, 2016 to \$18.1 million on July 1, 2017, indicating overall favorable experience for fiscal year 2017. A more complete analysis of the change in the unfunded actuarial accrued liability from July 1, 2016 to July 1, 2017 is shown on page 6.

Experience on 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 the 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 rate of return on the market value of assets was 16.6% which is higher than the expected return of 7.5%. However, because there was a small deferred investment loss to offset this year’s favorable experience, the return on the actuarial value of assets was 8.9%. This return is still higher than the 7.5% expected return, resulting in an actuarial gain of \$2.3 million. There was also an actuarial gain on liabilities of \$0.9 million, largely due to salary increases that were lower than expected, based on the actuarial assumption. Such experience also creates an actuarial gain on the liabilities for current senior judges as the actual benefit adjustment is lower than expected. The aggregate experience for the year was an actuarial gain of \$3.2 million.

The actuarial contribution rate is determined as the sum of the normal cost rate plus a payment on the UAAL. The total actuarial contribution rate in this valuation was 29.82%, a decrease of 1.74% from the actuarial contribution rate in the last valuation of 31.56%. The System is funded by fixed contribution rates by both the members (9.35% of pay) and the state of Iowa (30.60% of pay) until the System is fully funded (actuarial assets equal actuarial accrued liability). Currently, the total contribution rate of 39.95% of payroll exceeds the actuarial contribution rate, indicating the UAAL will be funded more rapidly than the payment schedule reflected in the amortization policy if all actuarial assumptions are met in the future. In order for the financing of the System on a fixed contribution rate basis to be successful in the long-term, contributions above the actuarial contribution rate must be made to offset the periods where the fixed contribution rate may be below the actuarial contribution rate. Therefore, we recommend the current provisions related to funding the System remain unchanged.

Detailed discussions on the assets, liabilities and contribution rates can be found in the following pages of this Executive Summary.



SECTION I – EXECUTIVE SUMMARY

The highlights of the valuation are:

Funded Status	Actuarial Valuation Date	
	July 1, 2017	July 1, 2016
<u>Using Actuarial Value of Assets</u>		
Actuarial Accrued Liability	\$198,233,533	\$190,933,661
Actuarial Assets	180,147,471	166,230,089
Unfunded Actuarial Accrued Liability	\$ 18,086,062	\$ 24,703,572
Funded Ratio	90.9%	87.1%
<u>Using Market Value of Assets</u>		
Actuarial Accrued Liability	\$198,233,533	\$190,933,661
Market Assets	186,971,193	161,152,637
Unfunded Actuarial Accrued Liability	\$ 11,262,340	\$ 29,781,024
Funded Ratio	94.3%	84.4%

The total actuarial required contribution rate in the 2017 valuation is lower than last year. The State's portion of the actuarial contribution rate decreased from 22.21% in the 2016 valuation to 20.47% in the 2017 valuation. The current statutory contribution rate is 30.60% of pay, resulting in a contribution margin of 10.13%, as shown below:

Required Contribution Rate	Actuarial Valuation Date	
	July 1, 2017	July 1, 2016
1. Normal Cost	21.92%	21.90%
2. Amortization Payment	7.90%	9.66%
3. Total Contribution Rate (1) + (2)	29.82%	31.56%
4. Expected Member Contribution Rate	9.35%	9.35%
5. State Contribution Rate (3) - (4)	20.47%	22.21%
6. Statutory Contribution Rate	30.60%	30.60%
7. Contribution Shortfall/(Margin) (5) - (6)	(10.13%)	(8.39%)

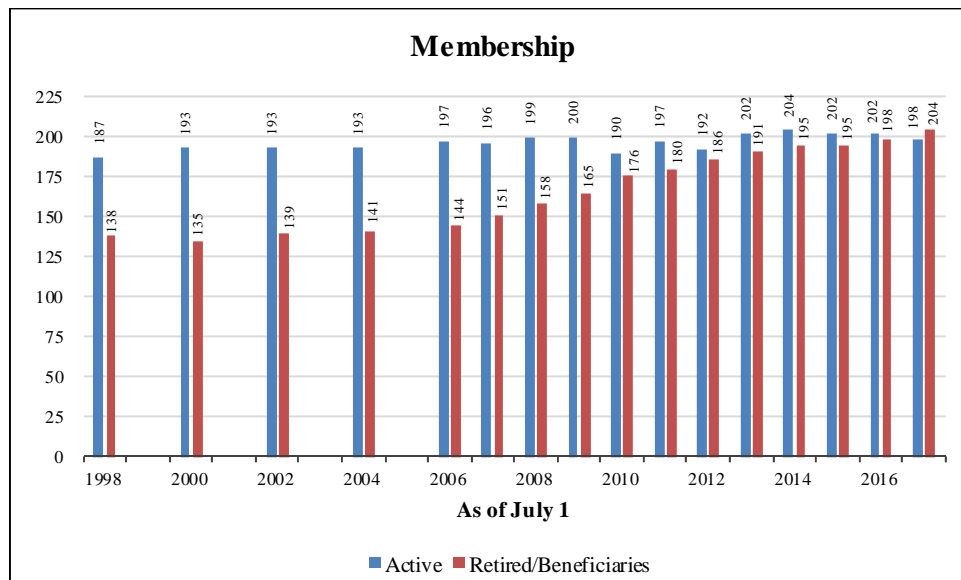
If all actuarial assumptions are met in future years and the current contribution rates remain in place, the funded ratio of the System is expected to increase over time and reach full funding around July 1, 2021. However, the volatility that exists with investment returns is likely to heavily impact the actual full funding date.



SECTION I – EXECUTIVE SUMMARY

MEMBERSHIP

The number of active members in the 2017 decreased slightly from 202 in the prior valuation to 198 in the current valuation. Given the nature of the active membership, the number of active members is expected to be steady over time. However, due to the trend of improving mortality rates, the number of retirees and beneficiaries receiving benefits under the plan is expected to increase. As the following graph shows, the number of participants receiving a benefit relative to the number of active participants contributing to the System has increased to the point where the two are nearly the same. This is not uncommon in a mature retirement system, but we would note that it does create additional contribution rate risk given the ratio of assets to covered payroll.



*Note that actuarial valuations were only performed biennially prior to 2006.

