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***NEBRASKA PUBLIC EMPLOYEES
RETIREMENT SYSTEM***

JUDGES RETIREMENT SYSTEM

**ACTUARIAL VALUATION REPORT
AS OF JULY 1, 2021**

**Fifty-Sixth Actuarial Report for
System Plan Year Beginning July 1, 2021
and
State Fiscal Year Ending June 30, 2023**





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November 9, 2021

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, 2021 for the purpose of determining the actuarial required contribution for the plan year ending June 30, 2022. It is our understanding that any required additional State contribution for this plan year will be made on July 1, 2022 (State fiscal year end 2023). The major findings of the valuation are contained in this report, which reflects the benefit and funding provisions in place on July 1, 2021. There were several changes to the actuarial assumptions and methods as a result of the quadrennial experience study completed in 2020. In addition, Legislative Bill 17 (LB 17), which was passed by the 2021 Nebraska Legislature, increased the amount of certain court fees that are directed to fund the System. The bill also introduced a payroll-related contribution from the State, effective July 1, 2023, which will first be reflected in the July 1, 2022 valuation. LB 17 also changed the amortization period from 30 years to 25 years for new bases established on or after July 1, 2021. These changes, and their impact on the current valuation results, are discussed in further detail in the Board Summary of this report.

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 the set of assumptions indicated in Appendix C.



In order to prepare the results in this report, we have utilized actuarial models that were developed to measure liabilities and develop actuarial costs. These models include tools that we have produced and tested, along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results. 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 specified 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.

We note that as we prepare this report, the world is still recovering from the Covid-19 pandemic. We have considered all available information, but do not believe there is sufficient data yet to warrant the modification of any of our assumptions. We will continue to monitor the situation and advise the Board in the future of any adjustments we believe would be appropriate.

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,

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

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

A handwritten signature in blue ink that reads 'Brent A. Banister'.

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



SECTION 1 – BOARD SUMMARY

This report presents the results of the July 1, 2021 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, 2022 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, 2021.
- Analyze and report on trends in System contributions, assets and liabilities over the past several years.

The actuarial valuation results provide a “snapshot” view of the System’s financial condition on July 1, 2021. As the result of various factors, the System’s unfunded actuarial accrued liability (UAAL) decreased from \$5.5 million last year to a \$1.5 million surplus of actuarial assets over actuarial accrued liability this year, and the funded ratio increased from 97% to 101%.

The Nebraska statutes require the State to make any additional contribution necessary to meet the actuarial required contribution in excess of court fees, member contributions, and any other State appropriations. **Based on the results of the July 1, 2021 actuarial valuation, the additional State contribution for the plan year ending June 30, 2022 is \$231,537.**

Legislative Changes

Legislative Bill 17 (LB 17), which was passed by the 2021 Nebraska Legislature, provided for an increase the amount of court fees directed to fund the Judges Retirement System, beginning in FY 2022 with further scheduled increases over a five-year period. In order to reflect this change, we are assuming that court fees for FY 2022 will be 115% of the actual court fees received during FY 2021. The higher expected court fees reduced the amount of the additional State contribution this year.

In addition, LB 17 also authorized a payroll-related contribution from the state, beginning July 1, 2023 for the plan year ended June 30, 2023. The new payroll-related contribution can be no greater than 5% of total annual compensation, based on the total member compensation reported in the most recent actuarial valuation. If the funded ratio is equal to or greater than 100% for two consecutive years, the actuary must assess whether the state contribution rate should be adjusted and make a recommendation to the Board in the annual actuarial valuation report. If the state contribution rate has been adjusted to less than 5% and the funded ratio is below 100% for two consecutive years, the actuary must assess whether the contribution rate should be adjusted (not greater than 5%) and make a recommendation to the Board.

LB 17 also changed the amortization period for amortization bases established on or after July 1, 2021 from 30 years to 25 years. This includes changes in the UAAL due to assumption changes or actuarial experience gains. If the UAAL is less than or equal to zero, then all prior amortization bases are considered fully funded and the UAAL is reinitialized and amortized over a 25-year period as of the actuarial valuation date.



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Changes to Actuarial Assumptions and Methods

By statute, an experience study for the Nebraska Public Employees Retirement System, which includes the Nebraska Judges Retirement System, is performed every four years. As a result of the 2020 quadrennial experience study, several changes to the actuarial assumptions and methods were recommended and adopted by the Board at their December 21, 2020 meeting. Please see the Experience Study report, dated December 21, 2020, for complete details and discussion on all of the assumption and method changes. The key assumption changes include:

- Economic assumptions:
 - Price inflation assumption was lowered from 2.75% to 2.35%.
 - Investment return assumption was lowered from 7.50% to 7.00%.
 - COLA assumption for Tier 1 members was lowered from 2.25% to 2.00%.
 - Payroll growth assumption was lowered from 3.50% to 2.85%.
 - Salary increases were lowered from a flat 3.50% to 3.10%.
- An explicit assumption for administrative expenses of 0.31% of payroll is included as a component of the actuarial contribution rate.
- Demographic assumptions:
 - Retirement rates were adjusted to better reflect observed experience.
 - Mortality assumption for non-disabled participants was changed to the Pub-2010 General Members (Above Median) Mortality Tables (100% of male rates, 95% female rates), set back one-year, projected generationally using MP-2019 modified to 75% of ultimate rates.
- Amortization period reduced from 30 to 25 years on future amortization bases (required legislation).

The changes to the economic assumptions are being phased in over four years, beginning with the July 1, 2021 valuation, as follows:

	Current (2021 Valuation)	2022 Valuation	2023 Valuation	2024 Valuation
Price Inflation	2.65%	2.55%	2.45%	2.35%
Real Return	4.65%	4.65%	4.65%	4.65%
Investment Return	7.30%	7.20%	7.10%	7.00%
COLA (Tier 1)	2.15%	2.10%	2.05%	2.00%
General Wage Inflation	3.15%	3.05%	2.95%	2.85%
Covered Payroll Growth	3.15%	3.05%	2.95%	2.85%

As the economic assumptions are changed over the next three valuations, it will result in increases in the actuarial accrued liability, normal cost rate and actuarial contribution rate. To the extent those increases are not offset by favorable experience (actuarial gains), the funded ratio is expected to decrease and the actuarial contribution rate is expected to increase.

