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NEBRASKA PUBLIC EMPLOYEES RETIREMENT SYSTEM

JUDGES RETIREMENT SYSTEM

ACTUARIAL VALUATION REPORT AS OF JULY 1, 2019

Fifty-Fourth Actuarial Report for
System Plan Year Beginning July 1, 2019
and
State Fiscal Year Ending June 30, 2021

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November 13, 2019

Public Employees Retirement Board
Nebraska Public Employees Retirement System
Post Office Box 94816
Lincoln, NE 68509

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Judges Retirement System as of July 1, 2019 for the purpose of determining the actuarial required contribution for the plan year ending June 30, 2020. It is our understanding that any required additional State contribution for this plan year will be made on July 1, 2020 (State fiscal year end 2021). The major findings of the valuation are contained in this report, which reflects the benefit and funding provisions in place on July 1, 2019. There have been no changes to the actuarial assumptions, methods or benefit provisions from the prior 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 the information received 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 Judges Retirement 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 the 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 Public Employees Retirement Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C.

Future actuarial measurements may differ significantly from the current measurements 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. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Actuarial computations presented in this report are for purposes of determining the funding amounts for the System as set out in the Nebraska state statutes. 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. For example, actuarial computations for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standards No. 67 and No. 68 are provided in separate reports.

The consultants who worked on this assignment are pension actuaries. Cavanaugh Macdonald's advice is not intended to be a substitute for qualified legal or accounting counsel.

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

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

Sincerely,

Patrice Beckham

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

Brent A. Banister

Brent A. Banister Ph.D., FSA, EA, MAAA, FCA
Chief Actuary

This report presents the results of the July 1, 2019 actuarial valuation of the Judges Retirement System. The primary purposes of performing this actuarial valuation are to:

- Determine the level of State contributions for the plan year ending June 30, 2020 that will be sufficient to meet the funding policy set out in the Nebraska statutes.
- Disclose asset and liability measurements as well as the current funded status of the System as of the valuation date.
- Assess and disclose the key risks associated with funding the System.
- Compare actual and expected experience under the System during the plan year ended June 30, 2019.
- Analyze and report on trends in System contributions, assets and liabilities over the past several years.

There were no changes to the actuarial assumptions and methods or benefit provisions from the last valuation. The actuarial valuation results provide a "snapshot" view of the System's financial condition on July 1, 2019. The System's unfunded actuarial accrued liability (UAAL) decreased from $7.6 million last year to $3.8 million this year and the funded ratio increased from 96% to 98%.

The Nebraska statutes require the State to make any additional contribution necessary to meet the actuarial required contribution amount in excess of court fees, member contributions, and any other State appropriations. **Based on the results of the July 1, 2019 actuarial valuation, the additional State contribution for the plan year ending June 30, 2020 is $348,794.**

The valuation results reflect net favorable experience for the past plan year as demonstrated by an UAAL that was lower than expected. The UAAL as of July 1, 2019 is $3.8 million compared to an expected UAAL of $7.4 million. The favorable experience was due to the net impact of an experience gain on the System liabilities and an experience loss on the actuarial value of assets. The rate of return on the market value of assets for FY 2019 was 6.72%, as reported by the Nebraska Investment Council, which is below the assumed return of 7.5%. However, the asset smoothing method only recognizes 20% of the difference between the dollar amount of the assumed and actual return in the current valuation. The partial recognition of FY 2019 experience, coupled with the scheduled recognition of the deferred investment experience from the prior four years, resulted in a rate of return on the actuarial (smoothed) value of assets of 6.73%. Because this return is lower than the assumed rate of return (7.5%), it generated an actuarial experience loss of $1.5 million on the actuarial value of assets. There was a net actuarial experience gain of $5.0 million on System liabilities, largely due to lower salary increases than expected for active members and fewer members retiring during the year than expected.

The actuarial required contribution rate decreased from 26.70% of pay last year to 25.56% of pay in this year's valuation, a decrease of 1.14% of pay. The Judges Retirement System is funded by employee contributions, court fees, and contributions from the State, if needed, to meet the actuarial required contribution. The expected court fees for FY 2020 are $3.95 million this year (based on the actual court fees for FY 2019). As the table on the following page shows, the estimated court fees, combined with expected member contributions, are insufficient to meet the actuarial required contribution for the plan year ending June 30, 2020. Therefore, an additional contribution of $348,794 by the State is required.

A summary of the key results from the July 1, 2019 actuarial valuation is shown in the following table. Further detail on the valuation results can be found in the following sections of this Executive Summary.

	Valuation Results	
	July 1, 2019	July 1, 2018
Unfunded Actuarial Accrued Liability	$3,808,478	$7,618,265
Funded Ratio (Actuarial Assets)	98.08%	96.08%
Normal Cost Rate	24.23%	24.50%
UAAL Amortization Rate	1.33%	2.20%
Total Actuarial Required Contribution	25.56%	26.70%
Member Contribution Rate	(7.99%)	(7.62%)
Additional Required Contribution Rate	17.57%	19.08%
Additional Required Contribution	$4,295,086	$4,555,142
Estimated Court Fees	$3,946,292	$4,112,543
Additional Required State Contribution	$348,794	$442,599

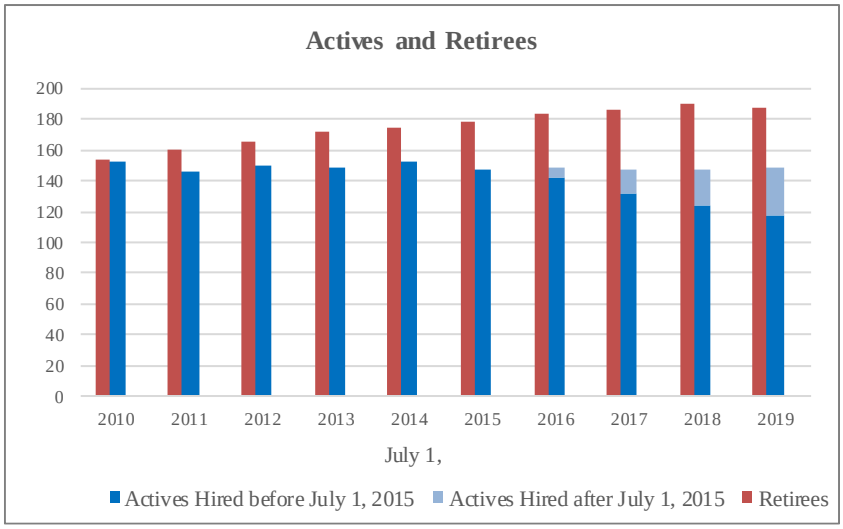
EXPERIENCE FOR THE LAST PLAN YEAR

Numerous factors contributed to the change in the System's assets, liabilities, and actuarial required contribution rate between July 1, 2018 and July 1, 2019. The components are examined in the following discussion.

MEMBERSHIP

There were 149 active members in the 2019 valuation, a small increase from 147 active members in the 2018 valuation. As of July 1, 2019, 31 out of 149 (about 21%) of the active members were hired on or after July 1, 2015 when benefit provisions were changed. It will take many years before these changes will have a significant impact on the System's liabilities and costs.

The graph on the following page compares the number of active members to the number of members receiving a benefit in each valuation over the last ten years. The number of active members has remained steady, around 150, while the number of retirees has increased from 154 to 188. The increase in the number of retirees relative to the number of actives is not unexpected given the maturity of the system, historical improvements in mortality rates and the stable number of judicial positions in the State.



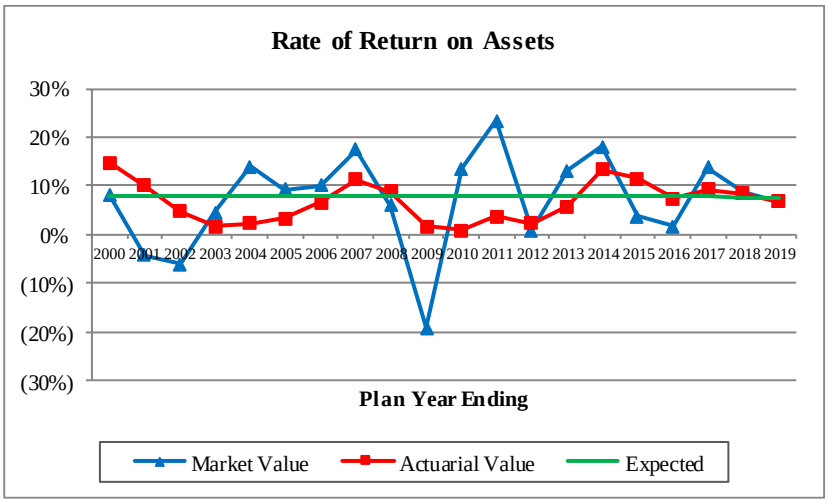
ASSETS

As of June 30, 2019, the System had net assets of $195.7 million, when measured on a market value basis. This was an increase of $7.6 million from the prior year. The investment return on the market value of assets for FY 2019 was 6.7%, lower than the assumed 7.5% return.

The market value of assets is not used directly in the calculation of the unfunded actuarial accrued liability and the actuarial required contribution rate. An asset valuation method, which smoothes the effect of market fluctuations, is applied to determine the value of assets used in the valuation. The resulting amount is called the actuarial value of assets. In this year's valuation, the actuarial value of assets is $194.3 million, an increase of $7.7 million from the prior year. The components of change in the asset values are shown in the following table:

		Market Value ($M)		Actuarial Value ($M)
Net Assets, June 30, 2018	$	188.06	$	186.65
- Employer and Member Contributions	+	6.24	+	6.24
- Benefit Payments	-	10.99	-	10.99
- Net Investment Income	+	12.36	+	12.41
Net Assets, June 30, 2019	$	195.67	$	194.31
Estimated Rate of Return		6.72%		6.73%

The rate of return on the actuarial value of assets was 6.7%, which is lower than the 7.5% investment return assumption. As a result, there was an experience loss on assets of $1.5 million. The combined impact of the unfavorable investment experience for FY 2019 and the scheduled recognition of deferred investment gains and losses resulted in the net deferred investment gain remaining at $1.4 million, unchanged from the prior valuation. Please see Section 3 of this report for more detailed information on the market and actuarial value of assets.



The rate of return of the actuarial value of assets has been less volatile than the market value return, illustrating the benefits 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 normal costs, i.e. the portion allocated to past years. The difference between this liability and the actuarial value of assets as of the valuation date is called the unfunded actuarial accrued liability (UAAL). The dollar amount of unfunded actuarial accrued liability is reduced if the contributions to the System exceed the normal cost for the year plus interest on the prior year's UAAL.

The unfunded actuarial accrued liability as of July 1, 2019, using both the actuarial and market value of assets, is shown in the following table:

	Actuarial Value of Assets	Market Value of Assets
Actuarial Accrued Liability	$198,116,058	$198,116,058
Value of Assets	194,307,580	195,672,498
Unfunded Actuarial Accrued Liability	$3,808,478	$2,443,560
Funded Ratio	98.08%	98.77%

The table indicates that, absent investment returns lower than expected (7.5%), the funded ratio is expected to increase slightly over the next four years as the deferred investment experience is recognized.

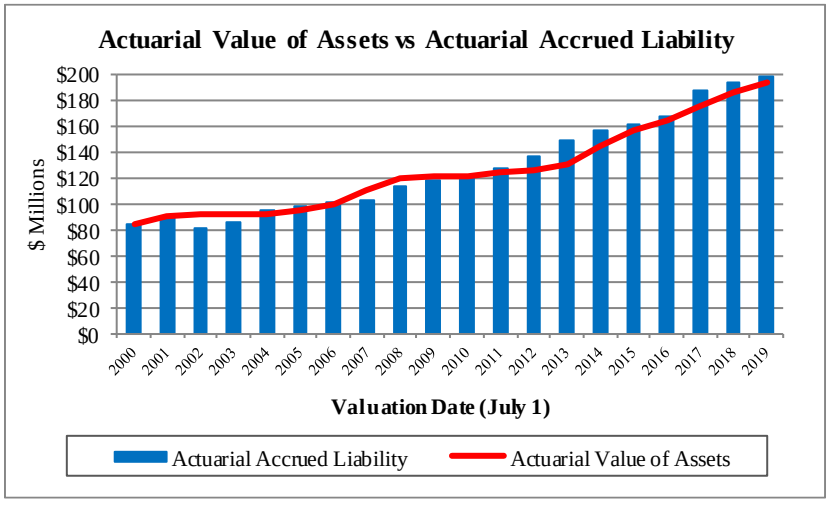
See Section 4 of the report for the detailed development of the unfunded actuarial accrued liability.