EXPERIENCE

July 1, 2016 to June 30, 2017

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, 2017. 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.

Changes in the System’s assets and liabilities impacted the change in the actuarial contribution rate between the July 1, 2016 and July 1, 2017 actuarial valuations. On the following pages each component is discussed.



SECTION I – EXECUTIVE SUMMARY

ASSETS

As of July 1, 2017, the System had total funds when measured on a market value basis, of \$187.0 million. This was an increase of \$25.8 million from the July 1, 2016 figure of \$161.2 million.

The market value of assets is not used directly in the calculation of contribution rates. An asset valuation method is used to smooth the effect of market fluctuations. See page 11 for the detailed development of the actuarial value of assets as of July 1, 2017.

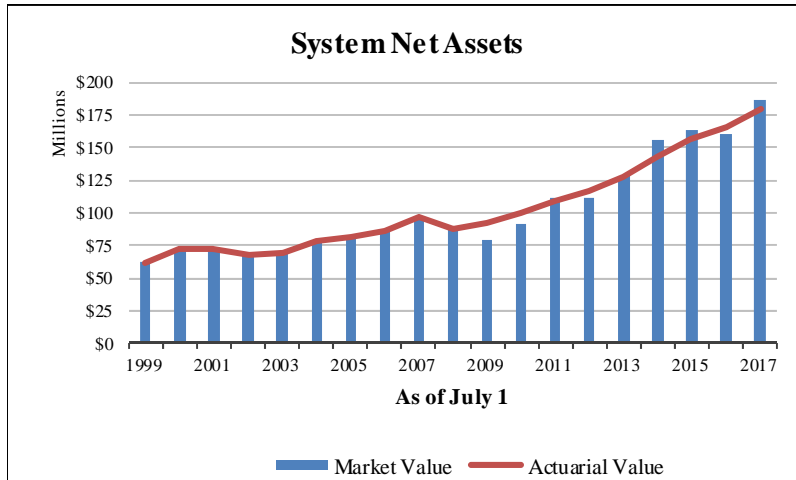
The actuarial value of assets as of July 1, 2017, was \$180.1 million. The annualized dollar-weighted rate of return for fiscal year 2017, measured on the actuarial value of assets, was 8.9%, and, measured on the market value of assets, was 16.6%, net of expenses. The components of the change in the market and actuarial value of assets for the System (in millions) are set forth below.

	\$(millions)	
	Market Value	Actuarial Value
Net Assets, July 1, 2016	\$161.2	\$166.2
• Employer and Member Contributions	11.2	11.2
• Benefit Payments	(12.0)	(12.0)
• Investment Income	<u>26.6</u>	<u>14.7</u>
Net Assets, July 1, 2017	\$187.0	\$180.1
Estimated Rate of Return, Net of Expenses	16.6%	8.9%

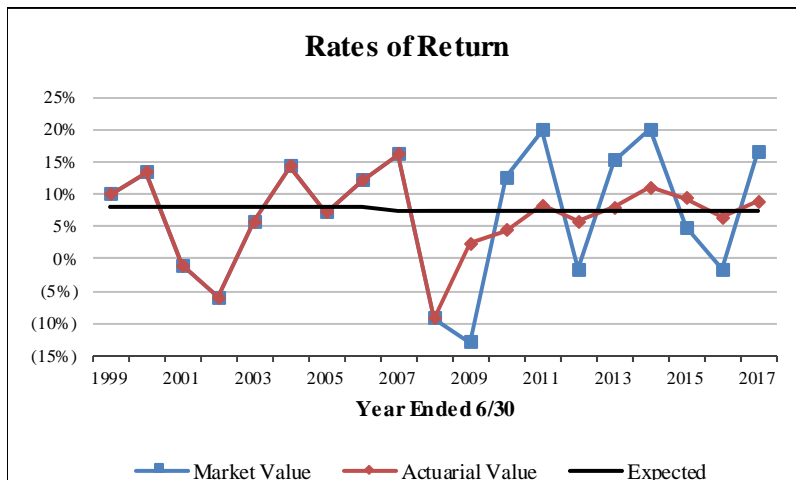
Even with a deferred investment loss from last year’s valuation, the rate of return on the actuarial value of assets was higher than the assumed rate of 7.5%, resulting in an actuarial gain on assets. As of July 1, 2017, there is \$6.9 million of net deferred investment gain that has not been recognized (last year there was a \$5.1 million net deferred investment loss). Absent unfavorable investment experience in future years to offset the recognition of the deferred gain, it will flow through the asset smoothing method and future actuarial contribution rates are expected to decrease.



SECTION I – EXECUTIVE SUMMARY



Since the asset smoothing method was implemented in 2009, 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.

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 the actuarial value of assets as of the valuation date is referred to as the unfunded actuarial accrued liability (UAAL). The UAAL 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.

The UAAL as of July 1, 2017 is shown below:

Actuarial Accrued Liability	\$ 198,233,533
Actuarial Value of Assets	180,147,471
Unfunded Actuarial Accrued Liability	\$ 18,086,062



SECTION I – EXECUTIVE SUMMARY

Factors influencing the UAAL from year to year include actual experience versus that expected based on the actuarial assumptions (both asset and liability), and if applicable, changes in actuarial assumptions, procedures or methods and changes in benefit provisions. The actual experience measured in this valuation is that which occurred during the prior plan year (fiscal year ending June 30, 2017).

The UAAL decreased from \$24.7 million on July 1, 2016 to \$18.1 million on July 1, 2017. The System experienced a net actuarial gain (actual versus expected experience) of \$3.2 million for the year ending June 30, 2017. Actuarial experience (gain or loss) is measured by comparing the expected UAAL (developed using the actuarial assumptions) and the actual UAAL. As discussed earlier, the return on the actuarial value of assets was 8.9% which resulted in an actuarial gain of \$2.3 million, decreasing the UAAL. The actuarial gain on the liabilities was \$0.9 million, which was largely due to salary increases that were lower than expected by the actuarial assumption.