The changes to the actuarial assumptions and methods increased the actuarial accrued liability by \$3.6 million and the actuarial required contribution rate by 1.13% of pay, as shown in the following table (July 1, 2021 valuation with amounts shown in thousands).



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(\$ in thousands)	Prior Assumptions and Methods	Current Assumptions and Methods	Difference
Actuarial Accrued Liability (AAL)	\$213,385	\$216,939	\$3,554
Actuarial Value of Assets	<u>218,471</u>	<u>218,471</u>	<u>0</u>
Unfunded AAL	\$ (5,086)	\$ (1,532)	\$3,554
Funded Ratio	102.38%	100.71%	(1.67%)
Normal Cost Rate	24.20%	24.28%	0.08%
Administrative Expenses	0.00%	0.31%	0.31%
UAAL Amortization Rate	<u>(1.12%)</u>	<u>(0.38%)</u>	<u>0.74%</u>
Total Actuarial Required Contribution	23.08%	24.21%	1.13%
Additional Required State Contribution	\$0	\$232	\$232

Note: Numbers may not add due to rounding.

Actual Experience Impacting the July 1, 2021 Valuation

The valuation results reflect net favorable experience for the past plan year as demonstrated by an UAAL that was lower than expected. As of July 1, 2021, the actuarial value of assets exceeds the actuarial accrued liability (surplus) by \$1.5 million compared to an expected UAAL of \$8.2 million. The key factors impacting the 2021 valuation include:

- The rate of return on the market value of assets for the year ending June 30, 2021 was 30.0%, as reported by the Nebraska Investment Council, compared to the assumed return of 7.5% for that year. However, the asset smoothing method used in the valuation only recognizes 20% of the difference between the dollar amount of the difference between the assumed and actual return in the current valuation. The partial recognition of FY 2021 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 11.5%. Because this return is higher than the assumed rate of return (7.5% for FY 2021), there was an actuarial experience gain of \$7.9 million on the actuarial value of assets.
- There was a net actuarial experience gain of \$1.8 million on System liabilities. The largest source of the gain was due to more deaths than expected based on the actuarial assumption, but there was also an experience gain on retirements (fewer than expected).
- Actual court fees received for the year ending June 30, 2021 were about \$300,000 higher than the assumed court fees which reduced the unfunded actuarial accrued liability.

The actuarial required contribution rate decreased from 25.95% of pay last year to 24.21% of pay in this year's valuation, a decrease of 1.74% 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 estimated court fees for FY 2022 are \$3.82 million. This estimate is based on the actual court fees for FY 2021 of \$3.32 million, adjusted to reflect the estimated impact of the increase provided by LB 17. As the following table shows, the estimated court fees, combined with expected member



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contributions, are insufficient to meet the actuarial required contribution for the plan year ending June 30, 2022. Therefore, **an additional contribution of \$231,537 by the State is required.**

A summary of the key results from the July 1, 2021 actuarial valuation is shown in the following table. Further detail on the valuation results can be found in the following sections of this Board Summary.

	Valuation Results	
	July 1, 2021	July 1, 2020
Unfunded Actuarial Accrued Liability	(\$1,532,126)	\$5,487,533
Funded Ratio (Actuarial Assets)	100.71%	97.34%
Normal Cost Rate	24.28%	24.23%
Administrative Expenses	0.31%	N/A
UAAL Amortization Rate	(0.38%)	1.72%
Total Actuarial Required Contribution	24.21%	25.95%
Member Contribution Rate	(8.48%)	(8.35%)
Additional Required Contribution Rate	15.73%	17.60%
Additional Required Contribution	\$4,041,024	\$4,443,841
Estimated Court Fees	\$3,817,502	\$3,016,122
Additional Required State Contribution*	\$231,537	\$1,427,719

* Reflects interest to the expected contribution date in the July 1, 2021 valuation

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, 2020 and July 1, 2021. The components are examined in detail in the following discussion.

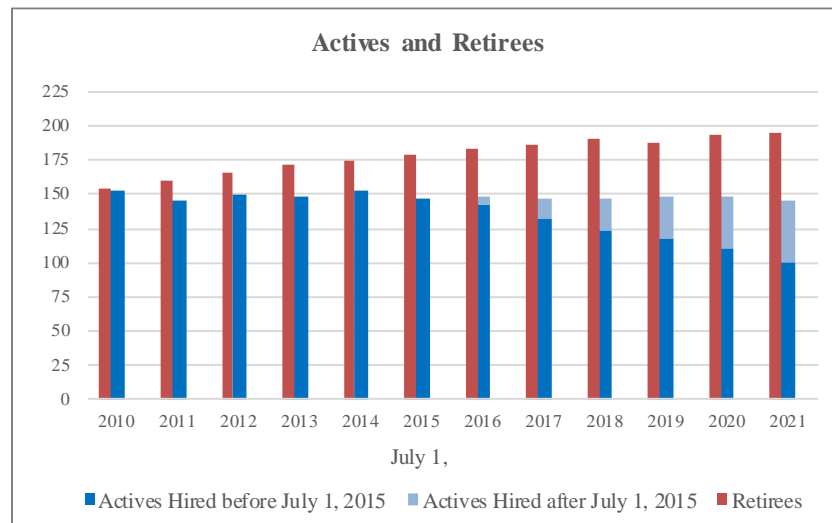
MEMBERSHIP

There were 145 active members in the 2021 valuation, a small decrease from 148 active members in the 2020 valuation. As of July 1, 2021, 45 out of 145 (31%) of the active members are covered by Tier 2 (hired on or after July 1, 2015). The Tier 2 benefit structure provides lower benefits and a higher employee contribution rate than Tier 1. While Tier 2 members represent a comparatively small part of the total liability, the new provisions are beginning to impact the valuation by resulting in lower costs.

The graph below compares the number of active members to the number of members receiving a benefit in each valuation since 2010. The number of active members has remained relatively steady, around 150, while the number of retirees has increased from 154 to 195. 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 and is one key reason for advance funding of the benefits.



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ASSETS

As of June 30, 2021, the System had net assets of \$246.5 million, when measured on a market value basis. This was an increase of \$51.9 million from the prior year. The investment return on the market value of assets for FY 2021 was 30.0%, which is higher than the assumed return for FY 2021 of 7.5%.