There was a net decrease of $3.8 million in the UAAL from July 1, 2018 to July 1, 2019. The various components of the change are shown in the following table (in millions):

	($ Millions)
Unfunded Actuarial Accrued Liability, July 1, 2018	$7.62
- Expected increase from amortization method	0.03
- Investment experience	1.45
- Liability experience	(5.00)
- Other experience	(0.29)
Unfunded Actuarial Accrued Liability, July 1, 2019	$3.81

As shown above, various components impacted the UAAL. Actuarial experience gains (losses), which result from actual experience that is more (less) favorable than anticipated by the actuarial assumptions, are reflected in the UAAL and are measured as the difference between the expected UAAL and the actual UAAL, taking into account any changes due to actuarial assumptions and methods, or benefit provisions. Overall, the System experienced a net actuarial experience gain of $3.55 million. The actuarial gain may be explained by considering the separate experience of assets and liabilities. As noted earlier, there was a $1.45 million loss on the actuarial value of assets. Favorable experience on System liabilities, mainly due to lower salary increases than expected and fewer members retiring during the year than expected, resulted in a $5.00 million gain. A breakdown of the various components of experience gains/losses can be found in Table 8 of this report.

As the following graph of historical actuarial assets and actuarial accrued liabilities illustrates, the Judges Retirement System has generally been very well-funded over this period, with many years at or above the fully funded level. As losses from the market downturn in 2009 were recognized, there were years where the actuarial accrued liability was above the assets. However, the combination of legislation designed to improve the System's funding status and investment returns in recent years in excess of the assumption have strengthened the System's funded status.

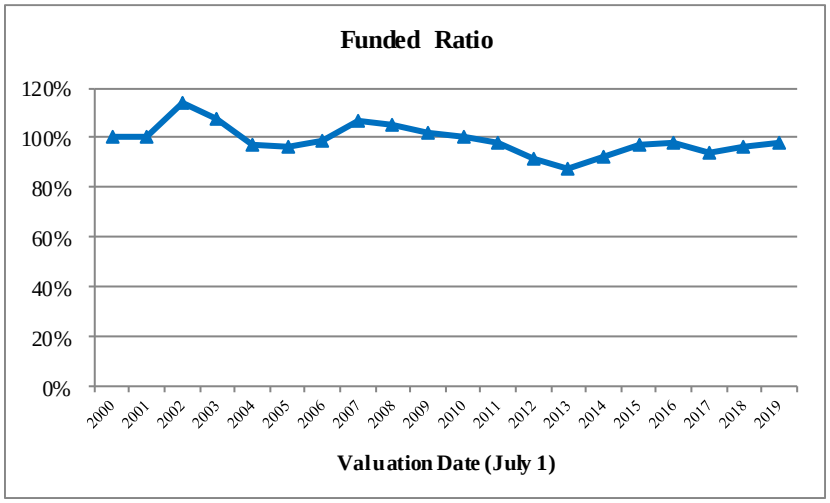


An evaluation of the UAAL on a pure dollar basis may not provide a complete analysis since only the difference between the assets and liabilities (which are both large numbers) is reflected. Another way to evaluate the UAAL and the progress made in its funding is to track the funded ratio, the ratio of the actuarial value of assets to the actuarial accrued liability. The funded status information, which is based on the actuarial value of assets, is shown below (in millions).

	7/1/2015	7/1/2016	7/1/2017	7/1/2018	7/1/2019
Funded Ratio	97.08%	98.09%	93.64%	96.08%	98.08%
UAAL/(Surplus)	$4.73	$3.20	$11.93	$7.62	$3.81

Note that the funded ratio does not indicate whether or not the System assets are sufficient to settle benefits earned to date. The funded ratio, by itself, also may not be indicative of future funding requirements. In addition, if the funded ratios were shown using the market value of assets, the results would differ.

The funded ratio over a longer period of years is shown in the following graph. The System has generally been at or just below 100% funded, other than in a few years. The changes to the benefit structure for members hired on or after July 1, 2015, as well as the increases in the court fees that were included in legislation in 2015, are expected to mitigate the need for supplemental State contributions.



ACTUARIAL REQUIRED CONTRIBUTION RATE

The State's funding policy is to contribute any additional payments necessary to meet the actuarial required contribution in excess of court fees, member contributions and other State appropriations. The additional State contribution for the plan year is made on the July 1 following the plan year-end. The actuarial required contribution rate consists of two components:

- 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 UAAL contribution rate is determined by calculating the amortization payment as a level-percent of payroll, assuming a constant number of active members and assumed salary increases. This methodology results in payments that are lower in the initial years of the amortization period, but increase each year in the future with the assumed payroll growth assumption of 3.50%. Because the UAAL contribution rate is determined as a level-percent of payroll, the dollar amount of the UAAL contribution is scheduled to increase 3.50% each year in the future, even if all actuarial assumptions are met. Therefore, if the increase in covered payroll is less than 3.50% per year, the UAAL contribution rate will increase. The current valuation results show the covered payroll has increased by 2.39% since the prior valuation, resulting in an increase in the UAAL contribution rate compared to what was expected.

Because it is extremely difficult to estimate the court fees for the current fiscal year, the actual court fees from the prior year have historically been used as the estimate for the current fiscal year. Therefore, the estimated court fees for FY 2020 are $3,946,292 (based on the actual court fees for FY 2019). This amount, when combined with expected member contributions, is insufficient to meet the actuarial required contribution for the plan year ending June 30, 2020. Therefore, an additional contribution of $348,794 by the State is required. Note that the FY 2019 court fees were about $166,000 less than the actual court fees for FY 2018. Any reduction in the expected court fees results in an increase in the additional State contribution necessary to meet the actuarial contribution rate. See Section 5 of the report for the detailed development of the contribution rates which are summarized in the following table:

Contribution Rates	July 1, 2019	July 1, 2018
1. Normal Cost Rate	24.23%	24.50%
2. UAAL Contribution Rate	1.33%	2.20%
3. Total Actuarial Required Contribution Rate	25.56%	26.70%
4. Member Contribution Rate	(7.99%)	(7.62%)
5. Employer Required Contribution Rate [3 + 4]	17.57%	19.08%
6. Estimated Payroll	$ 24,445,565	$ 23,873,911
7. Employer Required Contribution [5 * 6]	4,295,086	4,555,142
8. Estimated Court Fees	3,946,292	4,112,543
9. Additional Required State Contribution [7 - 8, but not less than $0]	$ 348,794	$ 442,599

The primary components of the change in the actuarial required contribution rate are shown in the following table.

Total Actuarial Required Contribution Rate, July 1, 2018	26.70%
- Change in normal cost rate	(0.27%)
- Contributions above the Actuarial Required Contribution	(0.03%)
- Investment experience	0.34%
- Liability experience	(1.16%)
- Payroll increase less than expected	0.01%
- Other experience	(0.03%)
Total Actuarial Required Contribution Rate, July 1, 2019	25.56%

The following table shows the breakdown of non-member contributions by source, as determined in each actuarial valuation, in recent years. Note these are not actual contributions, but expected amounts.

Actuarial Valuation Results				
Plan Year	Total Required Contributions	Court Fees and State Appropriation	Additional State Contribution	
2019/2020	$4,295,086	$3,946,292	$348,794	
2018/2019	4,555,142	4,112,543	442,599	
2017/2018	4,746,464	4,078,851	667,613	
2016/2017	3,577,379	3,458,665	118,714	
2015/2016	3,460,854	3,577,205	0	
2014/2015	3,852,713	3,102,864	749,849	*
2013/2014	3,983,750	3,180,367	803,383	
2012/2013	3,491,193	3,411,370	79,823	*
2011/2012	3,579,661	3,579,661	0	
2010/2011	3,615,291	3,615,291	0	
2009/2010	4,160,906	4,160,906	0	
2008/2009	3,353,208	3,353,208	0	
2007/2008	3,207,953	3,207,953	0	
2006/2007	3,120,253	3,120,253	0	
2005/2006	2,877,273	2,877,273	0	
2004/2005	2,718,959	2,074,397	644,562	
2003/2004	2,691,913	2,691,913	0	
2002/2003	1,291,663	564,857	726,806	

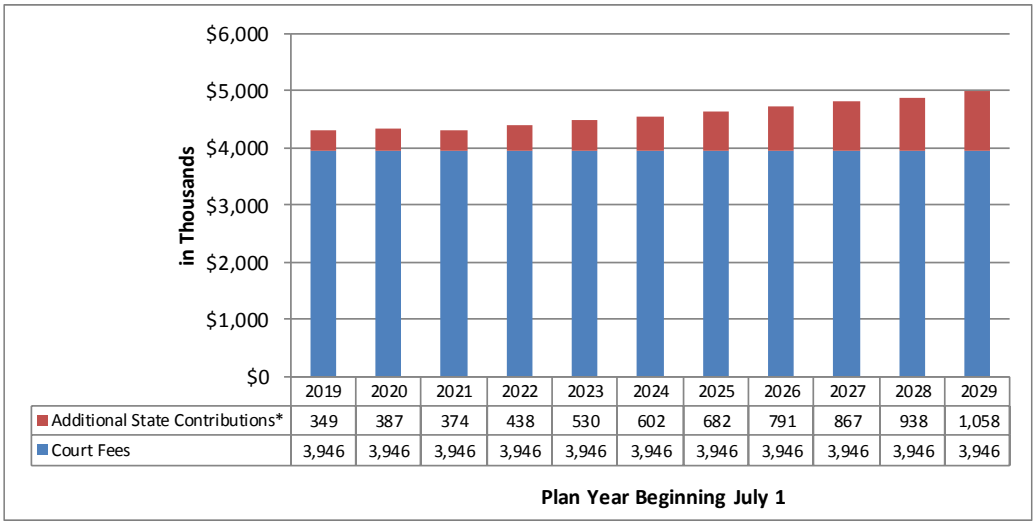
* Contribution not fully made.
Note: Information before 2013 was produced by the prior actuary.

The actuarial required contribution, determined this year based on the snapshot of the System taken on the valuation date of July 1, 2019, will change each year as the deferred investment experience is recognized and other experience (both investment and demographic) impacts the System. Therefore, the contribution rate is expected to change each year. To the extent the difference between the actual and expected experience is significant, the change in the actuarial contribution rate is also expected to change significantly. This volatility in the actuarial contribution rate results in extreme volatility in the additional State contribution as it is leveraged since it is the difference between the actuarial contribution and all other financing sources.

The major source of funding for the Judges Retirement System, other than member contributions, is court fees. As the following table illustrates, the dollar amount of court fees had been declining prior to the passage of legislation in 2015 which increased the court fees allocated to the Judges Retirement System for plan years ending June 30, 2016 and June 30, 2018. The court fees decreased for fiscal year ending June 30, 2019, but such variation is not unexpected given the revenue source.

Plan Year Ending	Court Fees
June 30, 2007	$3,135,709
June 30, 2008	$3,280,964
June 30, 2009	$3,419,091
June 30, 2010	$3,543,047
June 30, 2011	$3,507,417
June 30, 2012	$3,411,370
June 30, 2013	$3,180,367
June 30, 2014	$3,102,864
June 30, 2015	$2,977,205
June 30, 2016	$3,458,665
June 30, 2017	$3,578,851
June 30, 2018	$4,112,543
June 30, 2019	$3,946,292

The contributions to the Judges Retirement System are developed as a level percentage of payroll so the dollar amount of contributions is expected to increase from year to year as payroll increases, even if all assumptions are met. However, one of the major funding sources of the System (court fees) is not payroll related, and the dollar amount can vary from year to year. This disconnect between the funding policy and the financing mechanism creates a unique funding challenge as there will tend to be an increasing shortfall between the actuarial employer contribution and the court fees over time, resulting in an increasing pattern of additional State contributions. This projection of the breakdown of non-employer contributions in the next twenty years illustrates the trend of increasing dollar amounts of State contributions.



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Additional State Contributions*	349	387	374	438	530	602	682	791	867	938	1,058
Court Fees	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946

RISK ASSESSMENT AND DISCLOSURE

A typical retirement plan faces many different risks. The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. Actuarial Standard of Practice Number 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions. Risk evaluation is an important part of managing a defined benefit plan. Please see Section 6 of this report for an in-depth discussion of the specific risks facing the Nebraska Judges Retirement System.

SUMMARY OF PRINCIPAL RESULTS

	7/1/2019 Valuation	7/1/2018 Valuation	% Change
1. PARTICIPANT DATA			
Number of:			
Active Members			
- Hired before July 1, 2015	118	124	(4.8%)
- Hired on or after July 1, 2015	31	23	34.8%
Total	149	147	1.4%
Retired Members and Beneficiaries	184	186	(1.1%)
Disabled Members	4	4	0.0%
Inactive Vested Members	4	4	0.0%
Total Members	341	341	0.0%
Projected Annual Salaries of Active Members	$ 24,445,565	$ 23,873,911	2.4%
Annual Retirement Payments for Retired Members, Disabled Members and Beneficiaries	$ 11,132,088	$ 10,774,452	3.3%
2. ASSETS AND LIABILITIES			
a. Market Value of Assets	$ 195,672,498	$ 188,055,655	4.1%
b. Actuarial Value of Assets	194,307,580	186,650,907	4.1%
c. Total Actuarial Accrued Liability	198,116,058	194,269,172	2.0%
d. Unfunded Actuarial Accrued Liability [c - b]	$ 3,808,478	$ 7,618,265	(50.0%)
e. Funded Ratio (Actuarial Value of Assets) [b / c]	98.08%	96.08%	2.1%
f. Funded Ratio (Market Value of Assets) [a / c]	98.77%	96.80%	2.0%
3. EMPLOYER CONTRIBUTION RATES AS A PERCENT OF PAYROLL			
Normal Cost	24.23%	24.50%	(1.1%)
Amortization of Unfunded Actuarial Accrued Liability	1.33%	2.20%	(39.5%)
Actuarial Required Contribution Rate	25.56%	26.70%	(4.3%)
Member Contribution Rate	(7.99%)	(7.62%)	4.9%
Employer Required Contribution Rate	17.57%	19.08%	(7.9%)
Employer Required Contribution Amount	$ 4,295,086	$ 4,555,142	(5.7%)
Expected Court Fees	3,946,292	4,112,543	(4.0%)
Additional Required State Contribution Amount	$ 348,794	$ 442,599	(21.2%)

This report presents the actuarial valuation results of the Judges Retirement System as of July 1, 2019. This valuation was prepared at the request of the Public Employees Retirement Board of the Nebraska Public Employees Retirement System.