Between July 1, 2016 and July 1, 2017 the change in the unfunded actuarial accrued liability for the System was as follows (in millions):

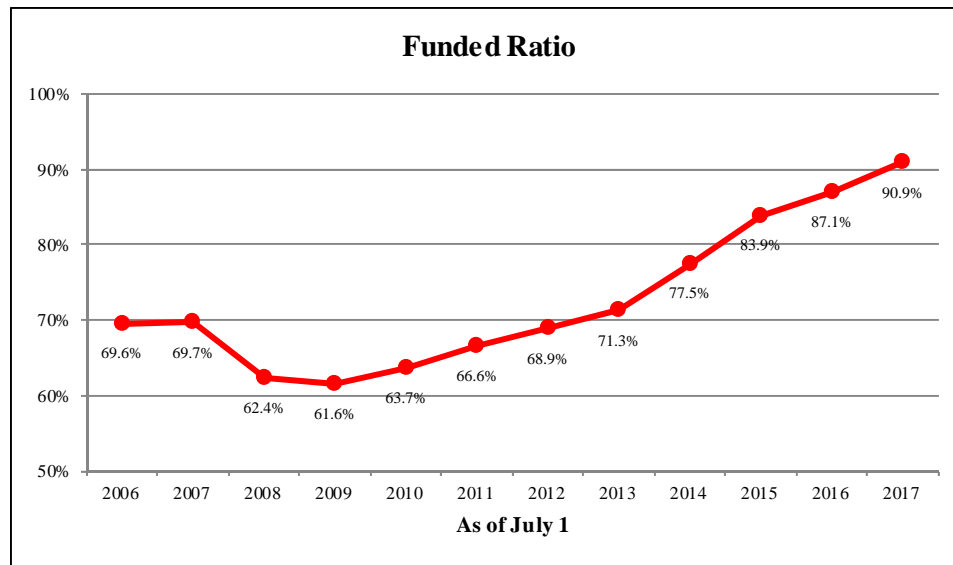
	<u>\$ millions</u>
Unfunded Actuarial Accrued Liability, July 1, 2016	24.7
• effect of contributions more than the actuarial rate	(2.4)
• expected decrease due to amortization method	(1.0)
• investment experience	(2.3)
• liability experience ¹	(0.9)
• other actuarial experience	<u>0.0</u>
Unfunded Actuarial Accrued Liability, July 1, 2017	18.1

¹ Liability gain was 0.44% of 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 large numbers) is reflected. Another way to evaluate the progress made in the System’s funding is to track the funded status, which is the ratio of the actuarial value of assets to the actuarial accrued liability. The funded status is shown in the graph below:



SECTION I – EXECUTIVE SUMMARY



Note that the funded ratio would be different if it was calculated using the market value of assets. Furthermore, the funded ratio is not an indication of the ability of the System to settle its obligations and may not be sufficient as an indication of the need for future contributions.

CONTRIBUTION RATES

The funding objective of the System is to pay the normal cost rate plus the amortization of each piece of the unfunded actuarial accrued liability over a 25-year closed period commencing with the valuation date on which the base was created.

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 year following the valuation date,
- 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 components that impacted the actuarial contribution rate from the prior to the current valuation are shown in the following table:

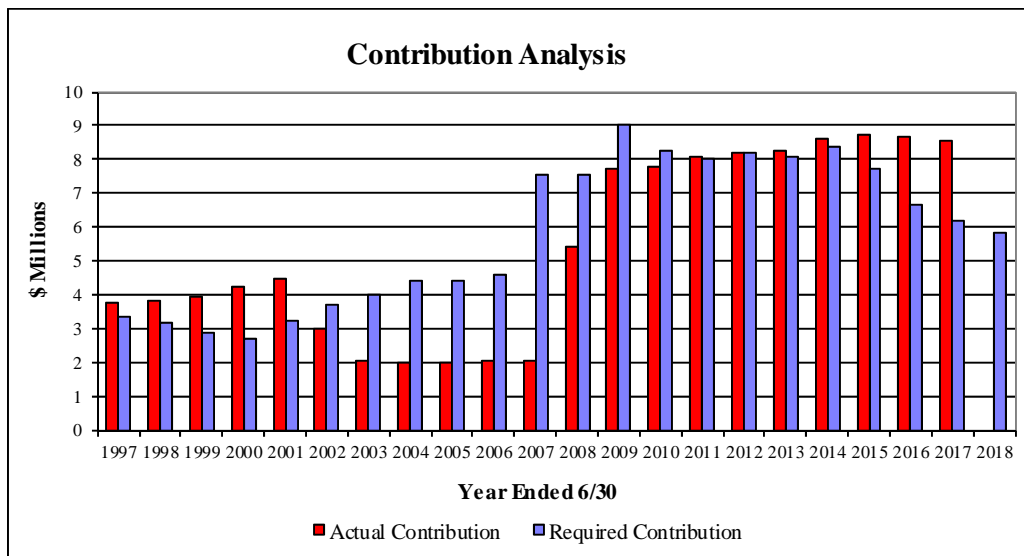


SECTION I – EXECUTIVE SUMMARY

	Plan Year Beginning	
	<u>July 1, 2017</u>	<u>July 1, 2016</u>
Prior year total contribution rate	31.56%	32.89%
• change in normal cost	0.02%	(0.03%)
• change due amortization method	(0.39%)	(0.45%)
• change due to asset (gains)/losses	(0.69%)	0.52%
• change due to liability/other actuarial experience	0.04%	(0.76%)
• change due to contribution margin	<u>(0.72%)</u>	<u>(0.61%)</u>
Current year total actuarial contribution rate	29.82%	31.56%
Member's contribution rate	<u>(9.35%)</u>	<u>(9.35%)</u>
State's actuarial contribution rate	20.47%	22.21%

Contributions to the System, by the members and the state, are set in statute. Currently, the member contribution rate is 9.35% and the employer contribution rate is 30.60% of pay for a total statutory contribution rate of 39.95%. Once the System is fully funded, the employer and member contribution rates will be based on the actuarial contribution rate (employer: 60%, member: 40%).

The following graph summarizes the actual and actuarial employer contributions in recent years.





SECTION I – EXECUTIVE SUMMARY

COMMENTS

In recent years, the funded status of the System has improved due to investment returns that have been higher than the assumed rate of return and liability gains, largely due to lower than expected salary increases. The net result of the recent experience has improved the System's funded status from 64% to 91% over the past seven years. In addition to the favorable experience, the total contributions to the System have increased which also strengthens the outlook for the System's long-term funding.