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, called the actuarial value of assets. In this year’s valuation, the actuarial value of assets is \$218.5 million, an increase of \$17.5 million from the prior year. The components of change in the asset values are shown in the following table.

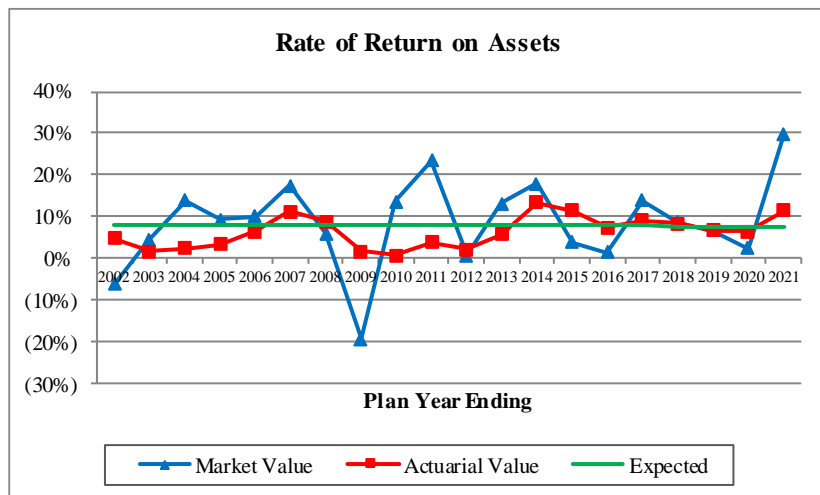
	Market Value (\$M)		Actuarial Value (\$M)	
Net Assets, June 30, 2020	\$	194.52	\$	200.97
- Employer and Member Contributions	+	6.78	+	6.78
- Benefit Payments	-	12.07	-	12.07
- Net Investment Income	+	57.22	+	22.79
Net Assets, June 30, 2021	\$	246.45	\$	218.47
Estimated Rate of Return*		30.0%		11.5%

* Rate of return on the market value of assets was provided by the Nebraska Investment Council.

The rate of return on the actuarial value of assets was 11.5%, which is higher than the 7.5% investment return assumption for FY 2021. As a result, there was an experience gain on assets of \$7.9 million. As a result of the combined impact of the favorable investment experience for FY 2021 and the scheduled recognition of deferred investment gains and losses, the net deferred investment loss of \$6.4 million in last year’s valuation is now a net deferred investment gain of \$28.0 million in the current valuation (market value exceeds actuarial value of assets). Please see Section 3 of this report for more detailed information on the market and actuarial value of assets.



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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 on 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, 2021, 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	\$216,938,984	\$216,938,984
Value of Assets	<u>218,471,110</u>	<u>246,453,303</u>
Unfunded Actuarial Accrued Liability	(\$1,532,126)	(\$29,514,319)
Funded Ratio	100.71%	113.60%

The deferred investment gain means that, absent investment returns lower than expected (7.3% for FY 2022), the funded ratio is expected to increase over the next four years as the deferred investment experience is recognized. However, we also expect there to be downward pressure on the funded ratio as a result of the phase-in of the economic assumptions. See Section 4 of the report for the detailed development of the unfunded actuarial accrued liability.



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The components of the net decrease of \$7.1 million in the UAAL from July 1, 2020 to July 1, 2021 are shown in the following table:

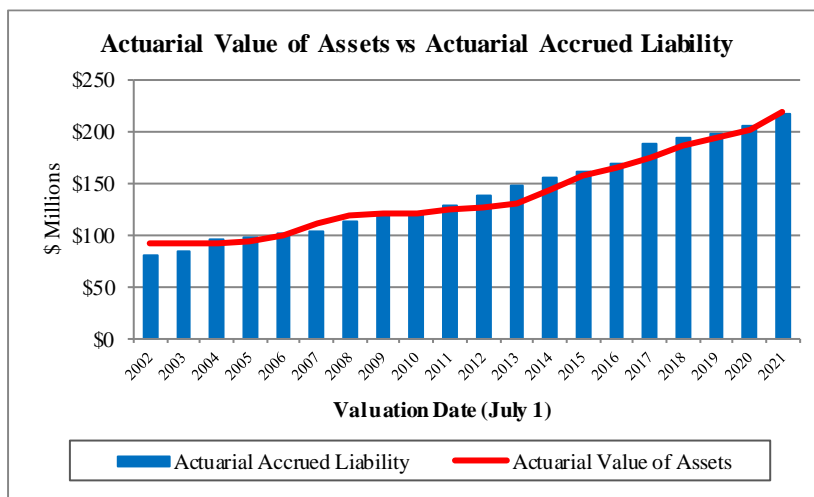
	(\$ Millions)
Unfunded Actuarial Accrued Liability, July 1, 2020	\$5.49
- Expected decrease from amortization method	(0.04)
- Investment experience	(7.93)
- Liability experience	(1.81)
- Court fees above expected amount	(0.31)
- Assumption changes	3.55
- Other experience	<u>(0.48)</u>
Unfunded Actuarial Accrued Liability, July 1, 2021	(\$1.53)

As shown above, various components impacted the amount of 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 \$9.74 million. The actuarial gain may be explained by considering the separate experience of assets and liabilities. As noted earlier, there was a \$7.93 million gain on the actuarial value of assets. Favorable experience on System liabilities, mainly due to more deaths than expected based on the actuarial assumptions, resulted in a \$1.81 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 FY 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.



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An evaluation of the UAAL purely on a dollar amount 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).