Please pay particular attention to our actuarial certification letter, where the guidelines employed in the preparation of this report are outlined. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the findings of the current year's valuation is presented in the previous section. Section 3 describes the assets and investment experience of the System. Sections 4 and 5 describe how the obligations (liabilities) of the System are to be met under the actuarial cost method in use. Section 6 discloses key maturity measurements and discusses the key risks facing the funding of the System. Section 7 includes some historical funding information.

This report includes several appendices:

- Appendix A Schedules of valuation data classified by various categories of members.
- Appendix B A summary of the current benefit structure, as determined by the provisions of governing law on July 1, 2019.
- Appendix C A summary of the actuarial methods and assumptions used to estimate liabilities and determine contribution rates.
- Appendix D A glossary of actuarial terms.

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, 2019. 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 then leads to a method of determining the contributions needed by members and the employer in the future to balance the System's 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, the market value of assets provides a basis for measuring investment performance from time to time. Table 1 is a comparison, at market values, of System assets as of July 1, 2019 and July 1, 2018, in total and by investment category. Table 2 summarizes the change in the market value of assets from July 1, 2018 to July 1, 2019.

Actuarial Value of Assets

Due to the extreme volatility in the market value of assets, which represents the "cash-out" value of System assets on a single day, may not be the best measure of the System's ongoing ability to meet its obligations. To arrive at a suitable value of assets 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. Under the asset smoothing methodology, the difference between the actual and assumed investment return on the market value of assets is recognized evenly over a five-year period.

Table 3 shows the development of the actuarial value of assets (AVA) as of the valuation date.

TABLE 1

JUDGES RETIREMENT SYSTEM

MARKET VALUE OF ASSETS
by Investment Category

	June 30, 2019	June 30, 2018
1. Cash and Equivalents	$ 186,386	$ 123,054
2. Investments	199,411,339	192,628,941
3. Capital Assets	106	57
4. Receivables and Prepaids	25,316,514	18,168,534
5. Accounts Payable	(29,241,847)	(22,864,931)
6. Net Assets Available for Pension Benefits	$ 195,672,498	$ 188,055,655

TABLE 2

JUDGES RETIREMENT SYSTEM

CHANGE IN MARKET VALUE OF ASSETS

	2019	2018
1. Market Value of Assets, Beginning of Year	$ 188,055,655	$ 176,605,831
2. Contributions		
(a) Member	$ 1,854,712	$ 1,814,533
(b) Court fees	3,946,292	4,112,543
(c) State appropriations	442,599	667,613
(d) Total	$ 6,243,603	$ 6,594,689
3. Expenditures		
(a) Benefit payments	$ 10,991,157	$ 10,144,103
(b) Administrative expenses	71,663	71,266
(c) Total	$ 11,062,820	$ 10,215,369
4. Investment Return, Net of Expenses		
(a) Investment income	$ 3,624,598	$ 2,666,149
(b) Securities lending income	105,276	73,208
(c) Securities lending expense	(83,370)	(50,240)
(d) Net appreciation/(depreciation) in fair value of investments	8,789,556	12,381,345
(e) Other	0	42
(f) Net investment return	$ 12,436,060	$ 15,070,504
5. Market Value of Assets, End of Year [1 + 2(d) - 3(c) + 4(f)]	$ 195,672,498	$ 188,055,655
6. Rate of Return, Net of Expenses*	6.7%	8.6%

*Annual money-weighted rate of return, net of investment expense, as reported by the Nebraska Investment Council

TABLE 3

JUDGES RETIREMENT SYSTEM

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

	Year End			
	6/30/2016	6/30/2017	6/30/2018	6/30/2019
1. Actuarial Value of Assets, Beginning of Year	$ 157,369,088	$ 164,900,363	$ 175,577,087	$ 186,650,907
2. Unrecognized Return Beginning of Year	$ 3,430,921	$ (5,659,514)	$ 1,028,744	$ 1,404,748
3. Contributions During Year				
(a) Member	$ 1,651,432	$ 1,743,103	$ 1,814,533	$ 1,854,712
(b) Court fees	3,458,665	3,578,851	4,112,543	3,946,292
(c) State appropriations	0	118,714	667,613	442,599
(d) Total	$ 5,110,097	$ 5,440,668	$ 6,594,689	$ 6,243,603
4. Benefit Payments	$ 9,052,110	$ 9,690,310	$ 10,144,103	$ 10,991,157
5. Expected Investment Income on (1), (2), (3) and (4)*	$ 12,739,472	$ 12,604,794	$ 13,146,386	$ 13,963,648
6. Actual Return on Market Value , Net of All Expenses	$ 2,382,853	$ 21,614,624	$ 14,999,238	$ 12,364,397
7. Return to be Spread, End of Year [6 - 5]	$ (10,356,619)	$ 9,009,830	$ 1,852,852	$ (1,599,251)

*****Based on the investment return assumption applicable at the beginning of the year. The assumption was 8.0% through year end 6/30/2017 and 7.5% thereafter.

TABLE 3
(continued)

JUDGES RETIREMENT SYSTEM

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

8. Return to be Spread

Plan Year Ending	Return to be Spread	Unrecognized Percent	Unrecognized Return
2019	($1,599,251)	80%	($1,279,401)
2018	1,852,852	60%	1,111,711
2017	9,009,830	40%	3,603,932
2016	(10,356,619)	20%	(2,071,324)
			$1,364,918

9. Total Market Value of Assets as of July 1, 2019	$195,672,498
10. Total Actuarial Value of Assets as of July 1, 2019 [9 - 8]	$194,307,580
11. Asset Ratios	
(a) Actuarial Value to Market Value [10 / 9]	99.30%
(b) Market Value to Actuarial Value [9 / 10]	100.70%

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 Judges Retirement System as of the valuation date, July 1, 2019. In this section, the discussion will focus on the commitments (future benefit payments) of the System, which are referred to as its liabilities.

Table 4 contains an analysis of the actuarial present value of all future benefits (PVFB) for contributing members, inactive members, retirees and their beneficiaries.

The liabilities summarized in Table 4 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 the measurement of both benefits already earned and future benefits 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.

All liabilities reflect the benefit provisions in place as of July 1, 2019.

Actuarial Accrued Liability

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 5 contains the calculation of actuarial accrued liability for the System. The Entry Age Normal actuarial cost method is used to develop the actuarial accrued liability.

TABLE 4

JUDGES RETIREMENT SYSTEM

PRESENT VALUE OF FUTURE BENEFITS (PVFB)
AS OF JULY 1, 2019

1. Active Employees		
(a) Retirement	$	120,022,948
(b) Death		3,279,458
(c) Total	$	123,302,406
2. Inactive Vested Members		2,279,162
3. Inactive Nonvested Members		0
4. Disabled Members		2,273,269
5. Retirees		91,650,681
6. Beneficiaries		19,508,923
7. Total Present Value of Future Benefits [1(c) + 2 + 3 + 4 + 5 + 6]	$	239,014,441

TABLE 5

JUDGES RETIREMENT SYSTEM

ACTUARIAL ACCRUED LIABILITY
AS OF JULY 1, 2019

1. Present Value of Future Benefits for Active Members	$	123,302,406
2. Present Value of Future Normal Costs for Active Members		
(a) Retirement	$	39,224,845
(b) Death		1,673,538
(c) Total	$	40,898,383
3. Actuarial Accrued Liability for Active Members [1 - 2(c)]	$	82,404,023
4. Actuarial Accrued Liability for Inactive Members	$	115,712,035
5. Total Actuarial Accrued Liability [3 + 4]	$	198,116,058
6. Actuarial Value of Assets	$	194,307,580
7. Unfunded Actuarial Accrued Liability [5 - 6]	$	3,808,478
8. Funded Ratio [6 / 5]		98.08%

TABLE 6

JUDGES RETIREMENT SYSTEM

ACTUARIAL BALANCE SHEET
AS OF JULY 1, 2019

ASSETS		
Actuarial Value of Assets		$ 194,307,580
Unfunded Actuarial Accrued Liability		3,808,478
Present Value of Future Normal Costs		40,898,383
Total Assets		$ 239,014,441
LIABILITIES		
Present Value of Future Benefits		
Active members		
Retirement	$ 120,022,948	
Death	3,279,458	
Total		123,302,406
Inactive members		2,279,162
Retirees, disabilities and beneficiaries		113,432,873
Total		$ 239,014,441

TABLE 7

JUDGES RETIREMENT SYSTEM

ACTUARIAL GAIN/(LOSS)

Liabilities		
1. Actuarial Accrued Liability as of July 1, 2018	$	194,269,172
2. Normal Cost for Plan Year Ending June 30, 2019		5,247,241
3. Benefit Payments During Plan Year Ending June 30, 2019		(10,991,157)
4. Interest at 7.50%		14,593,302
5. Expected Actuarial Accrued Liability as of July 1, 2019	$	203,118,558
6. Actuarial Accrued Liability as of July 1, 2019	$	198,116,058
Assets		
7. Actuarial Value of Assets as of July 1, 2018	$	186,650,907
8. Contributions During Plan Year Ending June 30, 2019		6,243,603
9. Benefit Payments During Plan Year Ending June 30, 2019		(10,991,157)
10. Interest at 7.50%		13,858,291
11. Expected Actuarial Value of Assets as of July 1, 2019	$	195,761,644
12. Actuarial Value of Assets as of July 1, 2019	$	194,307,580
Gain / (Loss)		
13. Actuarial Gain / (Loss) on Liabilities [5 - 6]	$	5,002,500
14. Actuarial Gain / (Loss) on Assets [12 - 11]		(1,454,064)
15. Total Actuarial Gain / (Loss) for Plan Year Ending June 30, 2019 [13 + 14]	$	3,548,436

TABLE 8

JUDGES RETIREMENT SYSTEM

GAIN/(LOSS) ANALYSIS BY SOURCE

Liability Sources		Gain/(Loss)
Retirement	$	1,857,000
Termination		0
Disability		0
Mortality		545,000
Salary		1,965,000
New Entrants/Rehires		(142,000)
COLA		849,000
Miscellaneous		(72,000)
Total Liability Gain/(Loss)	$	5,002,000
Asset Gain/(Loss)	$	(1,454,000)
Net Actuarial Gain/(Loss)	$	3,548,000

TABLE 9

JUDGES RETIREMENT SYSTEM

PROJECTED BENEFIT PAYMENTS

Plan Year Ending June 30	Current Active Members	Current Inactive Members	Total
2020	$ 1,356,000	$ 11,040,000	$ 12,396,000
2021	2,078,000	11,035,000	13,113,000
2022	2,961,000	10,961,000	13,922,000
2023	3,918,000	10,890,000	14,808,000
2024	4,635,000	10,814,000	15,449,000
2025	5,520,000	10,728,000	16,248,000
2026	6,510,000	10,624,000	17,134,000
2027	7,301,000	10,495,000	17,796,000
2028	8,330,000	10,363,000	18,693,000
2029	9,074,000	10,209,000	19,283,000
2030	9,760,000	10,031,000	19,791,000
2031	10,442,000	9,824,000	20,266,000
2032	11,205,000	9,656,000	20,861,000
2033	11,852,000	9,390,000	21,242,000
2034	12,557,000	9,090,000	21,647,000
2035	13,431,000	8,752,000	22,183,000
2036	14,268,000	8,377,000	22,645,000
2037	14,893,000	7,963,000	22,856,000
2038	15,623,000	7,513,000	23,136,000
2039	16,312,000	7,030,000	23,342,000
2040	16,782,000	6,521,000	23,303,000
2041	17,357,000	5,990,000	23,347,000
2042	17,837,000	5,447,000	23,284,000
2043	18,332,000	4,900,000	23,232,000
2044	18,551,000	4,361,000	22,912,000
2045	18,556,000	3,837,000	22,393,000
2046	18,570,000	3,339,000	21,909,000
2047	18,546,000	2,874,000	21,420,000
2048	18,400,000	2,448,000	20,848,000
2049	18,130,000	2,065,000	20,195,000

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

The previous two sections were devoted to a discussion of the assets and liabilities of the System. A comparison of Tables 3 and 4 indicates that current assets fall short of meeting the present value of future benefits (total liability). This is expected in all but a completely closed 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 rate and (2) the unfunded actuarial accrued liability contribution rate.