The statutory contribution rate continues to exceed the actuarial contribution rate in the current valuation. The difference in the two rates has increased from 8.39% in the 2016 valuation to 10.13% in the 2017 valuation. However, in order for the financing of the System on a fixed contribution rate basis to be successful, contributions above the actuarial rate must be made to offset the periods where the fixed contribution rate may be below the actuarial contribution rate.

If all actuarial assumptions are met in future years, the funded ratio of the System is expected to increase over time and reach full funding around July 1, 2021. However, future investment experience is expected to vary from year to year, significantly at times given the asset allocation. That volatility and how the actual returns unfold will heavily impact the funding of the System and the sufficiency of the current statutory contribution rates to eliminate the unfunded actuarial accrued liability.



SECTION I – EXECUTIVE SUMMARY

**STATE OF IOWA
JUDICIAL RETIREMENT SYSTEM**

SUMMARY OF PRINCIPAL VALUATION RESULTS

	<u>July 1, 2017</u>	<u>July 1, 2016</u>	<u>% Change</u>
1. SUMMARY OF DATA			
Active Judges	198	202	(2.0%)
Senior Judges and Retired Senior Judges	57	52	9.6%
Retired and Disabled Judges	97	99	(2.0%)
Beneficiaries	50	47	6.4%
Inactive Vested Judges	4	5	(20.0%)
Total Members	<u>406</u>	<u>405</u>	0.2%
2. ACTIVE PARTICIPANT STATISTICS			
Total Compensation	\$ 28,403,543	\$ 28,254,401	0.5%
Average Compensation	143,452	139,873	2.6%
Average Age	57.48	57.31	0.3%
Average Service	11.96	11.85	0.9%
3. ASSET AND LIABILITY INFORMATION			
Actuarial Accrued Liability	\$ 198,233,533	\$ 190,933,661	3.8%
Actuarial Value of Assets	180,147,471	166,230,089	8.4%
Unfunded Actuarial Accrued Liability (UAAL)	18,086,062	24,703,572	(26.8%)
Funded Ratio (Actuarial Value)	90.9%	87.1%	4.4%
Market Value of Assets	\$ 186,971,193	\$ 161,152,637	16.0%
Funded Ratio (Market Value)	94.3%	84.4%	11.7%
4. CONTRIBUTION INFORMATION			
Normal Cost	21.92%	21.90%	0.1%
UAAL Payment	<u>7.90%</u>	<u>9.66%</u>	(18.2%)
Total Actuarial Contribution	29.82%	31.56%	(5.5%)
Less Member Contribution	<u>(9.35%)</u>	<u>(9.35%)</u>	0.0%
State Actuarial Contribution	20.47%	22.21%	(7.8%)
Less State Statutory Contribution	<u>(30.60%)</u>	<u>(30.60%)</u>	0.0%
Contribution Shortfall/(Margin)	(10.13%)	(8.39%)	20.7%



SECTION II – SUMMARY OF VALUATION RESULTS

TABLE 1

STATEMENT OF CHANGE IN FIDUCIARY NET POSITION

	<u>Year End</u> <u>June 30, 2017</u>	<u>Year End</u> <u>June 30, 2016</u>
Additions		
1. Contributions		
a. State	\$ 8,544,064	\$ 8,666,541
b. Members	2,610,702	2,648,125
c. Total Contributions (a + b)	<u>11,154,766</u>	<u>11,314,666</u>
2. Investment Income		
a. Interest	\$ 2,082,140	\$ 2,014,128
b. Dividends	1,457,770	1,376,323
c. Gain on Sale of Investments	23,610,413	(5,434,099)
d. Net Appreciation	31,537	432
e. Litigated Settlement	0	0
f. Investment Expenses	(549,739)	(629,327)
g. Total Investment Income	<u>\$ 26,632,121</u>	<u>\$ (2,672,543)</u>
3. Total Additions (1c + 2g)	\$ 37,786,887	\$ 8,642,123
Deductions		
4. Deductions		
a. Benefit Payments	\$ 11,949,935	\$ 11,460,216
b. Administrative Expense	18,396	19,686
c. Total Deductions (a + b)	<u>11,968,331</u>	<u>11,479,902</u>
5. Net Increase (3 – 4c)	\$ 25,818,556	\$ (2,837,779)
6. Net Assets Held in Trust for Pension Benefits		
a. Beginning of Year	\$ 161,152,637	\$ 163,990,416
b. End of Year	\$ 186,971,193	\$ 161,152,637



SECTION II – SUMMARY OF VALUATION RESULTS

TABLE 2 DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

As of July 1, 2017

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. This methodology smoothes the volatility of market experience by only recognizing 25% of the difference between the expected value of the actuarial value of assets (based on the actuarial assumptions) and the actual market value.

1. Actuarial Value of Assets as of July 1, 2016	\$ 166,230,089
2. Actual Contribution/Disbursements	
a. Contributions	11,154,766
b. Benefit Payments and Refunds	(11,949,935)
c. Net	\$ (795,169)
3. Expected Value of Assets as of July 1, 2017 $[(1) \times 1.075] + [(2c) \times (1.075)^{1/2}]$	177,872,897
4. Market Value of Assets as of July 1, 2017	186,971,193
5. Difference Between Market and Expected Values (4) - (3)	9,098,296
6. Actuarial Value of Assets as of July 1, 2017 (3) + [(5) x 25%]	\$ 180,147,471
7. Actuarial Value of Assets divided by Market Value of Assets (6) / (4)	96.4%
8. Market Value of Assets less Actuarial Value of Assets (4) - (6)	\$ 6,823,722



SECTION II – SUMMARY OF VALUATION RESULTS

TABLE 3
PRESENT VALUE OF FUTURE BENEFITS
AS OF JULY 1, 2017

1. Active employees	
a. Retirement Benefit	\$ 130,668,969
b. Withdrawal Benefit	37,262
c. Pre-Retirement Death Benefit	1,507,743
d. Total	<u>\$ 132,213,974</u>
2. Inactive Vested Members	1,016,724
3. Senior Judges	39,387,671
3. Retired Members	60,537,473
4. Disabled Members	538,291
5. Beneficiaries	<u>12,704,123</u>
6. Total Present Value of Future Benefits	<u>\$ 246,398,256</u>
(1d) + (2) + (3) + (4) + (5)	