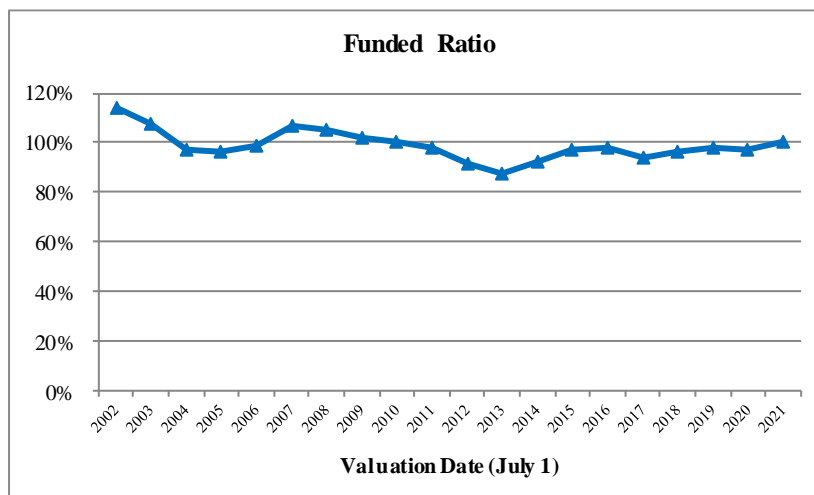
	7/1/2017	7/1/2018	7/1/2019	7/1/2020	7/1/2021
Funded Ratio	93.64%	96.08%	98.08%	97.34%	100.71%
UAAL/(Surplus)	\$11.93	\$7.62	\$3.81	\$5.49	(\$1.53)

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 (Tier 2), as well as increases in the court fees passed by the 2015 and 2021 legislature, along with a new payroll related state contribution beginning July 1, 2023, are expected to mitigate the need for additional State contributions.



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ACTUARIAL REQUIRED CONTRIBUTION RATE

The State’s funding policy is to contribute any additional payments necessary to meet the actuarial required contribution that is in excess of expected court fees, member contributions and other State appropriations. Any 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 three 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 “administrative expense” load for the expenses expected to be paid from the trust for the year.
- 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 the number of active members remains constant and salary increases occur as assumed. 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 (3.15% in the current valuation). Therefore, if the increase in covered payroll is less than 3.15% per year, the UAAL contribution rate will increase. When a surplus situation exists, as it does now, the amortization method recognizes some of the surplus assets which serves to reduce contributions.

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. However, due to the scheduled increase in court fees due to LB 17, we expect court fees to be higher during FY 2022 than FY 2021. Therefore, the estimated court fees for FY 2022 are \$3,817,502 (115% of the court fees received during FY 2021). This amount, when combined with expected member contributions, is insufficient to meet the full actuarial required contribution for the plan year ending June 30, 2022. Therefore, an additional contribution of \$231,537 by the State is required.

Note that the court fees for FY 2021 were about \$229,000 lower than the actual court fees for FY 2020, presumably partly as the result of the COVID-19 pandemic. Additional data provided by the System indicates that court fees in the first three months of FY 2022 were about 115% higher than those in the first



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three months of FY 2021. As a result, the amount of court fees expected to be contributed to the System during FY 2022 is 115% of the actual court fees contributed during FY 2021. The impact of the increase in the expected court fees results in a decrease 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, 2021	July 1, 2020
1. Normal Cost Rate	24.28%	24.23%
2. Administrative Expenses	0.31%	N/A
3. UAAL Contribution Rate	<u>(0.38%)</u>	<u>1.72%</u>
4. Total Actuarial Required Contribution Rate	24.21%	25.95%
5. Member Contribution Rate	<u>(8.48%)</u>	<u>(8.35%)</u>
6. Employer Required Contribution Rate [4 + 5]	15.73%	17.60%
7. Estimated Payroll	\$ 25,689,918	\$ 25,249,097
8. Employer Required Contribution [6 * 7]	4,041,024	4,443,841
9. Estimated Court Fees	3,817,502	3,016,122
10. Additional Required State Contribution* [(8 - 9) * 1.073 ^{1/2} , but not less than \$0]	\$ 231,537	\$ 1,427,719

*Interest to the expected payment date of July 1 first reflected in the July 1, 2021 valuation.

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, 2020	25.95%
- Change in normal cost rate	(0.03%)
- Court fees above expected amount	(0.07%)
- Investment experience	(1.75%)
- Liability experience	(0.40%)
- Payroll increase less than expected	(0.02%)
- Elimination of prior amortization bases due to 100% funding	(0.55%)
- Assumption and method changes	1.14%
- Other experience	<u>(0.06%)</u>
Total Actuarial Required Contribution Rate, July 1, 2021	24.21%



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The following table shows the breakdown of non-member contributions by source, as determined in each actuarial valuation, over the last 20 years. Note these are not actual contributions but expected amounts based on the actuarial valuation results.

Actuarial Valuation Results			
Plan Year	Total Required Contributions	Court Fees and State Appropriation	Additional State Contribution
2021/2022	\$4,041,024	\$3,817,502	\$231,537
2020/2021	4,443,841	3,016,122	1,427,719
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, 2021, 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 fiscal years ending June 30, 2016 and June 30, 2018. The court fees decreased for fiscal year ending June



SECTION 1 – BOARD SUMMARY

30, 2021, largely due to the impact of the COVID-19 pandemic. Due to the passage of LB 17 by the 2021 legislature, which provides for scheduled increases in the court fees over five years, the expectation is for the amount of court fees to increase over the next few years.

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
June 30, 2020	\$3,548,379
June 30, 2021	\$3,319,567

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, as evidenced in the table above. This disconnect between the funding policy and the financing mechanism creates the possibility for a unique funding challenge. However, the new state payroll-related contribution of 5%, scheduled to begin July 1, 2023, is expected to address this concern to a large extent and reduce the volatility of the additional state contribution from year to year.

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.



SECTION 1 – BOARD SUMMARY

As discussed earlier, as we are preparing this report the world is in the midst of recovering from the COVID-19 pandemic. However, we do not believe that there is sufficient data to warrant the modification of any of our long-term actuarial assumptions. We will continue to monitor the situation and advise the Board in the future of any adjustments that we believe would be appropriate.