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 or because of actuarial deficiencies that have occurred because experience has not been as favorable as anticipated by the actuarial assumptions. Under these circumstances, an unfunded actuarial accrued liability (UAAL) exists. Likewise, when the actuarial value of assets is greater than the actuarial accrued liability, a surplus exists.

Description of Contribution Rate Components

The Entry Age Normal (EAN) actuarial cost method is used for the valuation. Under that method, the normal cost for each year from entry age to assumed exit age is a constant percentage of the member's year by year projected compensation. The portion of the present value of future benefits not provided by the present value of future normal costs is the actuarial accrued liability. The unfunded actuarial accrued liability/ (surplus) 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 and losses.

In general, contributions are computed in accordance with a level-percent of payroll funding objective. The contribution rate based on the July 1, 2019 actuarial valuation will be used to determine the actuarial required employer contribution rate to the Judges Retirement System for the plan year ending June 30, 2020. Any State contributions are expected to be deposited on July 1, 2020 (State fiscal year 2021). In this context, the term "contribution rate" means the percentage, which is applied to a particular active member payroll to determine the actual employer contribution amount (i.e., in dollars) for the group.

Contribution Rate Summary

In Table 10 the amortization payment related to the unfunded actuarial accrued liability/(surplus), as of July 1, 2019, is developed. Table 11 develops the actuarial required contribution rate for the System and the amount of any additional required state contributions.

The contribution rates shown in this report are based on the actuarial assumptions and cost methods described in Appendix C.

TABLE 10

JUDGES RETIREMENT SYSTEM

SCHEDULE OF AMORTIZATION BASES

Amortization Bases	Original Amount	July 1, 2019 Remaining Payments	Date of Last Payment	Outstanding Balance as of July 1, 2019	Annual Contribution*
2011 UAAL Base	$ 3,073,897	22	7/1/2041	$ 3,269,856	$ 222,962
2012 Experience Base	$ 4,171,302	23	7/1/2042	$ 4,519,360	$ 299,606
2012 Assumption Change Base	$ 4,319,074	23	7/1/2042	$ 4,679,463	$ 310,220
2013 Experience Base	$ 6,839,972	24	7/1/2043	$ 7,536,599	$ 486,623
2014 Experience Base	$ (7,043,240)	25	7/1/2044	$ (7,649,591)	$ (481,841)
2015 Experience Base	$ (7,075,557)	26	7/1/2045	$ (7,563,535)	$ (465,462)
2016 Experience Base	$ (1,566,805)	27	7/1/2046	$ (1,646,205)	$ (99,113)
2017 Experience Base	$ (3,985,070)	28	7/1/2047	$ (4,110,196)	$ (242,406)
2017 Assumption Change Base	$ 12,705,465	28	7/1/2047	$ 13,104,400	$ 772,855
2018 Experience Base	$ (4,423,603)	29	7/1/2048	$ (4,494,934)	$ (259,982)
2019 Experience Base	$ (3,836,739)	30	7/1/2049	$ (3,836,739)	$ (217,866)
Total				**$ 3,808,478**	**$ 325,596**

* Contribution amount reflects mid-year timing.

1. Total UAAL Amortization Payments	$ 325,596
2. Projected Payroll for FY 2020	$ 24,445,565
3. UAAL Amortization Payment Rate	1.33%

Note: The payments on each UAAL base are determined as a level-percent of payroll using a 3.50% payroll growth assumption.

TABLE 11

JUDGES RETIREMENT SYSTEM

ACTUARIAL REQUIRED CONTRIBUTION RATE FOR PLAN YEAR ENDING JUNE 30, 2020

1. Normal Cost		
(a) Amount	$	5,163,431
(b) Expected pay for current actives		21,305,843
(c) Normal Cost Rate as % of pay		24.23%
2. UAAL Amortization Rate (see Table 10)		1.33%
3. Total Actuarial Required Contribution Rate [1(c) + 2]		25.56%
4. Statutory Member Contribution Rate		7.99%
5. Employer Required Contribution Rate [3 - 4]		17.57%
6. Actuarial Required Employer Contribution		
(a) Projected pay for FY 2020	$	24,445,565
(b) Total required contribution [5 * 6(a)]		4,295,086
(c) Expected court fees		3,946,292
(d) Additional required State contribution amount as of July 1, 2020 [6(b) - 6(c), not less than 0]	$	348,794

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In September, 2017, Actuarial Standard of Practice Number 51, *Assessment and Disclosure of Risk in Measuring Pension Obligations*, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, is first applicable for the July 1, 2019 actuarial valuation for the Nebraska Judges Retirement System (System).

A typical retirement plan faces many different risks, but the greatest risk is the inability to make benefit payments when due. If plan assets are depleted, benefits may not be paid which could create legal and litigation risk or the plan could become "pay as you go". The term "risk" is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk can be translated as uncertainty. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

The various risk factors for a given plan can have a significant impact – positive or negative – on the actuarial projection of liability and contribution rates.

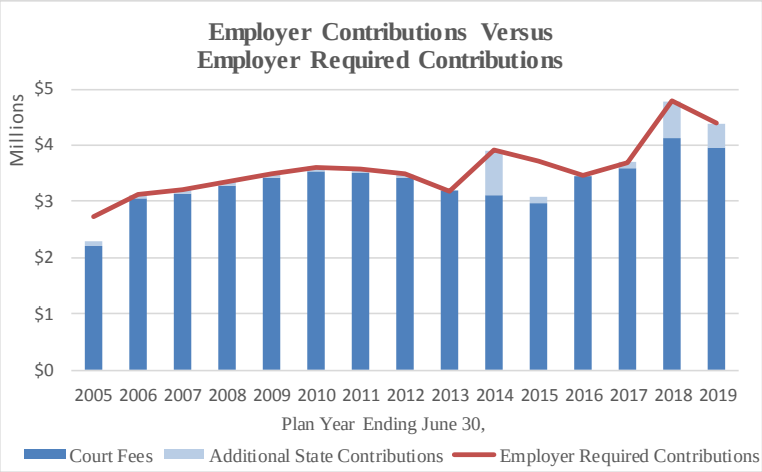
There are a number of risks inherent in the funding of a defined benefit plan. These include:

- economic risks, such as investment return and price inflation;
- demographic risks such as mortality, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contribution rates to be too high for the plan sponsor/employer to pay; and
- external risks such as the regulatory and political environment.

Although the external risks do exist, ASOP 51 does not require the actuary to opine on those risks, so no discussion in included here.

Actual vs Actuarial Contributions

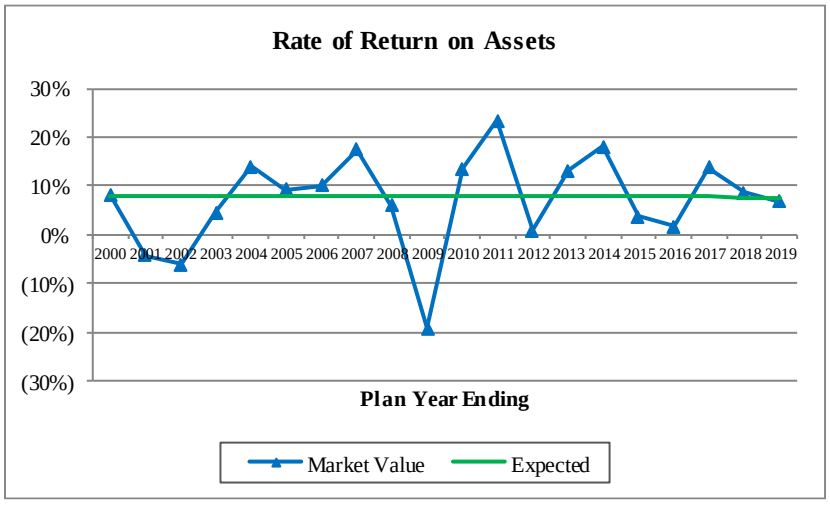
Employees contribute a fixed contribution rate, which is set by statute. State statutes also direct a portion of court fees from the General Fund to the Judges' Retirement Fund. The State's funding policy is to make an additional contribution to pay the excess of the actuarial required contribution over member contributions, court fees, and other state appropriations. There is a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution rate each year. As the following graph shows, the full actuarial employer contribution rate, including any additional State contributions, has been contributed in 13 of the last 15 years.



One of the positive factors regarding the funding of the Judges Retirement System is the State's commitment to make any additional contributions that are needed to meet the actuarial required contribution. As a result, the System's funded status is very strong.

Investment Return Risk

The most significant risk factor for most public retirement systems, including the Nebraska Judges Retirement System is investment return because of the volatility of returns and the size of plan assets compared to payroll (see Table 12). A perusal of historical returns over 10-20 years reveals that the actual return each year is rarely close to the expected return. This is to be expected, given the underlying capital market assumptions and the System's asset allocation, but it creates significant contribution risk. As Table 12 illustrates, a return that varies from the 7.5% assumption by 10.0% (-2.5% or 17.5%) equates to 80% of payroll. Even with asset smoothing and amortization of the actuarial experience loss over 30 years, the impact on the actuarial contribution rate is dramatic (4.54% once the experience is fully recognized).



Contribution Risks

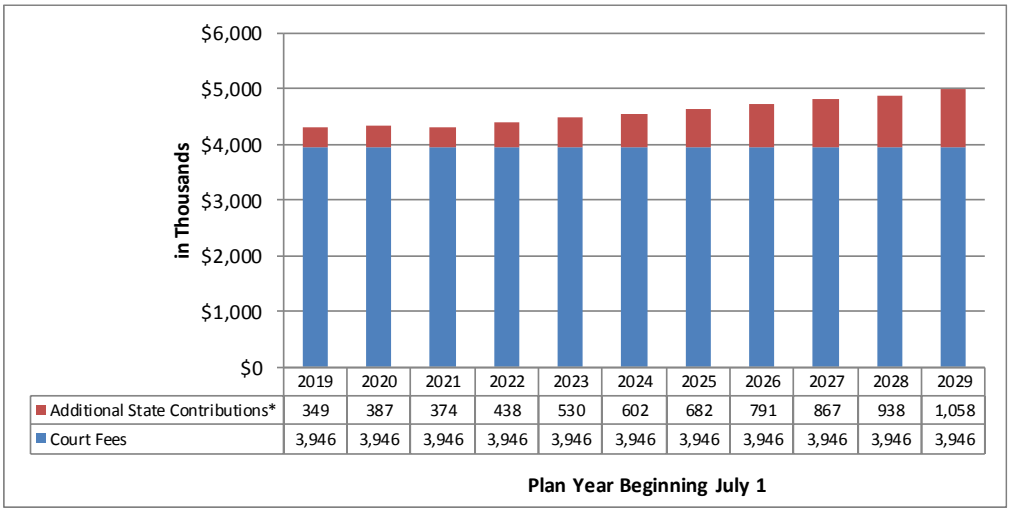
The actuarial required contribution, determined each year based on the snapshot of the System taken on the valuation date of July 1, will change each year as the deferred investment experience is recognized and other experience (both investment and demographic) impacts the System. Therefore, the actuarial contribution rate is expected to change each year. To the extent the difference between the actual and expected experience is significant, the change in the actuarial contribution rate is also expected to change significantly. This volatility in the actuarial contribution rate can result in extreme volatility in the additional State contribution, as illustrated in the following table.

Return on Actuarial Value of Assets	2% Loss (5.5%)	5% Loss (2.5%)	10% Loss (-2.5%)
Actuarial Required Contribution Rate	26.47%	27.83%	30.10%
Member Contribution Rate	(7.99%)	(7.99%)	(7.99%)
Employer Required Contribution Rate	18.48%	19.84%	22.11%
Employer Required Contribution Amount	$4,517,052	$4,850,000	$5,404,914
Expected Court Fees	3,946,292	3,946,292	3,946,292
Additional Required State Contribution	$570,760	$903,708	$1,458,622

Another funding challenge is that contributions to the Judges Retirement System are developed as a level percentage of payroll so the dollar amount of contributions is expected to increase from year to year as payroll increases. However, one the major funding sources of the System (court fees) is not payroll related. This disconnect between the funding policy and the financing mechanism creates a unique funding challenge as there will tend to be an increasing shortfall between the actuarial employer contribution and the court fees over time, even if all assumptions are met, which will result in an increasing pattern of additional State contributions.

Demographic Risks

A key demographic risk for all retirement systems, including the Nebraska Judges Retirement System, is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect small, continuous improvements in mortality experience over time and these assumptions are refined every experience study, the risk arises because there is a possibility of some sudden shift, perhaps due to a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, which would also be significant, although more easily absorbed. While either of these events could happen, it represents a small probability and thus represents much less risk than the volatility associated with investment returns.



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Additional State Contributions*	349	387	374	438	530	602	682	791	867	938	1,058
Court Fees	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946	3,946

The following exhibits summarize some historical information that helps indicate how certain key risk metrics have changed over time. Many are due to the maturing of the retirement system.

TABLE 12

JUDGES RETIREMENT SYSTEM

HISTORICAL ASSET VOLATILITY RATIOS

As a retirement system matures, the size of the market value of assets increases relative to the covered payroll of active members, on which the System is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the System. The higher this ratio, the more sensitive a plan's contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions.