SECTION II – SUMMARY OF VALUATION RESULTS

TABLE 4
UNFUNDED ACTUARIAL ACCRUED LIABILITY
as of July 1, 2017

1. Present Value of Future Benefits	
a. Active Employees	\$ 132,213,974
b. Inactive Employees	<u>114,184,282</u>
c. Total	\$ 246,398,256
2. Present Value of Future Normal Costs	48,164,723
3. Total Actuarial Accrued Liability (1c) - (2)	198,233,533
4. Actuarial Value of Assets	180,147,471
5. Unfunded Actuarial Accrued Liability (3) - (4)	\$ 18,086,062



SECTION II – SUMMARY OF VALUATION RESULTS

TABLE 5
ACTUARIAL BALANCE SHEET
July 1, 2017

ASSETS

Actuarial value of assets	\$ 180,147,471
Present value of future normal costs	48,164,723
Payments on Unfunded Actuarial Accrued Liability	<u>\$ 18,086,062</u>
Total Net Assets	\$ 246,398,256

LIABILITIES

Present Value of Projected Benefits:

Active Members	
Retirement Benefits	\$ 130,668,969
Withdrawal Benefits	37,262
Pre-Retirement Death Benefits	1,507,743
Members with Deferred Benefits	1,016,724
Members Receiving Benefits	<u>\$ 113,167,558</u>
Total Liabilities	\$ 246,398,256



SECTION II – SUMMARY OF VALUATION RESULTS

TABLE 6

**ACTUARIAL GAIN/(LOSS)
Plan Year Ending June 30, 2017**

The actuarial gain/(loss) is comprised of both the liability and the actuarial asset gain/(loss). Each of these represents the difference between the expected and actual values as of July 1, 2017.

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at July 1, 2016	\$ 190,933,661
b. Normal cost for FYE 2017	5,800,268
c. Benefit payments for fiscal year ending June 30, 2017	(11,949,935)
d. Interest at 7.5% on (a), (b), and (c)	14,315,023
e. Expected actuarial accrued liability at July 1, 2017	\$ 199,099,017
2. Actuarial accrued liability at July 1, 2017	\$ 198,233,533
3. Actuarial accrued liability gain/(loss) (1e) - (2)	\$ 865,484
4. Expected actuarial value of assets	
a. Actuarial value of assets at July 1, 2016	\$ 166,230,089
b. Contributions for fiscal year ending June 30, 2017	11,154,766
c. Benefit payments for fiscal year ending June 30, 2017	(11,949,935)
d. Interest at 7.5% on (a), (b), and (c)	12,437,977
e. Expected actuarial value of assets at July 1, 2017	\$ 177,872,897
5. Actuarial value of assets at July 1, 2017	\$ 180,147,471
6. Actuarial value of assets gain/(loss) (5) - (4e)	\$ 2,274,574
7. Net actuarial gain/(loss) (3) + (6)	\$ 3,140,058



SECTION II – SUMMARY OF VALUATION RESULTS

EXHIBIT 7

ACTUARIAL GAIN/(LOSS) BY SOURCE

The purpose of conducting an actuarial valuation of a retirement plan is to estimate the costs and liabilities for the benefits expected to be paid from the plan, to determine the annual level of contribution for the current plan year that should be made to support these benefits and, finally, to analyze the plan’s experience. The costs and liabilities of this retirement plan depend not only upon the benefit formula and plan provisions but also upon factors such as the investment return on the Fund, mortality rates among active and retired members, withdrawal and retirement rates among active members, rates at which salaries increase and the rate at which the cost of living increases.

The actuarial assumptions employed as to these and other contingencies in the current valuation are set forth in Appendix A of this report.

Since the overall results of the valuation will reflect the choice of assumptions made, periodic studies of the various components of the plan’s experience are conducted in which the experience for each component is analyzed in relation to the assumption used for that component (called an experience study). This summary is not intended to be an actual “experience study” but rather an analysis of sources of gain and loss in the past plan year.

Gain/(Loss) By Source

The System experienced a net actuarial gain on liabilities of \$865,000 during the plan year ended June 30, 2017, and an actuarial gain on assets of \$2,275,000. The net actuarial gain was \$3,140,000. The major components of this net actuarial experience loss are shown below:

Liability Sources	Gain/(Loss)
Salary Increases	\$ 1,414,000
Retirements	(810,000)
Terminations	(6,000)
Disabilities	0
Deaths	(260,000)
New Entrants/Rehires	(50,000)
Cost of Living Adjustment	611,000
Miscellaneous	(34,000)
Total Liability Gain/(Loss)	\$ 865,000
 Asset Gain/(Loss)	 \$ 2,275,000
 Net Actuarial Gain/(Loss)	 \$ 3,140,000



SECTION II – SUMMARY OF VALUATION RESULTS

TABLE 8

**SUMMARY OF AMORTIZATION BASES
At July 1, 2017**

<u>Date Established</u>	<u>Original Amount</u>	<u>Years Remaining</u>	<u>Amortization Payment*</u>	<u>Outstanding Balance</u>
July 1, 2009	\$57,984,095	17	\$5,017,053	\$49,073,489
July 1, 2010	(517,789)	18	(44,801)	(450,851)
July 1, 2011	(704,233)	19	(60,934)	(629,192)
July 1, 2012	(1,072,732)	20	(92,817)	(981,065)
July 1, 2013	(563,586)	21	(48,764)	(526,500)
July 1, 2014	(8,952,654)	22	(774,625)	(8,527,183)
July 1, 2015	(10,362,482)	23	(896,610)	(10,046,171)
July 1, 2016	(4,250,030)	24	(367,732)	(4,187,510)
July 1, 2017	(5,638,955)	25	<u>(487,909)</u>	<u>(5,638,955)</u>
			\$2,242,861	\$18,086,062

* Each base is amortized as a level dollar amount over 25 years. Amortization Payment reflects mid-year timing.