**SECTION 1 – BOARD SUMMARY****SUMMARY OF PRINCIPAL RESULTS**

	<u>7/1/2021</u> <u>Valuation</u>	<u>7/1/2020</u> <u>Valuation</u>	<u>% Change</u>
1. PARTICIPANT DATA			
Number of:			
Active Members			
- Hired before July 1, 2015	100	111	(9.9%)
- Hired on or after July 1, 2015	45	37	21.6%
Total	<u>145</u>	<u>148</u>	(2.0%)
Retired Members and Beneficiaries	192	190	1.1%
Disabled Members	3	4	(25.0%)
Inactive Vested Members	4	5	(20.0%)
Total Members	<u>344</u>	<u>347</u>	(0.9%)
Projected Annual Salaries of Active Members	\$ 25,689,918	\$ 25,249,097	1.7%
Annual Retirement Payments for Retired Members, Disabled Members and Beneficiaries	\$ 12,422,128	\$ 11,753,942	5.7%
2. ASSETS AND LIABILITIES			
a. Market Value of Assets	\$ 246,453,303	\$ 194,521,175	26.7%
b. Actuarial Value of Assets	218,471,110	200,967,585	8.7%
c. Total Actuarial Accrued Liability	216,938,984	206,455,118	5.1%
d. Unfunded Actuarial Accrued Liability [c - b]	\$ (1,532,126)	\$ 5,487,533	(127.9%)
e. Funded Ratio (Actuarial Value of Assets) [b / c]	100.71%	97.34%	3.5%
f. Funded Ratio (Market Value of Assets) [a / c]	113.60%	94.22%	20.6%
3. EMPLOYER CONTRIBUTION RATES AS A PERCENT OF PAYROLL			
Normal Cost	24.28%	24.23%	0.2%
Administrative Expenses	0.31%	N/A	N/A
Amortization of Unfunded Actuarial Accrued Liability	<u>(0.38%)</u>	<u>1.72%</u>	(122.1%)
Actuarial Required Contribution Rate	24.21%	25.95%	(6.7%)
Member Contribution Rate	<u>(8.48%)</u>	<u>(8.35%)</u>	1.6%
Employer Required Contribution Rate	15.73%	17.60%	(10.6%)
Employer Required Contribution Amount	\$ 4,041,024	\$ 4,443,841	(9.1%)
Expected Court Fees	<u>3,817,502</u>	<u>3,016,122</u>	26.6%
Additional Required State Contribution Amount*	\$ 231,537	\$ 1,427,719	(83.8%)

* Interest to the expected payment date was refined in the 7/1/2021 valuation.



SECTION 2 – SCOPE OF THE REPORT

This report presents the actuarial valuation results of the Judges Retirement System as of July 1, 2021. 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, 2021.
- 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.



SECTION 3 – ASSETS

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, 2021. 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, 2021 and July 1, 2020, in total and by investment category. Table 2 summarizes the change in the market value of assets from July 1, 2020 to July 1, 2021.

Actuarial Value of Assets

Due to the extreme volatility, 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

	<u>June 30, 2021</u>	<u>June 30, 2020</u>
1. Cash and Equivalents	\$ 189,231	\$ 127,522
2. Investments	249,264,672	197,999,167
3. Capital Assets	82	98
4. Receivables and Prepaids	10,453,253	15,642,594
5. Accounts Payable	<u>(13,453,935)</u>	<u>(19,248,206)</u>
6. Net Assets Available for Pension Benefits	\$ 246,453,303	\$ 194,521,175



TABLE 2
JUDGES RETIREMENT SYSTEM
CHANGE IN MARKET VALUE OF ASSETS

	2021	2020
1. Market Value of Assets, Beginning of Year	\$ 194,521,175	\$ 195,672,498
2. Contributions		
(a) Member	\$ 2,029,383	\$ 1,962,507
(b) Court fees	3,319,567	3,548,379
(c) State appropriations	1,427,719	348,794
(d) Total	\$ 6,776,669	\$ 5,859,680
3. Expenditures		
(a) Benefit payments	\$ 12,066,177	\$ 11,477,914
(b) Administrative expenses	117,122	82,168
(c) Total	\$ 12,183,299	\$ 11,560,082
4. Investment Return, Net of Expenses		
(a) Investment income	\$ 2,377,267	\$ 3,144,359
(b) Securities lending income	30,492	66,190
(c) Securities lending expense	(5,849)	(48,255)
(d) Net appreciation/(depreciation) in fair value of investments	54,936,834	1,386,785
(e) Other	14	0
(f) Net investment return	\$ 57,338,758	\$ 4,549,079
5. Market Value of Assets, End of Year [1 + 2(d) - 3(c) + 4(f)]	\$ 246,453,303	\$ 194,521,175
6. Rate of Return, Net of Expenses*	30.0%	2.4%

*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			
	6/30/2018	6/30/2019	6/30/2020	6/30/2021
1. Actuarial Value of Assets, Beginning of Year	\$ 175,577,087	\$ 186,650,907	\$ 194,307,580	\$ 200,967,585
2. Unrecognized Return Beginning of Year	\$ 1,028,744	\$ 1,404,748	\$ 1,364,918	\$ (6,446,410)
3. Contributions During Year				
(a) Member	\$ 1,814,533	\$ 1,854,712	\$ 1,962,507	\$ 2,029,383
(b) Court fees	4,112,543	3,946,292	3,548,379	3,319,567
(c) State appropriations	667,613	442,599	348,794	1,427,719
(d) Total	\$ 6,594,689	\$ 6,243,603	\$ 5,859,680	\$ 6,776,669
4. Benefit Payments	\$ 10,144,103	\$ 10,991,157	\$ 11,477,914	\$ 12,066,177
5. Assumed Rate of Return	7.50%	7.50%	7.50%	7.50%
6. Expected Investment Income on (1), (2), (3) and (4)	\$ 13,146,386	\$ 13,963,648	\$ 14,504,369	\$ 14,379,388
7. Actual Return on Market Value , Net of All Expenses	\$ 14,999,238	\$ 12,364,397	\$ 4,466,911	\$ 57,221,636
8. Return to be Spread, End of Year	\$ 1,852,852	\$ (1,599,251)	\$ (10,037,458)	\$ 42,842,248

[7 - 6]



TABLE 3
(continued)

JUDGES RETIREMENT SYSTEM

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

9. Return to be Spread

Plan Year <u>Ending</u>	Return to be <u>Spread</u>	Unrecognized <u>Percent</u>	Unrecognized <u>Return</u>
2021	\$42,842,248	80%	\$34,273,798
2020	(10,037,458)	60%	(6,022,475)
2019	(1,599,251)	40%	(639,700)
2018	1,852,852	20%	370,570
			<u>\$27,982,193</u>

10. Total Market Value of Assets as of July 1, 2021 \$246,453,303

11. Total Actuarial Value of Assets as of July 1, 2021 \$218,471,110
[10 - 9]

12. Asset Ratios

(a) Actuarial Value to Market Value [11 / 10]	88.65%
(b) Market Value to Actuarial Value [10 / 11]	112.81%



SECTION 4 – SYSTEM LIABILITIES

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, 2021. 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, 2021.