Actuarial Valuation Date	Market Value of Assets	Covered Payroll	Asset Volatility Ratio	Increase in ACR with a Return 10% Lower than Assumed*
July 1, 2000	$90,748,042	$13,913,264	6.52	3.70%
July 1, 2001	84,654,248	15,188,085	5.57	3.16%
July 1, 2002	77,147,416	16,062,274	4.80	2.73%
July 1, 2003	78,353,222	16,402,342	4.78	2.71%
July 1, 2004	87,971,164	16,655,342	5.28	3.00%
July 1, 2005	94,958,898	16,285,137	5.83	3.31%
July 1, 2006	103,945,918	16,422,894	6.33	3.59%
July 1, 2007	121,215,683	17,003,921	7.13	4.05%
July 1, 2008	113,254,039	17,990,072	6.30	3.58%
July 1, 2009	90,446,117	18,373,339	4.92	2.79%
July 1, 2010	101,951,911	18,773,203	5.43	3.08%
July 1, 2011	124,852,333	18,182,238	6.87	3.90%
July 1, 2012	123,907,003	19,005,478	6.52	3.70%
July 1, 2013	137,021,979	20,099,647	6.82	3.87%
July 1, 2014	158,790,111	21,705,428	7.32	4.16%
July 1, 2015	160,800,009	21,973,679	7.32	4.16%
July 1, 2016	159,240,849	23,020,459	6.92	3.93%
July 1, 2017	176,605,831	23,614,251	7.48	4.25%
July 1, 2018	188,055,655	23,873,911	7.88	4.47%
July 1, 2019	195,672,498	24,445,565	8.00	4.54%

Note: Years prior to July 1, 2013 were provided by the prior actuary.

*The impact of asset smoothing is not reflected in the impact on the Actuarial Contribution Rate (ACR). Current year assumptions are used for all years shown.

The assets at July 1, 2019 are 8 times payroll, so underperforming the investment return assumption by 10.00% (i.e., earn -2.50% for one year) creates an actuarial loss of about $20 million, or 80.0% of payroll. While the actual impact in the first year is mitigated by the asset smoothing method and amortization of the UAAL, this illustrates the significant contribution risk associated with volatile investment returns.

TABLE 13

JUDGES RETIREMENT SYSTEM

HISTORICAL CASH FLOWS

Plans with negative cash flows will experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments. If the System has negative cash flows and then experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. Over this period, the System has had negative cash flows, but generally less than 3%.

Year End	Market Value of Assets (MVA)	Contributions	Benefit Payments	Net Cash Flow	Net Cash Flow as a Percent of MVA
6/30/2000	$90,748,042	$1,235,545	$3,251,141	($2,015,596)	(2.22%)
6/30/2001	84,654,248	1,280,413	3,547,845	(2,267,432)	(2.68%)
6/30/2002	77,147,416	1,305,455	3,709,729	(2,404,274)	(3.12%)
6/30/2003	78,353,222	1,412,485	3,700,867	(2,288,382)	(2.92%)
6/30/2004	87,971,164	2,809,371	3,970,731	(1,161,360)	(1.32%)
6/30/2005	94,958,898	3,300,709	4,214,817	(914,108)	(0.96%)
6/30/2006	103,945,918	4,181,064	4,724,053	(542,989)	(0.52%)
6/30/2007	121,215,683	4,306,300	5,068,066	(761,766)	(0.63%)
6/30/2008	113,254,039	4,504,081	5,277,937	(773,856)	(0.68%)
6/30/2009	90,446,117	4,670,801	5,641,650	(970,849)	(1.07%)
6/30/2010	101,951,911	5,006,402	5,576,749	(570,347)	(0.56%)
6/30/2011	124,852,333	4,958,315	5,801,195	(842,880)	(0.68%)
6/30/2012	123,907,003	4,883,775	6,834,551	(1,950,776)	(1.57%)
6/30/2013	137,021,979	4,604,741	7,393,972	(2,789,231)	(2.04%)
6/30/2014	158,790,111	5,425,048	8,121,996	(2,696,948)	(1.70%)
6/30/2015	160,800,009	4,681,734	8,547,892	(3,866,158)	(2.40%)
6/30/2016	159,240,849	5,110,097	9,052,110	(3,942,013)	(2.48%)
6/30/2017	176,605,831	5,440,668	9,690,310	(4,249,642)	(2.41%)
6/30/2018	188,055,655	6,594,689	10,144,103	(3,549,414)	(1.89%)
6/30/2019	195,672,498	6,243,603	10,991,157	(4,747,554)	(2.43%)

Note: Years prior to 6/30/2013 were provided by the prior actuary.

TABLE 13
(continued)

JUDGES RETIREMENT SYSTEM

HISTORICAL CASH FLOWS

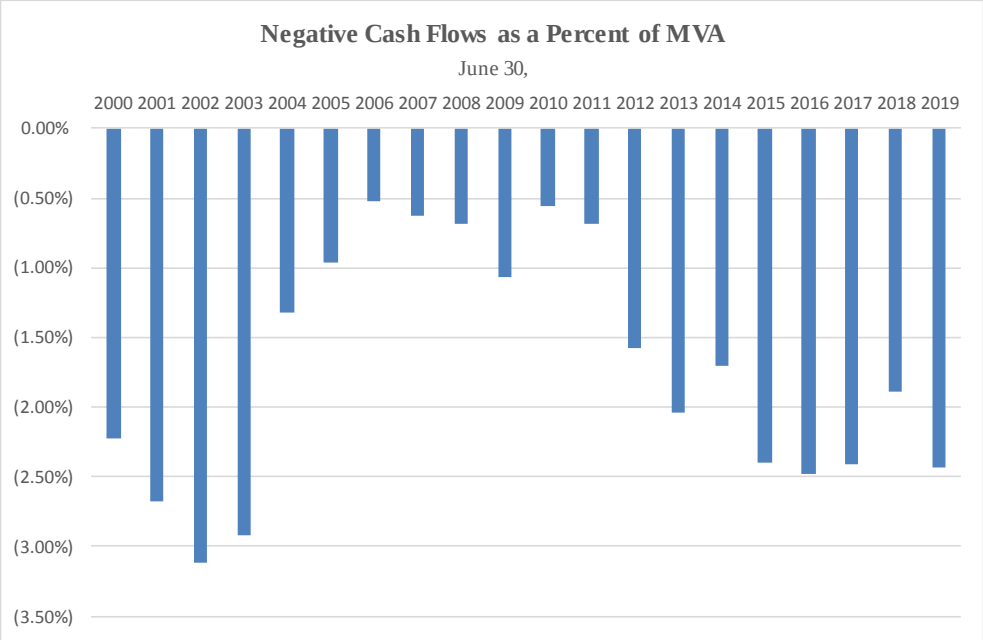


TABLE 14

JUDGES RETIREMENT SYSTEM

LIABILITY MATURITY MEASUREMENTS

Most public sector retirement systems have been in operation for over 50 years. As a result, they have aging plan populations, and in some cases declining active populations, resulting in an increasing ratio of retirees to active members (see Table 15) and a growing percentage of retiree liability (see table below). With more of the total liability residing with retirees, investment volatility has a greater impact on the funding of the system because it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs.

Actuarial Valuation Date	Retiree Liability (a)	Total Actuarial Liability (b)	Retiree Percentage (a) / (b)
July 1, 2000	$33,966,467	$84,483,073	40.2%
July 1, 2001	35,006,641	90,685,851	38.6%
July 1, 2002	36,216,786	81,191,724	44.6%
July 1, 2003	38,045,040	85,387,839	44.6%
July 1, 2004	40,000,310	95,671,391	41.8%
July 1, 2005	44,085,429	98,512,876	44.8%
July 1, 2006	49,128,336	101,438,239	48.4%
July 1, 2007	50,019,570	103,704,250	48.2%
July 1, 2008	50,873,865	114,251,081	44.5%
July 1, 2009	52,364,507	118,558,418	44.2%
July 1, 2010	51,765,715	121,309,682	42.7%
July 1, 2011	60,624,250	128,264,617	47.3%
July 1, 2012	70,871,220	137,464,661	51.6%
July 1, 2013	79,678,340	148,581,812	53.6%
July 1, 2014	82,799,667	156,326,683	53.0%
July 1, 2015	87,258,262	162,095,235	53.8%
July 1, 2016	94,142,544	168,103,750	56.0%
July 1, 2017	102,821,774	187,502,212	54.8%
July 1, 2018	110,928,188	194,269,172	57.1%
July 1, 2019	113,432,873	198,116,058	57.3%

Note: Years prior to July 1, 2013 were provided by the prior actuary.

TABLE 15

JUDGES RETIREMENT SYSTEM

HISTORICAL MEMBER STATISTICS

Valuation Date July 1,	Number of Active Members	Number of Retired Members	Active/ Retired
2000	159	163	0.98
2001	164	165	0.99
2002	166	163	1.02
2003	162	160	1.01
2004	163	158	1.03
2005	159	164	0.97
2006	154	162	0.95
2007	154	159	0.97
2008	157	155	1.01
2009	154	157	0.98
2010	153	154	0.99
2011	146	160	0.91
2012	150	166	0.90
2013	149	172	0.87
2014	153	175	0.87
2015	147	179	0.82
2016	149	184	0.81
2017	147	186	0.79
2018	147	190	0.77
2019	149	188	0.79

Note: Years prior to July 1, 2013 were provided by the prior actuary.

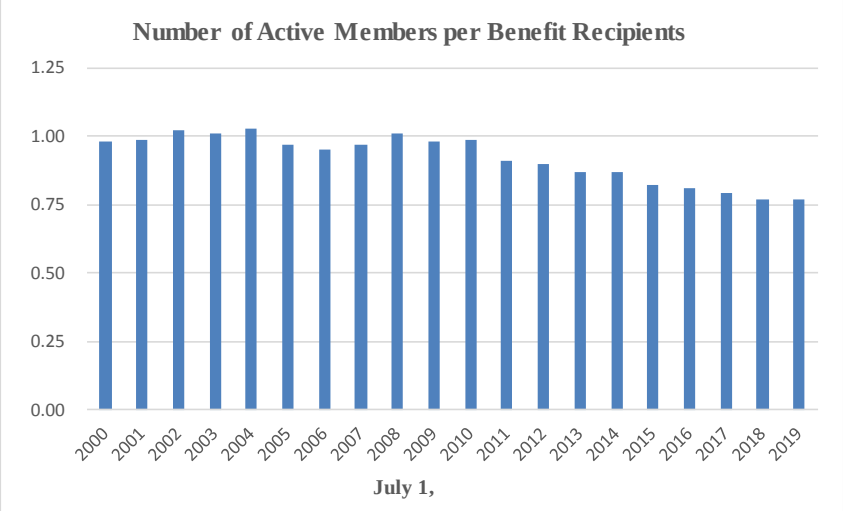


TABLE 16

JUDGES RETIREMENT SYSTEM

COMPARISON OF VALUATION RESULTS UNDER ALTERNATE INVESTMENT RETURN ASSUMPTIONS

This exhibit compares the key July 1, 2019 valuation results under five (5) different investment return assumptions to illustrate the impact of different assumptions on the funding of the System. Note that only the investment return assumption is changed, as identified in the heading below. All other assumptions are unchanged for purposes of this analysis.

Investment Return Assumption	**7.00%**	**7.25%**	**7.50%**	**7.75%**	**8.00%**
Actuarial Value of Assets ($ in thousands)	$194,308	$194,308	$194,308	$194,308	$194,308
Actuarial Accrued Liability	207,909	202,919	198,116	193,493	189,041
Unfunded Actuarial Accrued Liability	$13,602	$8,611	$3,808	($815)	($5,267)
Funded Ratio	93.46%	95.76%	98.08%	100.42%	102.79%
Contributions					
Normal Cost Rate	26.71%	25.44%	24.23%	23.10%	22.02%
UAAL Amortization Rate	3.44%	2.40%	1.33%	0.25%	(0.86%)
Actuarial Required Contribution Rate	30.15%	27.84%	25.56%	23.35%	21.16%
Member Contribution Rate	(7.99%)	(7.99%)	(7.99%)	(7.99%)	(7.99%)
Employer Required Contribution Rate	22.16%	19.85%	17.57%	15.36%	13.17%
Employer Required Contribution Amount	$5,417	$4,852	$4,295	$3,755	$3,219
Expected Court Fees	3,946	3,946	3,946	3,946	3,946
Additional Required State Contribution	**$1,471**	**$906**	**$349**	**$0**	**$0**

Note: All other assumptions are unchanged for purposes of this sensitivity analysis.
*May not add due to rounding.

This section of the report provides a historical perspective on the System's funding and contribution practices, along with other information that may be of interest.