Total UAAL Amortization Payment	\$2,242,861
Projected Payroll for Fiscal Year	\$28,403,543
UAAL Amortization Payment Rate	7.90%



SECTION II – SUMMARY OF VALUATION RESULTS

TABLE 9

DETERMINATION OF ACTUARIAL
REQUIRED CONTRIBUTION RATE

1. Normal Cost	
a. Retirement Benefits	21.54%
b. Pre-Retirement Death Benefits	0.34%
c. Withdrawal Benefits	0.04%
d. Total	<u>21.92%</u>
2. UAAL Amortization Payment (See Table 7)	
a. Amount (mid-year)	\$ 2,242,861
b. Projected Payroll for Fiscal Year	\$ 28,403,543
c. UAAL payment (% of pay)	7.90%
3. Total Contribution Rate	29.82%
(1d) + (2c)	
4. Member Contribution Rate	9.35%
5. State Contribution Rate	20.47%
(3) - (4)	
6. State Statutory Contribution Rate	30.60%
7. Contribution Rate Shortfall/(Margin)	(10.13%)
(5) - (6)	
8. Actuarial Required Contribution	\$5,814,205
(2b) x (5)	



SECTION III – OTHER INFORMATION

TABLE 10
SCHEDULE OF FUNDING PROGRESS
(In Thousands)

Actuarial Valuation Date	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL/ Covered Payroll ((b-a)/c)
July 1, 2005	\$81,605	\$105,472	\$23,867	77%	\$20,684	115%
July 1, 2006	86,110	123,670	37,560	70%	24,094	156%
July 1, 2007	96,619	138,662	42,043	70%	24,426	172%
July 1, 2008	88,198	141,364	53,166	62%	26,663	199%
July 1, 2009	93,045	151,029	57,984	62%	26,811	216%
July 1, 2010	99,416	156,029	56,613	64%	25,480	222%
July 1, 2011	109,512	164,511	54,999	67%	26,403	208%
July 1, 2012	117,272	170,232	52,960	69%	25,760	206%
July 1, 2013	127,353	178,725	51,372	71%	28,278	182%
July 1, 2014	142,589	183,916	41,327	78%	28,534	145%
July 1, 2015	156,347	186,269	29,922	84%	28,270	106%
July 1, 2016	166,230	190,934	24,704	87%	28,254	87%
July 1, 2017	180,147	198,234	18,087	91%	28,404	64%

¹ The actuarial value of assets was changed from pure market value to the expected value plus 25% of the difference between actual and expected value effective with the July 1, 2009 valuation.

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



SECTION III – OTHER INFORMATION

TABLE 11
SCHEDULE OF EMPLOYER CONTRIBUTIONS

<u>Fiscal Year Ended</u>	<u>Actuarial Required Contribution</u>	<u>Actual Employer Contribution</u>	<u>Percentage of ARC Contributed</u>
June 30, 2005	\$4,418,900	\$2,039,664	46%
June 30, 2006	4,966,452	2,039,664	41%
June 30, 2007	7,597,352	2,039,664	27%
June 30, 2008	7,705,698	5,450,963	71%
June 30, 2009	8,539,188	7,720,271	90%
June 30, 2010	7,857,421	7,806,398	99%
June 30, 2011	8,307,680	8,101,876	98%
June 30, 2012	8,364,471	8,215,668	98%
June 30, 2013	8,444,509	8,232,461	97%
June 30, 2014	8,376,176	8,630,064	103%
June 30, 2015	7,709,058	8,724,008	113%
June 30, 2016	6,667,006	8,666,541	130%
June 30, 2017	6,201,427	8,544,064	138%



APPENDIX A
ACTUARIAL ASSUMPTIONS AND METHODS



APPENDIX A – ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions

<i>Interest</i>	7.5% per annum.
<i>Mortality</i>	RP-2000 Healthy Annuitant and Employee Mortality Tables with generational improvements and a one year age set back.
<i>Turnover</i>	1.0% per year for all participants under age 45.
<i>Rate of Disablement; Disabled Life Mortality</i>	No incidence of disability was assumed.
<i>Salary Increases</i>	Salaries will increase 4.25% per annum.
<i>Incidence of Retirement</i>	The following table indicates the assumed rate of retirement at each age.

<u>Age</u>	<u>Rate</u>
50 - 59	3%
60 - 64	12
65 - 71	20
72	100

Inactive vested members are assumed to begin receiving benefits at age 65.

<i>Spouse’s Benefit</i>	85% of employees were assumed married, with the spouse four years younger.
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<i>Internal Revenue Service Limits on Recognized Pay</i>	The limit is assumed to increase based on cost of living increases of 3.0% per year.
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<i>Retiring Judges Electing Senior Judge Status</i>	80%, with 60% relinquishing after 6 years if before 78.
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<i>Adjustment to Benefit for Senior Judges</i>	<table> <thead> <tr> <th><u>Became Senior Judge</u></th> <th><u>Adjustment</u></th> </tr> </thead> <tbody> <tr> <td>Before 1/1/93</td> <td>4.25% for life</td> </tr> <tr> <td>1/1/93 to 7/1/94</td> <td>4.25% to age 78</td> </tr> <tr> <td>7/1/94 and later</td> <td>3.1875% to age 78</td> </tr> </tbody> </table>	<u>Became Senior Judge</u>	<u>Adjustment</u>	Before 1/1/93	4.25% for life	1/1/93 to 7/1/94	4.25% to age 78	7/1/94 and later	3.1875% to age 78
<u>Became Senior Judge</u>	<u>Adjustment</u>								
Before 1/1/93	4.25% for life								
1/1/93 to 7/1/94	4.25% to age 78								
7/1/94 and later	3.1875% to age 78								

<i>Decrement Timing</i>	Middle of year
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<i>Interest Credited to Contribution Balances</i>	4.0% per annum
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APPENDIX A – ACTUARIAL ASSUMPTIONS AND METHODS

Asset Valuation Method

The market value of assets, representing a fair value of System assets, may not necessarily 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 volatility in the market value while still indirectly recognizing market value. The specific technique follows:

- Step 1:** Determine the expected value of plan assets at the current valuation date using the actuarial value of assets from the prior valuation, the actuarial assumption for investment return and the actual receipts and disbursements of the fund for the previous 12 months.
- Step 2:** Subtract the expected value determined in Step 1 from the total market value of the Fund at the current valuation date.
- Step 3:** Multiply the difference between market and expected values determined in Step 2 by 25%.
- Step 4:** Add the expected value of Step 1 and the product of Step 3 to determine the actuarial value of assets.