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, 2021

1. Active Employees		
(a) Retirement	\$	126,879,373
(b) Death		2,691,840
(c) Total	\$	<u>129,571,213</u>
2. Inactive Vested Members		2,372,892
3. Inactive Nonvested Members		0
4. Disabled Members		2,177,733
5. Retirees		105,522,738
6. Beneficiaries		<u>22,346,188</u>
7. Total Present Value of Future Benefits [1(c) + 2 + 3 + 4 + 5 + 6]	\$	261,990,764



TABLE 5
JUDGES RETIREMENT SYSTEM
ACTUARIAL ACCRUED LIABILITY
AS OF JULY 1, 2021

1. Present Value of Future Benefits for Active Members	\$	129,571,213
2. Present Value of Future Normal Costs for Active Members		
(a) Retirement	\$	43,614,559
(b) Death		<u>1,437,221</u>
(c) Total	\$	45,051,780
3. Actuarial Accrued Liability for Active Members [1 - 2(c)]	\$	84,519,433
4. Actuarial Accrued Liability for Inactive Members	\$	132,419,551
5. Total Actuarial Accrued Liability [3 + 4]	\$	216,938,984
6. Actuarial Value of Assets	\$	218,471,110
7. Unfunded Actuarial Accrued Liability [5 - 6]	\$	(1,532,126)
8. Funded Ratio [6 / 5]		100.71%



TABLE 6
JUDGES RETIREMENT SYSTEM
ACTUARIAL BALANCE SHEET
AS OF JULY 1, 2021

ASSETS

Actuarial Value of Assets	\$	218,471,110
Unfunded Actuarial Accrued Liability		(1,532,126)
Present Value of Future Normal Costs		<u>45,051,780</u>
Total Assets	\$	261,990,764

LIABILITIES

Present Value of Future Benefits			
Active members			
Retirement	\$	126,879,373	
Death		<u>2,691,840</u>	
Total			129,571,213
Inactive members			2,372,892
Retirees, disabilities and beneficiaries			<u>130,046,659</u>
Total	\$		261,990,764



TABLE 7
JUDGES RETIREMENT SYSTEM
ACTUARIAL GAIN/(LOSS)

Liabilities

1. Actuarial Accrued Liability as of July 1, 2020	\$ 206,455,118
2. Normal Cost for Plan Year Ending June 30, 2021	5,325,816
3. Benefit Payments During Plan Year Ending June 30, 2021	(12,066,177)
4. Interest at 7.50%	15,476,910
5. Assumption changes	<u>3,553,913</u>
6. Expected Actuarial Accrued Liability as of July 1, 2021	\$ 218,745,580
7. Actuarial Accrued Liability as of July 1, 2021	\$ 216,938,984

Assets

8. Actuarial Value of Assets as of July 1, 2020	\$ 200,967,585
9. Contributions During Plan Year Ending June 30, 2021	6,776,669
10. Benefit Payments During Plan Year Ending June 30, 2021	(12,066,177)
11. Interest at 7.50%	<u>14,862,869</u>
12. Expected Actuarial Value of Assets as of July 1, 2021	\$ 210,540,946
13. Actuarial Value of Assets as of July 1, 2021	\$ 218,471,110

Gain / (Loss)

14. Actuarial Gain / (Loss) on Liabilities [6 - 7]	\$ 1,806,596
15. Actuarial Gain / (Loss) on Assets [13 - 12]	7,930,164
16. Total Actuarial Gain / (Loss) for Plan Year Ending June 30, 2021 [14 + 15]	\$ 9,736,760



TABLE 8
JUDGES RETIREMENT SYSTEM
GAIN/(LOSS) ANALYSIS BY SOURCE

Liability Sources	Gain/(Loss)
Retirement	\$ 535,000
Termination	0
Disability	0
Mortality	1,360,000
Salary	209,000
New Entrants/Rehires	(125,000)
COLA	(273,000)
Miscellaneous	101,000
Total Liability Gain/(Loss)	\$ 1,807,000
Asset Gain/(Loss)	\$ 7,930,000
Net Actuarial Gain/(Loss)	\$ 9,737,000



TABLE 9

JUDGES RETIREMENT SYSTEM
PROJECTED BENEFIT PAYMENTS

<u>Plan Year</u> <u>Ending June 30</u>	<u>Current</u> <u>Active Members</u>	<u>Current Inactive</u> <u>Members</u>	<u>Total</u>
2022	\$ 1,171,000	\$ 12,423,000	\$ 13,594,000
2023	2,106,000	12,415,000	14,521,000
2024	2,829,000	12,389,000	15,218,000
2025	3,650,000	12,341,000	15,991,000
2026	4,588,000	12,265,000	16,853,000
2027	5,361,000	12,133,000	17,494,000
2028	6,431,000	12,004,000	18,435,000
2029	7,226,000	11,853,000	19,079,000
2030	7,924,000	11,675,000	19,599,000
2031	8,628,000	11,468,000	20,096,000
2032	9,420,000	11,299,000	20,719,000
2033	10,058,000	11,036,000	21,094,000
2034	10,783,000	10,740,000	21,523,000
2035	11,705,000	10,412,000	22,117,000
2036	12,637,000	10,023,000	22,660,000
2037	13,351,000	9,625,000	22,976,000
2038	14,200,000	9,197,000	23,397,000
2039	15,080,000	8,739,000	23,819,000
2040	15,735,000	8,253,000	23,988,000
2041	16,535,000	7,744,000	24,279,000
2042	17,253,000	7,214,000	24,467,000
2043	18,028,000	6,670,000	24,698,000
2044	18,524,000	6,119,000	24,643,000
2045	18,809,000	5,568,000	24,377,000
2046	19,110,000	5,022,000	24,132,000
2047	19,439,000	4,491,000	23,930,000
2048	19,609,000	3,980,000	23,589,000
2049	19,629,000	3,496,000	23,125,000
2050	19,469,000	3,044,000	22,513,000
2051	19,291,000	2,627,000	21,918,000

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.