TABLE 17

JUDGES RETIREMENT SYSTEM

HISTORICAL FUNDING INFORMATION

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded Actuarial Accrued Liability (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a % of Covered Payroll [(b - a) / c]
June 30, 2003	$91,863,620	$85,387,839	($6,475,781)	107.6%	$16,402,342	(39.5%)
June 30, 2004	92,810,699	95,671,391	2,860,692	97.0%	16,655,342	17.2%
June 30, 2005	94,922,714	98,512,876	3,590,162	96.4%	16,285,137	22.0%
June 30, 2006	100,565,893	101,438,239	872,346	99.1%	16,422,894	5.3%
June 30, 2007	111,006,176	103,704,250	(7,301,926)	107.0%	17,003,921	(42.9%)
June 30, 2008	119,961,758	114,251,081	(5,710,677)	105.0%	17,990,072	(31.7%)
June 30, 2009	120,992,600	118,558,418	(2,434,182)	102.1%	18,373,339	(13.2%)
June 30, 2010	121,406,463	121,309,682	(96,781)	100.1%	18,773,203	(0.5%)
June 30, 2011	125,190,720	128,264,617	3,073,897	97.6%	18,182,238	16.9%
June 30, 2012	125,927,523	137,464,661	11,537,138	91.6%	19,005,478	60.7%
June 30, 2013	130,308,955	148,581,812	18,272,857	87.7%	20,099,647	90.9%
June 30, 2014	144,729,946	156,326,683	11,596,737	92.6%	21,705,428	53.4%
June 30, 2015	157,369,088	162,095,235	4,726,147	97.1%	21,973,679	21.5%
June 30, 2016	164,900,363	168,103,750	3,203,387	98.1%	23,020,459	13.9%
June 30, 2017	175,577,087	187,502,212	11,925,125	93.6%	23,614,251	50.5%
June 30, 2018	186,650,907	194,269,172	7,618,265	96.1%	23,873,911	31.9%
June 30, 2019	194,307,580	198,116,058	3,808,478	98.1%	24,445,565	15.6%

Note: Information before 2013 was produced by the prior actuary.

TABLE 18

JUDGES RETIREMENT SYSTEM

HISTORICAL FUNDING INFORMATION

SCHEDULE OF CONTRIBUTIONS FROM EMPLOYER AND OTHER CONTRIBUTING ENTITIES

	Employer Required Contributions*			
Plan Year Ending	State	Court Fees	Total	Percent Contributed
June 30, 2005	$501,841	$2,217,118	$2,718,959	84%
June 30, 2006	72,244	3,048,009	3,120,253	100%
June 30, 2007	72,244	3,135,709	3,207,953	100%
June 30, 2008	72,244	3,280,964	3,353,208	100%
June 30, 2009	72,244	3,419,091	3,491,335	100%
June 30, 2010	72,244	3,543,047	3,615,291	100%
June 30, 2011	72,244	3,507,417	3,579,661	100%
June 30, 2012	72,244	3,411,370	3,483,614	100%
June 30, 2013	0	3,180,367	3,180,367	100%
June 30, 2014	803,383	3,102,864	3,906,247	100%
June 30, 2015	749,849	2,977,205	3,727,054	82%
June 30, 2016	0	3,458,665	3,458,665	100%
June 30, 2017	118,714	3,578,851	3,697,565	100%
June 30, 2018	667,613	4,112,543	4,780,156	100%
June 30, 2019	442,599	3,946,292	4,388,891	100%

Note: Contribution information is consistent with that shown in the GASB 67 report prepared for the System.
*ARC less member contributions

MEMBER DATA RECONCILIATION

	Active Members	Inactive Vested	Retirees and Beneficiaries	Disabled Members	Total
As of July 1, 2018	147	4	186	4	341
Changes in status					
a) Retirement	(5)	0	5	0	0
b) Death	(1)	0	(11)	0	(12)
c) Nonvested terminations	0	0	0	0	0
d) Vested terminations	0	0	0	0	0
e) Contribution refund	0	0	0	0	0
f) Beneficiaries in receipt	0	0	4	0	4
g) Disability retirements	0	0	0	0	0
h) Return to active service	0	0	0	0	0
i) Expired benefits	0	0	0	0	0
Total changes in status	(6)	0	(2)	0	(8)
New entrants					
a) Without prior service	8	0	0	0	8
b) With prior service	0	0	0	0	0
Total new members	8	0	0	0	8
Net Change	2	0	(2)	0	0
As of July 1, 2019	149	4	184	4	341

SUMMARY OF MEMBERSHIP DATA

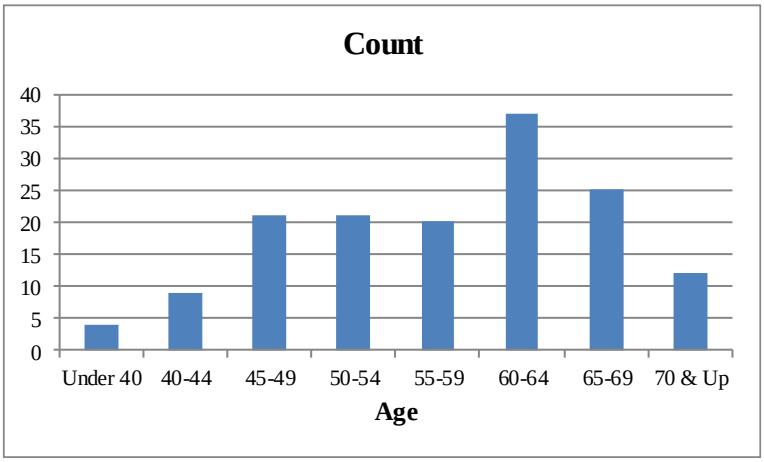
A. ACTIVE MEMBERS	July 1, 2019	July 1, 2018	% Change
1. Number of Active Members			
(a) Before assumed retirement age	138	140	(1.4%)
(b) Beyond assumed retirement age	11	7	57.1%
(c) Total*	149	147	1.4%
2. Annual Reported Salary			
(a) Before assumed retirement age	$ 22,001,183	$ 22,135,622	(0.6%)
(b) Beyond assumed retirement age	1,617,721	930,959	73.8%
(c) Total	$ 23,618,904	$ 23,066,581	2.4%
3. Accumulated Contributions	$ 18,899,539	$ 17,756,388	6.4%
4. Active Member Averages			
(a) Age	58.0	58.2	(0.3%)
(b) Service	12.2	12.4	(1.6%)
(c) Compensation	$ 158,516	$ 156,916	1.0%
B. INACTIVE VESTED MEMBERS			
1. Number of Inactive Vested Members	4	4	0.0%
2. Accumulated Member Contributions	$ 503,088	$ 490,799	2.5%
3. Inactive Vested Member Averages			
(a) Age	56.8	55.8	1.8%
(b) Accumulated member contributions	$ 125,772	$ 122,700	2.5%
C. RETIREES, DISABLEDS, AND BENEFICIARIES			
1. Number of Members			
(a) Retired	136	139	(2.2%)
(b) Disabled	4	4	0.0%
(c) Beneficiaries	48	47	2.1%
(d) Total	188	190	(1.1%)
2. Annual Benefits			
(a) Retired	$ 8,610,720	$ 8,427,831	2.2%
(b) Disabled	294,483	290,303	1.4%
(c) Beneficiaries	2,226,885	2,056,318	8.3%
(d) Total	$ 11,132,088	$ 10,774,452	3.3%

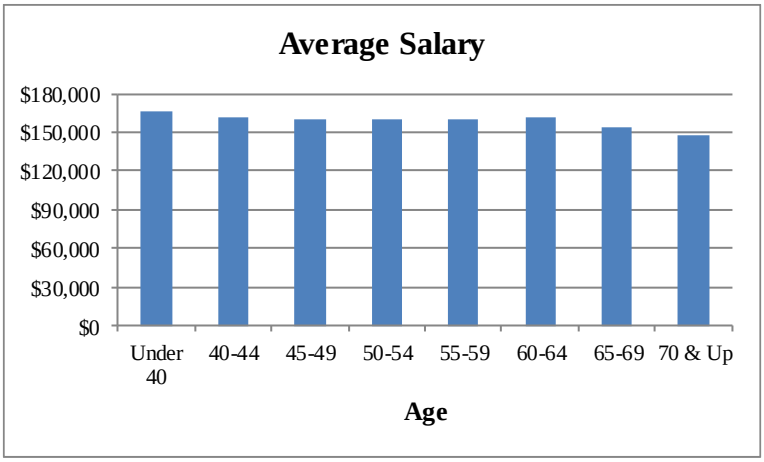
* As of July 1, 2019, there are 16 members who were hired after July 1, 2017, 15 members hired after July 1, 2015 but before July 1, 2017, 93 members who were hired after July 1, 2004 or who elected the enhanced joint and survivor benefit option, and 25 members who were hired before July 1, 2004 and did not elect the enhanced joint and survivor benefit option.

ACTIVE MEMBERS
AS OF JULY 1, 2019

Total

	Count			Reported FY 2019 Earnings		
Age	Male	Female	Total	Male	Female	Total
Under 40	3	1	4	$ 502,664	$ 161,872	$ 664,536
40-44	6	3	9	969,234	483,618	1,452,852
45-49	11	10	21	1,773,955	1,596,845	3,370,800
50-54	16	5	21	2,560,499	800,609	3,361,108
55-59	14	6	20	2,228,791	975,607	3,204,398
60-64	26	11	37	4,178,874	1,771,841	5,950,715
65-69	21	4	25	3,368,686	466,217	3,834,903
70 & Up	10	2	12	1,535,096	244,496	1,779,592
Total	107	42	149	$ 17,117,799	$ 6,501,105	$ 23,618,904

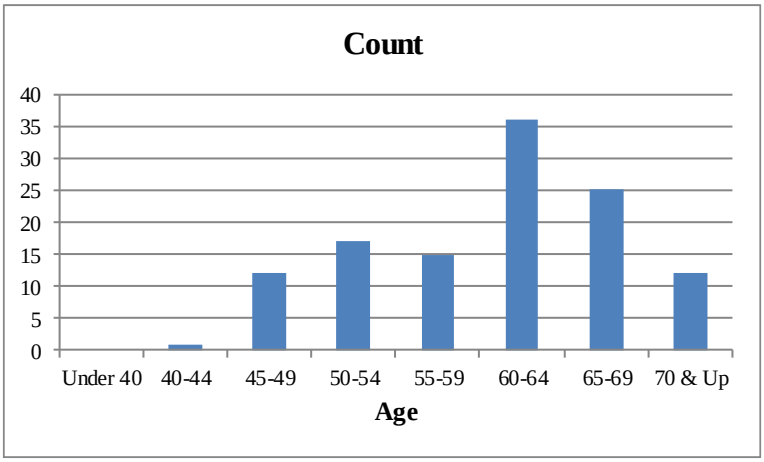


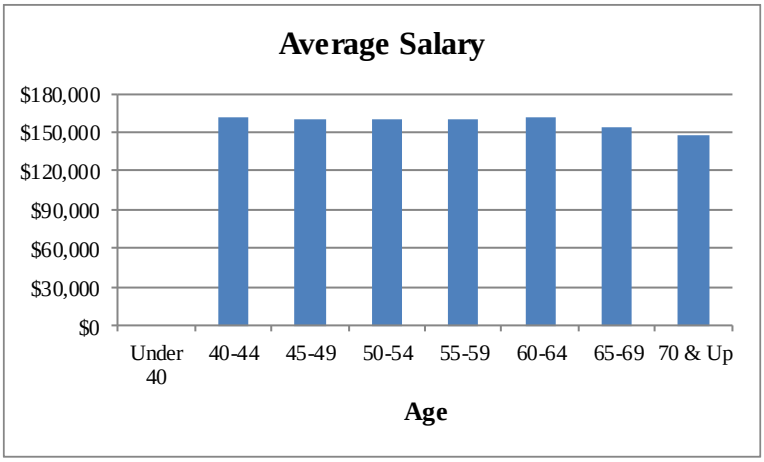


ACTIVE MEMBERS
AS OF JULY 1, 2019

Members Hired Before July 1, 2015

	Count			Reported FY 2019 Earnings		
Age	Male	Female	Total	Male	Female	Total
Under 40	0	0	0	$ 0	$ 0	$ 0
40-44	1	0	1	161,872	0	161,872
45-49	6	6	12	958,106	962,483	1,920,589
50-54	12	5	17	1,911,839	800,609	2,712,448
55-59	9	6	15	1,428,181	975,607	2,403,788
60-64	25	11	36	4,017,002	1,771,841	5,788,843
65-69	21	4	25	3,368,686	466,217	3,834,903
70 & Up	10	2	12	1,535,096	244,496	1,779,592
Total	84	34	118	$ 13,380,782	$ 5,221,253	$ 18,602,035