Actuarial Cost Method

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

Sometimes called the “funding method”, this is a particular technique used by actuaries for establishing the amount of the annual actuarial cost of pension 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** 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.



APPENDIX A – ACTUARIAL ASSUMPTIONS AND METHODS

Amortization Method

Level Dollar Amortization Method

The amount to be amortized is divided into equal dollar amounts to be paid over a given number of years; part of each payment is interest and part is principal (similar to a mortgage payment on a building). Because payroll can be expected to increase as a result of inflation, level dollar payments generally represent a decreasing percentage of payroll; in dollars adjusted for inflation, the payments can be expected to decrease over time.

Amortization Period

The amortization period on the existing UAAL at July 1, 2009 was set to a closed 25-year period. A new amortization base is established each year, reflecting the difference in actual and expected experience. Each base established after 2009, is amortized over a new closed 25-year period.



APPENDIX B
SUMMARY OF PLAN PROVISIONS



APPENDIX B – SUMMARY OF PLAN PROVISIONS

STATE OF IOWA JUDICIAL RETIREMENT SYSTEM

Summary of Plan Provisions

An actuarial valuation involves the projection of the amount and timing of future benefit payments. Summarized below are the principal provisions of the plan which were used to estimate future benefit payments.

<i>Credited Service</i>	All years of service as a judge are credited.
<i>Average Monthly Salary</i>	Average monthly basic salary for highest three years as a judge. Each year's pay is limited to the compensation limit in Section 401(a)(17) of the Internal Revenue Code.
<i>Accrued Benefit</i>	The benefit payable at Normal Retirement Date which the judge has earned based on average salary and credited service to date.
<i>Normal Form</i>	The normal form of payment is an annuity payable for the life of the judge with one-half such amount payable to an eligible surviving spouse with a guarantee that payments totaling at least the amount of the judge's contributions will be made.
<i>Eligible Spouse</i>	A spouse is eligible if married to the judge for at least the one year preceding death.
<i>Retirement Eligibility</i>	Age 65 with a minimum of four years of service or 20 years of service and age 50.
<i>Mandatory Retirement Date</i>	Age 72 for active judges. Age 78 for judges participating in the Senior Judge Program, unless reappointed at the discretion of the Supreme Court.
<i>Monthly Retirement Benefit</i>	Effective July 1, 2006, 3.25% of Average Monthly Salary times years of credited service subject to a maximum of 65% of final earnings. Prior to 2006 the formula was 3% of average monthly salary times years of service subject to a maximum of 50% until July 1, 1998, 52% from July 1, 1998 until June 30, 2000, 56% from July 1, 2000 to June 30, 2001, 60% effective July 1, 2001. Commencing July 1, 1992, a judge or a survivor of a judge who retired before June 1, 1977, shall receive a minimum monthly annuity payment of \$500.
<i>Disability Retirement</i>	Upon total and permanent disability with a minimum of four years of credited service, the Judge receives the accrued benefit.
<i>Vesting</i>	100% vesting for voluntary terminations after 4 years of credited service (6 years prior to July 1, 2006). 100% vesting for Judges' contributions at all times.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

<i>Pre-Retirement Death Benefit</i>	Four years of service required. The death benefit payable to an eligible spouse is one-half the accrued benefit at the date of death. The death benefit shall commence on the later of the date of death or the date the spouse reaches age 60.
<i>Judge's Required Contribution Rate</i>	July 1, 2008, 7.7% of pay. Effective July 1, 2009, 8.7% of pay. Effective July 1, 2010 and for each subsequent fiscal year until the System attains fully funded status, 9.35% of pay. Thereafter, the member contribution rate is 40% of the actuarially required contribution rate.
<i>State's Required Contribution Rate</i>	For the fiscal year beginning July 1, 2008, and for each subsequent fiscal year until the system attains fully funded status, 30.6% of pay. Commencing with the first fiscal year in which the system attains fully funded status, and for each subsequent fiscal year, the percentage rate equal to 60% of the actuarially required contribution rate.
<i>Annuity for Senior Judges and Retired Senior Judges</i>	<p>(a) Judges retiring and becoming Senior Judges before January 1, 1993:</p> <p>The annuity for all senior judges or retired senior judges will be equal to 3% of the current base salary of the office in which the judge last served before retirement as a judge or senior judge, multiplied by the judge's years of service prior to retirement as a judge, subject to a maximum of 50% of such current base salary.</p> <p>(b) Judges retiring and becoming Senior judges on or after January 1, 1993 and before July 1, 1994:</p> <p>The annuity is the same as (a) above, except that the annuity will increase only until the year in which the judge attains age 78. At that point, it will remain the same until the judges' death.</p> <p>(c) Judges retiring and becoming Senior Judges on or after July 1, 1994:</p> <p>The annuity is the same as (b) above, except that the percentage increase of the annuity each year is only 75% of the amount that it would have been under (b).</p> <p>(d) Judges retiring and becoming Senior Judges on or after July 1, 1998:</p> <p>The annuity is the same as (c) above, except that the maximum benefit is 52% of the current base salary.</p>



APPENDIX B – SUMMARY OF PLAN PROVISIONS

- (e) Judges retiring and becoming Senior Judges on or after July 1, 2000:

The annuity is the same as (d) above, except that the maximum benefit is 56% of the current base salary.

- (f) Judges retiring and becoming Senior Judges on or after July 1, 2001:

The annuity is the same as (e) above, except that the maximum benefit is 60% of the current base salary.

- (g) Judges retiring and becoming Senior Judges on or after July 1, 2006: The percentage multiplier is 3.25% per year of service and the maximum benefit is 65% of the current base salary.



APPENDIX C
SYSTEM MEMBERSHIP INFORMATION



APPENDIX C – SYSTEM MEMBERSHIP INFORMATION

RECONCILIATION OF MEMBER STATUS

From July 1, 2016 to July 1, 2017

	<u>Active Members</u>	<u>Inactive Vested</u>	<u>Senior Judge*</u>	<u>Retired Members</u>	<u>Disabled Members</u>	<u>Beneficiaries</u>	<u>Total</u>
Members as of July 1, 2016	202	5	52	94	5	47	405
New Entrants	5	0	0	0	0	6	11
Non-vested Terminations	0	0	0	0	0	0	0
Vested Terminations	0	0	0	0	0	0	0
Senior Judge Status	(8)	0	8	0	0	0	0
Relinquished Senior Judge Status	0	0	(3)	3	0	0	0
Retirement	(1)	(1)	0	2	0	0	0
Deceased	0	0	0	(5)	(2)	(3)	(10)
Data Adjustments	0	0	0	0	0	0	0
Members as of July 1, 2017	198	4	57	94	3	50	406

*Senior Judges include both those serving as Senior Judges as well as those still entitled to future benefit increases.