SECTION 5 – EMPLOYER CONTRIBUTIONS

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 three elements: (1) the normal cost rate, (2) administrative expenses and (3) 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, 2021 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, 2022. Any State contributions are expected to be deposited on July 1, 2022 (State fiscal year 2023). 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, 2021, 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, 2021 Remaining Payments	Date of Last Payment	Outstanding Balance as of July 1, 2021	Annual Contribution*
2021 Reset Base	\$ (1,532,126)	25	7/1/2046	\$ (1,532,126)	\$ (97,902)
Total				\$ (1,532,126)	\$ (97,902)

* Contribution amount reflects mid-year timing.

1. Total UAAL Amortization Payments	\$ (97,902)
2. Projected Payroll for FY 2022	\$ 25,689,918
3. UAAL Amortization Payment Rate	(0.38%)

Note: The payments are determined as a level-percent of payroll using a 3.15% payroll growth assumption.



TABLE 11

JUDGES RETIREMENT SYSTEM

ACTUARIAL REQUIRED CONTRIBUTION RATE FOR PLAN YEAR ENDING JUNE 30, 2022

1. Normal Cost		
(a) Amount	\$	5,548,945
(b) Expected pay for current actives		22,856,026
(c) Normal Cost Rate as % of pay		24.28%
2. Administrative Expenses		0.31%
3. UAAL Amortization Rate (see Table 10)		(0.38%)
4. Total Actuarial Required Contribution Rate [1(c) + 2 + 3]		24.21%
5. Effective Statutory Member Contribution Rate		8.48%
6. Employer Required Contribution Rate [4 - 5]		15.73%
7. Actuarial Required Employer Contribution		
(a) Projected pay for FY 2022	\$	25,689,918
(b) Total required contribution [6 * 7(a)]		4,041,024
(c) Expected court fees*		3,817,502
(d) Additional required State contribution amount as of July 1, 2022 [(7(b) - 7(c)) * 1.073 ^{1/2} , not less than 0]	\$	231,537

* Due to the passage of Legislative Bill 17 by the 2021 Nebraska State Legislature, court fees during FY 2022 are anticipated to be 115% of the actual fees collected during FY 2021.



SECTION 6 – RISK CONSIDERATIONS

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, was 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. 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.

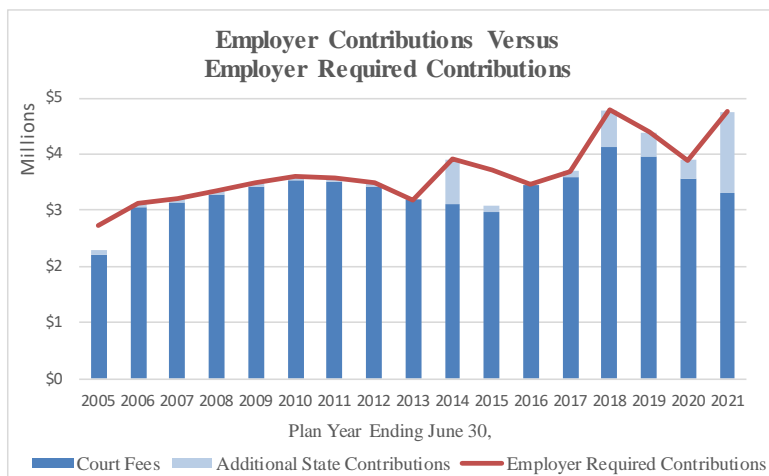
Although the external risks do exist, ASOP 51 does not require the actuary to opine on those risks, so no discussion is included here.

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. The 2021 Nebraska State Legislature passed LB 17, which increased the expected amount of court fees to be contributed to the System in the future. The bill also introduced a payroll-based contribution that will be provided by the State beginning July 1, 2023 (calculated with the July 1, 2022 valuation). The actual contribution rate will be decided based on actuarial projections reflecting various investment return scenarios, and it will be no more than 5% of pay. 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 15 of the last 17 years.



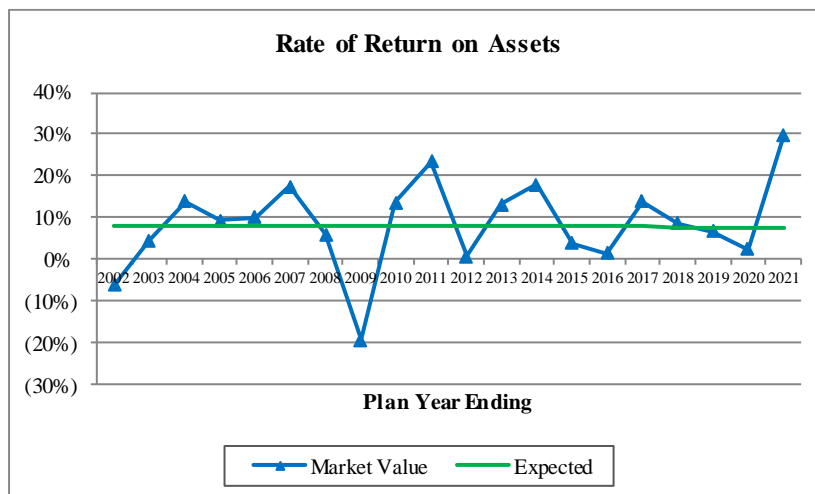
SECTION 6 – RISK CONSIDERATIONS



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 7.3% assumption by 10.0% (-2.7% or 17.3%) equates to 96% of payroll. Even with asset smoothing and amortization of the actuarial experience loss over 25 years, the impact on the actuarial contribution rate is dramatic (6.13% once the experience is fully recognized).





SECTION 6 – RISK CONSIDERATIONS

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 (5.3% Return)	5% Loss (2.3% Return)	10% Loss (-2.7% Return)
Actuarial Required Contribution Rate	25.44%	27.28%	30.34%
Member Contribution Rate	<u>(8.48%)</u>	<u>(8.48%)</u>	<u>(8.48%)</u>
Employer Required Contribution Rate	16.96%	18.80%	21.86%
Employer Required Contribution Amount	\$4,357,010	\$4,829,705	\$5,615,816
Expected Court Fees	3,817,502	3,817,502	3,817,502
Additional Required State Contribution*	\$558,853	\$1,048,498	\$1,862,796

* Includes interest for expected payment timing.

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 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.