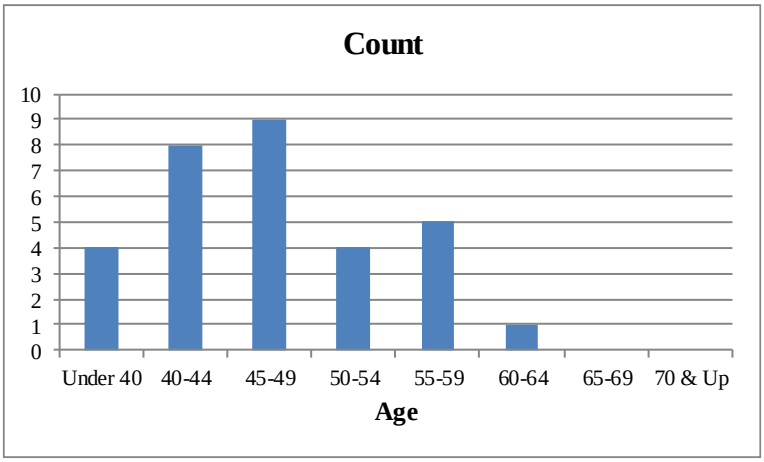


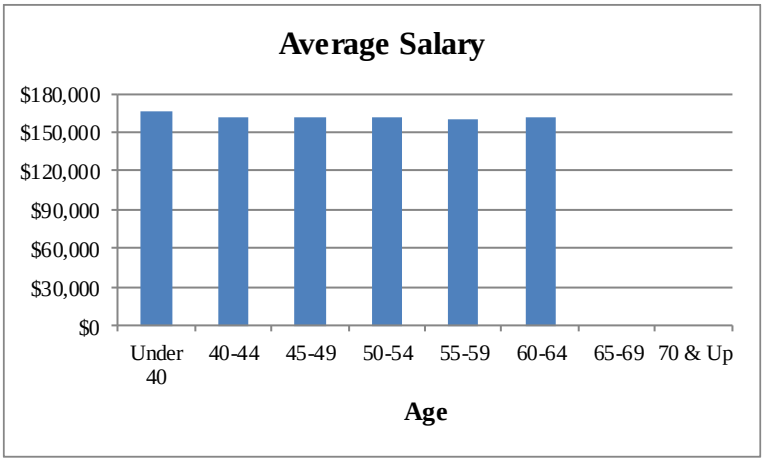


ACTIVE MEMBERS
AS OF JULY 1, 2019

Members Hired On or After July 1, 2015

	Count			Reported FY 2019 Earnings		
Age	Male	Female	Total	Male	Female	Total
Under 40	3	1	4	$ 502,664	$ 161,872	$ 664,536
40-44	5	3	8	807,362	483,618	1,290,980
45-49	5	4	9	815,849	634,362	1,450,211
50-54	4	0	4	648,660	0	648,660
55-59	5	0	5	800,610	0	800,610
60-64	1	0	1	161,872	0	161,872
65-69	0	0	0	0	0	0
70 & Up	0	0	0	0	0	0
Total	23	8	31	$ 3,737,017	$ 1,279,852	$ 5,016,869





AGE AND SERVICE DISTRIBUTION
AS OF JULY 1, 2019

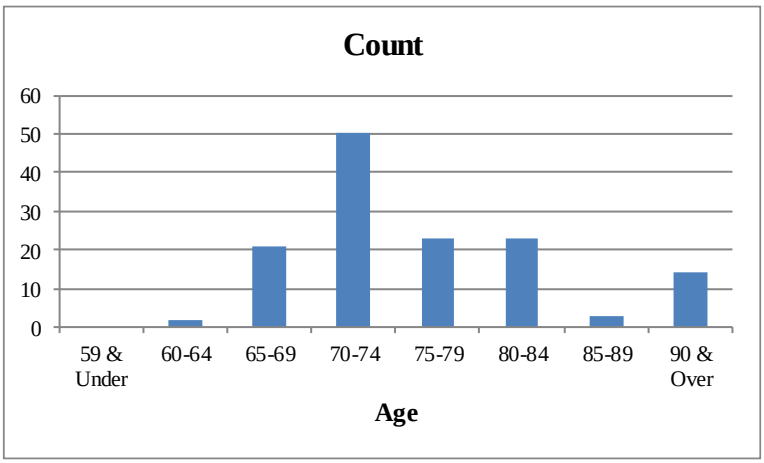
Age		0-4	5-9	10-14	15-19	20-24	Over 24	Total
Under 40	Number	4	0	0	0	0	0	4
	Total Salary	$ 664,536	$ 0	$ 0	$ 0	$ 0	$ 0	$ 664,536
	Average Sal.	$ 166,134	$ 0	$ 0	$ 0	$ 0	$ 0	$ 166,134
40-44	Number	8	1	0	0	0	0	9
	Total Salary	$ 1,290,980	$ 161,872	$ 0	$ 0	$ 0	$ 0	$ 1,452,852
	Average Sal.	$ 161,373	$ 161,872	$ 0	$ 0	$ 0	$ 0	$ 161,428
45-49	Number	11	8	2	0	0	0	21
	Total Salary	$ 1,769,580	$ 1,277,476	$ 323,744	$ 0	$ 0	$ 0	$ 3,370,800
	Average Sal.	$ 160,871	$ 159,684	$ 161,872	$ 0	$ 0	$ 0	$ 160,514
50-54	Number	6	10	5	0	0	0	21
	Total Salary	$ 963,654	$ 1,583,719	$ 813,735	$ 0	$ 0	$ 0	$ 3,361,108
	Average Sal.	$ 160,609	$ 158,372	$ 162,747	$ 0	$ 0	$ 0	$ 160,053
55-59	Number	5	9	4	0	2	0	20
	Total Salary	$ 800,610	$ 1,461,222	$ 638,738	$ 0	$ 303,828	$ 0	$ 3,204,398
	Average Sal.	$ 160,122	$ 162,358	$ 159,684	$ 0	$ 151,914	$ 0	$ 160,220
60-64	Number	2	8	10	11	6	0	37
	Total Salary	$ 323,744	$ 1,275,046	$ 1,609,969	$ 1,771,841	$ 970,115	$ 0	$ 5,950,715
	Average Sal.	$ 161,872	$ 159,381	$ 160,997	$ 161,076	$ 161,686	$ 0	$ 160,830
65-69	Number	0	3	2	8	12	0	25
	Total Salary	$ 0	$ 485,616	$ 319,369	$ 1,281,851	$ 1,748,067	$ 0	$ 3,834,903
	Average Sal.	$ 0	$ 161,872	$ 159,684	$ 160,231	$ 145,672	$ 0	$ 153,396
70 & Up	Number	0	0	1	4	7	0	12
	Total Salary	$ 0	$ 0	$ 174,997	$ 647,488	$ 957,107	$ 0	$ 1,779,592
	Average Sal.	$ 0	$ 0	$ 174,997	$ 161,872	$ 136,730	$ 0	$ 148,299
Total	Number	36	39	24	23	27	0	149
	Total Salary	$ 5,813,104	$ 6,244,951	$ 3,880,552	$ 3,701,180	$ 3,979,117	$ 0	$ 23,618,904
	Average Sal.	$ 161,475	$ 160,127	$ 161,690	$ 160,921	$ 147,375	$ 0	$ 158,516

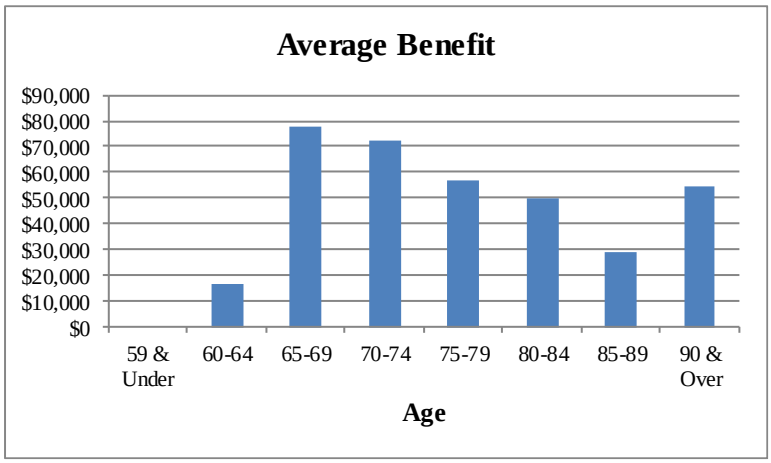
INACTIVE VESTED MEMBERS
AS OF JULY 1, 2019

	Count			Annual Benefits		
Age	Male	Female	Total	Male	Female	Total
59 & Under	1	1	2	$ 16,492	$ 51,052	$ 67,544
60-64	2	0	2	139,103	0	139,103
65-69	0	0	0	0	0	0
70-74	0	0	0	0	0	0
75-79	0	0	0	0	0	0
80-84	0	0	0	0	0	0
85-89	0	0	0	0	0	0
90 & Over	0	0	0	0	0	0
Total	3	1	4	$ 155,595	$ 51,052	$ 206,647

RETIRED MEMBERS
AS OF JULY 1, 2019

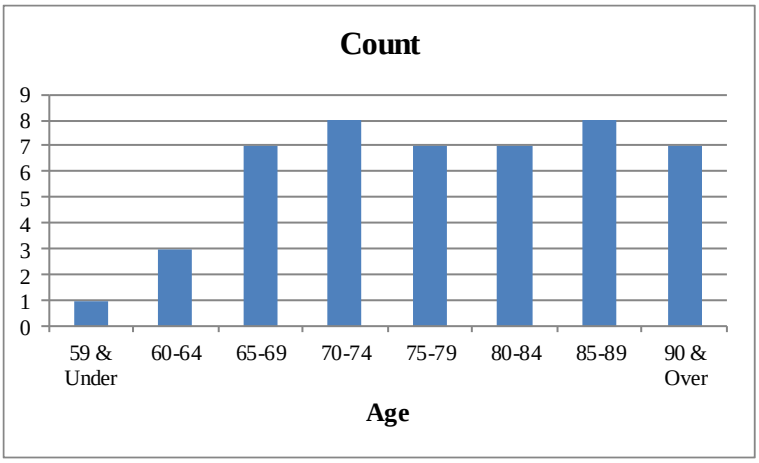
	Count			Annual Benefits		
Age	Male	Female	Total	Male	Female	Total
59 & Under	0	0	0	$ 0	$ 0	$ 0
60-64	1	1	2	15,967	17,122	33,089
65-69	12	9	21	1,052,342	585,744	1,638,086
70-74	40	10	50	3,040,885	589,064	3,629,949
75-79	13	10	23	974,408	340,006	1,314,414
80-84	15	8	23	935,534	211,254	1,146,788
85-89	2	1	3	69,451	18,551	88,002
90 & Over	11	3	14	678,537	81,855	760,392
Total	94	42	136	$6,767,124	$1,843,596	$8,610,720

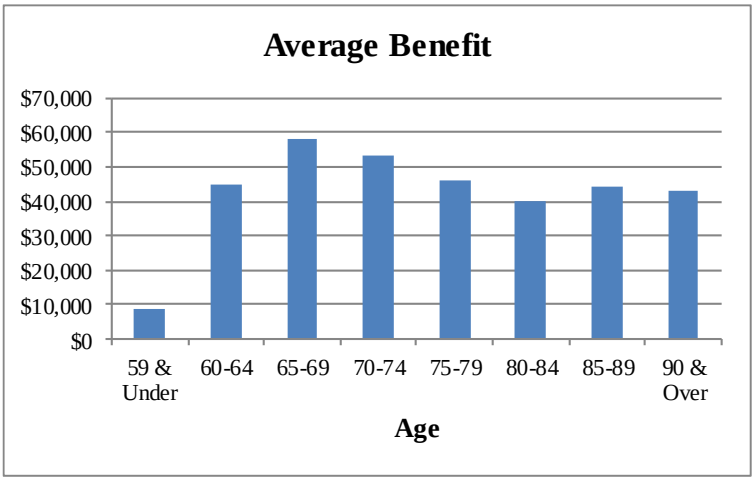




BENEFICIARIES RECEIVING BENEFITS
AS OF JULY 1, 2019

	Count			Annual Benefits		
Age	Male	Female	Total	Male	Female	Total
59 & Under	0	1	1	$ 0	$ 9,035	$ 9,035
60-64	1	2	3	11,901	123,277	135,178
65-69	1	6	7	63,386	340,952	404,338
70-74	0	8	8	0	425,181	425,181
75-79	0	7	7	0	322,116	322,116
80-84	0	7	7	0	278,087	278,087
85-89	0	8	8	0	353,877	353,877
90 & Over	0	7	7	0	299,073	299,073
Total	2	46	48	$ 75,287	$2,151,598	$2,226,885





DISABLED MEMBERS
AS OF JULY 1, 2019

	Count			Annual Benefits		
Age	Male	Female	Total	Male	Female	Total
59 & Under	0	0	0	$ 0	$ 0	$ 0
60-64	0	0	0	0	0	0
65-69	1	0	1	99,045	0	99,045
70-74	1	0	1	95,799	0	95,799
75-79	1	1	2	90,930	8,709	99,639
80-84	0	0	0	0	0	0
85-89	0	0	0	0	0	0
90 & Over	0	0	0	0	0	0
Total	3	1	4	$ 285,774	$ 8,709	$ 294,483

Member

Original	A judge who first serves prior to December 25, 1969, and who does not elect to become a Future member on or before November 1, 1981.
Future	A judge who first serves on or after December 25, 1969, or who elects to become a Future member on or before November 1, 1981.
Participation Date	Date of becoming a member.