APPENDIX C – SYSTEM MEMBERSHIP INFORMATION

ACTIVE MEMBERS AS OF JULY 1, 2017

Age	Number of Employees			Annual Salary		
	Male	Female	Total	Male	Female	Total
under 30	0	0	0	\$ 0	\$ 0	\$ 0
30-34	0	0	0	0	0	0
35-39	3	2	5	409,706	278,600	688,306
40-44	6	2	8	830,338	262,212	1,092,550
45-49	15	12	27	2,146,858	1,677,063	3,823,921
50-54	20	11	31	2,802,388	1,551,420	4,353,808
55-59	29	12	41	4,173,537	1,687,989	5,861,526
60-64	35	10	45	5,088,546	1,447,627	6,536,173
65-69	31	6	37	4,616,019	857,652	5,473,671
70 & up	4	0	4	573,588	0	573,588
Totals	143	55	198	\$20,640,980	\$7,762,563	\$28,403,543

ACTIVE AGE / SERVICE DISTRIBUTION AS OF JULY 1, 2017

Age	Years of Service								Total Count
	0-4 Count	5-9 Count	10-14 Count	15-19 Count	20-24 Count	25-29 Count	30-34 Count	35+ Count	
under 30	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	4	1	0	0	0	0	0	0	5
40-44	5	2	1	0	0	0	0	0	8
45-49	13	10	4	0	0	0	0	0	27
50-54	7	11	9	1	3	0	0	0	31
55-59	7	15	5	7	6	0	1	0	41
60-64	6	5	11	11	6	2	4	0	45
65-69	0	5	5	11	7	2	6	1	37
70 & up	0	1	0	1	2	0	0	0	4
Totals	42	50	35	31	24	4	11	1	198



APPENDIX C – SYSTEM MEMBERSHIP INFORMATION

**INACTIVE VESTED MEMBERS
as of July 1, 2017**

Age	Number of Members			Annual Benefit		
	Male	Female	Total	Male	Female	Total
30-34	0	0	0	\$ 0	\$ 0	\$ 0
35-39	0	0	0	0	0	0
40-44	0	0	0	0	0	0
45-49	0	0	0	0	0	0
50-54	1	0	1	17,606	0	17,606
55-59	0	0	0	0	0	0
60-64	1	2	3	31,788	70,461	102,249
65-69	0	0	0	0	0	0
70 & up	0	0	0	0	0	0
Totals	2	2	4	\$49,394	\$70,461	\$119,855



APPENDIX C – SYSTEM MEMBERSHIP INFORMATION

**RETIREES AND BENEFICIARIES
as of July 1, 2017**

Age	Number of Members				Annual Benefit			
	Retired*	Senior	Beneficiaries	Total	Retired	Senior	Beneficiaries	Total
under 55	0	0	0	0	\$ 0	\$ 0	\$ 0	\$ 0
55 to 59	2	0	1	3	176,655	0	15,795	192,450
60 to 64	3	5	6	14	191,196	443,608	249,116	883,920
65 to 69	26	15	3	44	1,866,282	1,192,998	193,767	3,253,047
70 to 74	23	14	6	43	1,663,928	1,159,560	184,658	3,008,146
75 to 79	16	9	7	32	984,734	716,897	255,275	1,956,906
80 to 84	9	4	8	21	389,506	288,994	418,223	1,096,723
85 to 89	14	8	9	31	545,688	493,638	336,854	1,376,180
90 to 94	4	1	6	11	113,667	57,838	148,446	319,951
95 to 99	0	1	1	2	0	64,542	11,953	76,495
100 & over	0	0	3	3	0	0	23,997	23,997
Totals	97	57	50	204	\$5,931,656	\$4,418,075	\$1,838,084	\$12,187,815

* Includes disabled members.



ADDENDUM – STATUTORY REPORTING

**IOWA JUDICIAL RETIREMENT SYSTEM
CERTIFICATION**

We have prepared an actuarial valuation of the Iowa Judicial Retirement System as of July 1, 2017, for the fiscal year ending June 30, 2018. The results of the valuation are set forth in this addendum, which reflects the benefit provisions in effect on July 1, 2017.

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, 2017 valuation for the Iowa Judicial Retirement System.

The results shown in this Addendum are not consistent with those in the regular July 1, 2017 valuation. The July 1, 2017 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 A. Beckham, F.S.A.

October 3, 2017

Date



Bryan K. Hoge, F.S.A.

October 3, 2017

Date



ADDENDUM – STATUTORY REPORTING

**IOWA JUDICIAL RETIREMENT SYSTEM
SUMMARY OF VALUATION RESULTS UNDER PRESCRIBED METHODOLOGY**

This addendum report has been prepared to present the results of a valuation of the State of Iowa Judicial Retirement System as of July 1, 2017, based on the prescribed methodology under current statutes and regulations issued there under.

The unfunded actuarial accrued liability has been amortized as a level percent of payroll over 30 years. The payroll growth assumption used was 4.25%.

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

	Actuarial Valuation as of	
	July 1, 2017	July 1, 2016
Summary of Costs		
Normal cost	21.92%	21.90%
UAAL amortization	<u>3.32%</u>	<u>4.55%</u>
Total	25.24%	26.45%
Less Employee Contribution Rate	<u>(9.35%)</u>	<u>(9.35%)</u>
State Required Contribution	15.89%	17.10%
Funded Status		
Actuarial accrued liability	\$198,233,533	\$190,933,661
Actuarial value of assets	180,147,471	166,230,089
Unfunded actuarial accrued liability	\$18,086,062	\$24,703,572
Funded Ratio	90.88%	87.06%
Asset Values		
Market value of assets (MVA)	\$186,971,193	\$161,152,637
Actuarial value of assets (AVA)	180,147,471	166,230,089
MVA/AVA	103.79%	96.95%