Definitions

Final average earnings	For Judges who became members prior to July 1, 2015, the average of the highest three 12-month periods of covered pay, ending on the earlier of the participant's termination date or retirement date. For Judges who became members on or after July 1, 2015, the average of the highest five 12-month periods of covered pay, ending on the earlier of the participant's termination date or retirement date.
Fiscal year	Twelve month period ending June 30.
Member contributions	All members hired after July 1, 2004, but before July 1, 2015, and members that elected an enhanced Joint and Survivor Benefit contribute 9% of pensionable pay up to 20 years of service, and 5% of pensionable pay thereafter. All other members contribute 7% of pensionable pay during the first twenty years of service, and 1% of pensionable pay thereafter. Such contributions are credited with interest based on the 1-year Treasury yield curve on July 1 of each year, as determined by State Statutes. Judges who first became members on or after July 1, 2015 will contribute 10% of compensation.
Monthly pension benefit	A monthly benefit equal to one-twelfth of 3.5% of final average salary times total years of service, subject to a maximum of 70% of final average salary. Effective July 1, 2001, an automatic annual cost-of-living adjustment (COLA) equal to the change in the CPI-W index, with a maximum increase of 2.5% in any one year, is provided for Judges who became members prior to July 1, 2015. Also provided is a minimum floor benefit equal to 75% of the purchasing power of the original benefit. For Judges who became members on or after July 1, 2015, an automatic cost-of-living adjustment (COLA) is provided equal to the change in the CPI-W index, not to exceed 1.0% in any one year. No purchasing power COLA applies.
Normal Retirement Date (NRD)	Attainment of age 65.

Pension service	Length of service includes all service as a Supreme Court, District Court, Worker's compensation Court, separate Juvenile Court, County Court, Municipal Court, or Appeals Court judge in Nebraska, computed to the nearest one-twelfth year and includes declared emergency service in the armed forces.

Eligibility for Benefits

Deferred vested	Termination for reasons other than death, disability, or retirement. No service requirement for vesting.
Disability retirement	Retirement by reason of permanent disability as determined by the Commission of Judicial qualifications.
Early retirement	Retirement before NRD and after attaining age 55.
Normal retirement	Retire on NRD.
Postponed retirement	Retire after NRD.
Pre-retirement spouse benefit	Death prior to retirement.

Monthly Benefits Paid Upon the Following Events

Normal retirement	Monthly pension benefit determined as of NRD.
Early retirement	Monthly pension benefit determined as of early retirement date, reduced by 3% if the member retires at age 64, 6% at age 63, or 9% at age 62, and actuarially reduced for each month that commencement of payment precedes age 62. The actuarial reduction is based on the 1994 Group Annuity Mortality Table, 25% female, 75% male and 8% interest for members hired prior to July 1, 2017. For members hired on or after July 1, 2017, the Public Employees Retirement Board sets the actuarial assumptions used for actuarial reduction, with guidance from the System's actuary.
Postponed retirement	Monthly pension benefit determined as of actual retirement date.
Termination with deferred vested benefit	Members may elect to receive either (I) a refund of their contributions with regular interest, or (II) a deferred normal retirement benefit payable at age 65 and calculated based upon service and salary at the date of termination.
Disability retirement	Monthly pension benefit determined as of disability retirement date.

Pre-retirement spouse benefits

1) **With 5 or more years of service:** A life annuity is payable to the surviving spouse in the amount which would have been payable had the member retired on the date of death and elected a joint and 100% survivor annuity.

2) **With less than 5 years of service:** A lump sum equal to the member's contributions plus regular interest.

Forms of payment

All members hired after July 1, 2004, and members who elected increased contributions are eligible to receive benefits paid in the normal form of an enhanced 50% Joint and Survivor Annuity. All other members receive benefits paid in the normal form of a modified cash refund annuity. Optional forms are: life annuity, life annuity with period certain, contingent annuity and join annuity. Pre-retirement spouse benefits are payable only as described above.

Funding Arrangement

The Nebraska Retirement Fund for Judges is established in the State Treasury. The fund receives member contributions and pays benefits and expenses. Additional funds are received as follows:

Court Fees

Beginning July 1, 2017, a fee of $6 (previously $4 effective July 1, 2015) from each (a) civil cause of action, criminal cause of action, traffic misdemeanor or infraction, and city or village ordinance violation filed in the district courts, the county courts, and the separate juvenile courts, (b) filing in the district court of an order, award, or judgment of the Nebraska Workers' Compensation Court or any judge thereof pursuant to section 48-188, (c) appeal or other proceeding filed in the Court of Appeals, and (d) original action, appeal, or other proceeding filed in the Supreme Court will be re-directed from the General Fund to the Judges' Retirement Fund. In county courts, a sum shall be charged which is equal to 10% of each fee provided by Nebraska statutes sections 33-125 and 33-126.03, rounded to the nearest even dollar.

State

The State makes any additional contributions that are necessary each year to pay the excess of the actuarial contribution (normal cost plus an amortization payment to fund unfunded actuarial accrued liability bases) over member contributions, court fees, and state appropriations.

Benefits Reflected in Valuation

All benefits were valued, including future cost of living increases.

Plan Provision Effective After July 1, 2019

No future changes in plan provisions were recognized in determining the funded status or in determining the State's contribution amount.

Changes since the Prior Year

There have been no benefit provision changes since the prior valuation.

A. ACTUARIAL METHODS

1. **Calculation of Normal cost and Actuarial Accrued Liability:** The method used to determine the normal cost and actuarial accrued liability was the Entry Age Actuarial Cost Method described below.

Entry Age Actuarial Cost Method

Projected pension and preretirement spouse's death benefits were determined for all active members under age 72. Cost factors designed to produce annual costs as a level-percentage of each member's expected compensation in each year from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members under age 72 and determining an average normal cost rate which is then related to the total payroll of active members under age 72. The actuarial assumptions shown in Appendix C were used in determining the projected benefits and cost factors. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, active members age 72 and over, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been 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 plan assets measured on the valuation date. Under the Entry Age Normal method, experience gains or losses, i.e., decreases or increases in actuarial accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

The unfunded actuarial accrued liability is amortized using the "layered" approach. The unfunded actuarial accrued liability as of July 1, 2011 was the initial or legacy amortization base, amortized over a closed 30 year period. Changes in the unfunded actuarial accrued liability due to assumption changes or actuarial experience gains/losses are amortized over separate 30-year amortization bases, each with their own individual payment schedules. The UAAL amortization payment schedules are determined using the level percent of payroll methodology where payments escalate annually with the assumed increase in payroll growth.

2. **Calculation of the Actuarial Value of Assets:** The actuarial value of assets is based on a five-year smoothing method and is determined by spreading the effect of each year's investment return in excess of or below the expected return. The market value of assets as the valuation date is reduced by the sum of the following:

   i. 80% of the return to be spread during the first year preceding the valuation date,

   ii. 60% of the return to be spread during the second year preceding the valuation date,

   iii. 40% of the return to be spread during the third year preceding the valuation date, and

   iv. 20% of the return to be spread during the fourth year preceding the valuation date.

The return to be spread is the difference between (1) the actual investment return on market value of assets and (2) the expected return of actuarial value of assets. Effective July 1, 2000, the expected return on actuarial value of assets includes interest on the previous year's unrecognized return.

B. VALUATION PROCEDURES

No actuarial liability is included for participants who terminated without being vested prior to the valuation date, except those who are owed a refund of the employee contribution account balance.

The compensation amounts used in the projection of benefits and liabilities for active members were prior plan year compensations.

Projected benefits were limited by the dollar limitation required by the Internal Revenue Code Section 415 as it applies to governmental plans and compensation limited by Section 401(a)(17).

ACTUARIAL ASSUMPTIONS

Economic Assumptions

1. Investment Return	7.50% per annum, compounded annually, net of all expenses.
2. Inflation	2.75% per annum, compounded annually.
3. Salary Increases	Salaries are assumed to increase 3.50% each year.
4. Payroll Growth	3.50% per year
5. Interest on Employee Contributions	3.00% per annum, compounded annually.
6. Increases in Compensation And Benefit Limits	2.75% per annum on the 401(a)(17) compensation limit and 415 benefit limit

Demographic Assumptions

1. Mortality

a. Healthy lives - Active Members	RP-2014 White Collar Table for Employees (100% of male rates for males, 55% of female rates for females), projected generationally with MP-2015.
b. Healthy lives - Retired Members and Beneficiaries	RP-2014 White Collar Table for Employees, set back two years, scaled (males: under 80, 1.008; over 80, 1.449; females: under 85, 0.924; over 85, 1.5855; geometrically blended), projected generationally from 2013 with a Society of Actuaries (SOA) projection scale tool using 0.5% ultimate 2035 rate in 2035.
c. Disabled Members	RP-2014 Disabled Lives Table (static table)

d. Healthy mortality rates and projection scale are shown below at sample ages:

2014 Base Table Sample Age	Pre-retirement Mortality Mortality Rate Males	Females
20	0.03%	0.01%
30	0.03	0.01
40	0.04	0.02
50	0.12	0.05
60	0.33	0.11

2013 Base Table Sample Age	Post-retirement Mortality Mortality Rate Males	Females
50	0.23%	0.17%
60	0.47	0.31
70	1.03	0.82
80	3.65	2.28
90	14.57	12.63

	Projection Scale – Post-retirement Mortality					
	Scale (2020)		Scale (2030)		Scale (2040)	
Sample Age	Males	Females	Males	Females	Males	Females
50	0.0252	0.0144	0.0080	0.0052	0.0050	0.0050
60	0.0083	0.0051	0.0066	0.0059	0.0050	0.0050
70	0.0088	0.0121	0.0061	0.0057	0.0050	0.0050
80	0.0114	0.0104	0.0057	0.0058	0.0050	0.0050
90	0.0109	0.0104	0.0057	0.0057	0.0046	0.0046

e. Disabled mortality rates are shown below at sample ages:

Sample Age	Males	Females
30	0.79%	0.30%
40	1.10	0.55
50	2.04	1.19
60	2.66	1.70
70	4.03	2.82
80	7.66	6.10

2. Retirement — Rates vary by age. Rates are as follows:

Rates by Age	
Age	Rate
55-59	1.5%
60-61	3.0
62-63	7.0
64	15.0
65	20.0
66-71	15.0
72	100.0

3. Termination — None.

4. Disability — None.

Other Assumptions

1. Form of Payment	Modified Cash Refund Annuity for members hired prior to July 1, 2004 and not electing the 50% Joint & Survivor Benefit. A 50% Joint & Survivor Benefit for members electing this provision, and new members hired on or after July 1, 2004. Deferred vesteds are assumed to take the greater of the present value of an annuity at age 63 or a refund of contributions. For members hired on or after July 1, 2017, the Public Employee Retirement Board sets the actuarial assumptions used to determine the benefit amounts payable under optional forms of payment, with guidance from the System's actuary.
2. Actuarial Equivalence Basis for Members Hired after July 1, 2017	
a. Interest	7.50%
b. Mortality	RP-2014 White Collar Table for Employees, set back two years, scaled (males: under 80, 1.008; over 80, 1.449; females: under 85, 0.924; over 85, 1.5855; geometrically blended), projected to 2035 with a Society of Actuaries (SOA) projection scale tool using a 75% male, 25% female blend.
3. Marital Status	
a. Percent married	100% married
b. Spouse's age	Females assumed to be three years younger than males.
4. Administrative Expense	Investment return is assumed to be net of investment and administrative expenses.
5. Cost of Living Adjustment	2.25% per annum, compounded annually for members hired before July 1, 2015. 1.00% per annum for members hired on or after July 1, 2015.
6. State Contribution	State contributions for the current plan year are assumed to be contributed in a lump sum on the July 1 following the plan year end. These amounts from the prior plan year are treated as a contribution receivable on the plan's financial statements.

Changes in Assumptions since the Prior Year

There were no changes in the assumptions from the prior year.

TECHNICAL VALUATION PROCEDURES

Data Procedures

Client data caps active service at 20 years. While capping the benefit amount at 20 years of service, we keep a record of actual service beyond 20 years in order to remain consistent with the Entry Age Method.

Salaries for first year members are annualized by NPERS and reflected in the Calculated Salary field in the census data. This is used in the valuation process for new members. For continuing active members, the Accumulated Salary field from the data, representing the actual salary earned in the prior fiscal year, is used in the valuation process.

Other Valuation Procedures

Salary increases are assumed to apply to annual amounts.

Decrements are assumed to occur mid-year, except that immediate retirement is assumed for those who are at or above the age at which retirement rates are 100%. Standard adjustments are made for multiple decrements.

Actuarial Accrued Liability	The difference between the actuarial present value of system benefits and the actuarial value of future normal costs. Also referred to as "accrued liability" or "actuarial liability".
Actuarial Assumptions	Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.
Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate assumptions.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement system benefit between future normal cost and actuarial accrued liability. Sometimes referred to as the "actuarial funding method".
Experience Gain (Loss)	The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates.
Actuarial Present Value	The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.
Amortization	Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with lump sum payment.
Normal Cost	The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method.
Unfunded Actuarial Accrued Liability	The difference between actuarial accrued liability and the valuation assets. Sometimes referred to as "unfunded actuarial liability" or "unfunded accrued liability.