We note that the risk associated with court fees is likely to be more pronounced for the next few years as a result of the COVID-19 pandemic, although this risk is offset by the scheduled increases due to LB 17. Therefore, it is difficult to anticipate how the amount of court fees will change over the next five to ten years. Current results show that statutory contribution levels are sufficient to fund future benefit obligations if all assumptions are met in the future.

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, as experienced with the COVID-19 pandemic. This type of event is also significant, although



SECTION 6 – RISK CONSIDERATIONS

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.

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, 2002	\$77,147,416	\$16,062,274	4.80	3.07%
July 1, 2003	78,353,222	16,402,342	4.78	3.05%
July 1, 2004	87,971,164	16,655,342	5.28	3.37%
July 1, 2005	94,958,898	16,285,137	5.83	3.73%
July 1, 2006	103,945,918	16,422,894	6.33	4.04%
July 1, 2007	121,215,683	17,003,921	7.13	4.56%
July 1, 2008	113,254,039	17,990,072	6.30	4.03%
July 1, 2009	90,446,117	18,373,339	4.92	3.14%
July 1, 2010	101,951,911	18,773,203	5.43	3.47%
July 1, 2011	124,852,333	18,182,238	6.87	4.39%
July 1, 2012	123,907,003	19,005,478	6.52	4.17%
July 1, 2013	137,021,979	20,099,647	6.82	4.36%
July 1, 2014	158,790,111	21,705,428	7.32	4.68%
July 1, 2015	160,800,009	21,973,679	7.32	4.68%
July 1, 2016	159,240,849	23,020,459	6.92	4.42%
July 1, 2017	176,605,831	23,614,251	7.48	4.78%
July 1, 2018	188,055,655	23,873,911	7.88	5.04%
July 1, 2019	195,672,498	24,445,565	8.00	5.11%
July 1, 2020	194,521,175	25,249,097	7.70	4.92%
July 1, 2021	246,453,303	25,689,918	9.59	6.13%

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, 2021 are 9.6 times payroll, so underperforming the investment return assumption by 10.00% (i.e., earn -2.70% for one year) creates an actuarial loss of about \$25 million, or 96% 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

The net cash flow of a system (contributions minus benefit payments and expenses), as a percentage of the beginning of year asset value, indicates the sensitivity of the system to short-term investment returns. Mature plans can have large amounts of benefit payments compared to contributions, particularly if they are well funded. In fact, this is one reason for prefunding retirement benefits – so a portion of investment return can help to pay plan benefits. When there is negative cash flow, investment losses in the short-term are compounded by the net withdrawal from plan assets leaving a smaller asset base to try to recover from the investment losses. Large negative cash flow can also create liquidity needs for the system.

Year End	Market Value of Assets (MVA)	Contributions	Benefit Payments	Net Cash Flow	Net Cash Flow as a Percent of MVA
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%)
6/30/2020	194,521,175	5,859,680	11,477,914	(5,618,234)	(2.89%)
6/30/2021	246,453,303	6,776,669	12,066,177	(5,289,508)	(2.15%)

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



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, 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%
July 1, 2020	118,314,628	206,455,118	57.3%
July 1, 2021	130,046,659	216,938,984	59.9%

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
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
2020	148	194	0.76
2021	145	195	0.74

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

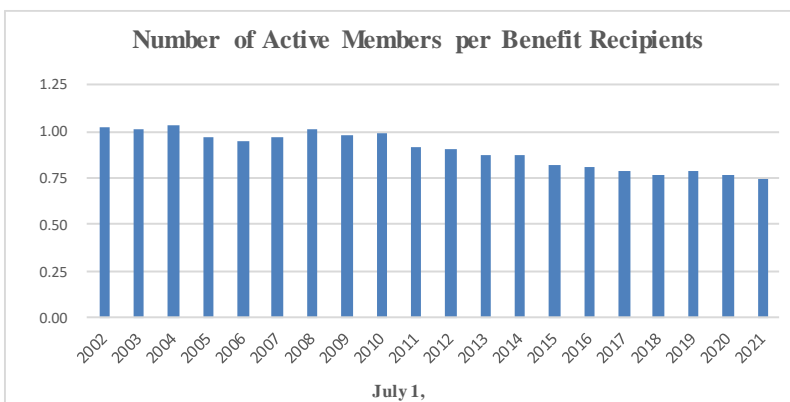




TABLE 16
JUDGES RETIREMENT SYSTEM
COMPARISON OF VALUATION RESULTS UNDER ALTERNATE
INVESTMENT RETURN ASSUMPTIONS
(\$ in Thousands)

This exhibit compares the key July 1, 2021 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	6.80%	7.05%	7.30%	7.55%	7.80%
Actuarial Accrued Liability	\$227,866	\$222,294	\$216,939	\$211,790	\$206,836
Actuarial Value of Assets	218,471	218,471	218,471	218,471	218,471
Unfunded Actuarial Accrued Liability*	\$9,395	\$3,823	(\$1,532)	(\$6,681)	(\$11,635)
Funded Ratio	95.88%	98.28%	100.71%	103.15%	105.63%
Contributions					
Normal Cost Rate	26.80%	25.50%	24.28%	23.12%	22.02%
Administrative Expenses	0.31%	0.31%	0.31%	0.31%	0.31%
UAAL Amortization Rate	2.65%	1.35%	(0.38%)	(1.70%)	(3.04%)
Actuarial Required Contribution Rate	29.76%	27.16%	24.21%	21.73%	19.29%
Member Contribution Rate	(8.48%)	(8.48%)	(8.48%)	(8.48%)	(8.48%)
Employer Required Contribution Rate	21.28%	18.68%	15.73%	13.25%	10.81%
Employer Required Contribution Amount	\$5,467	\$4,799	\$4,041	\$3,404	\$2,777
Expected Court Fees	3,818	3,818	3,818	3,818	3,818
Additional Required State Contribution*	\$1,704	\$1,015	\$232	\$0	\$0

Note: All other assumptions are unchanged for purposes of this sensitivity analysis.

Numbers may not add due to rounding.

*The additional required state contribution is adjusted for mid-year timing.



SECTION 7 – HISTORICAL FUNDING AND OTHER INFORMATION

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.



SECTION 7 – HISTORICAL FUNDING AND OTHER INFORMATION

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 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%
June 30, 2020	200,967,585	206,455,118	5,487,533	97.3%	25,249,097	21.7%
June 30, 2021	218,471,110	216,938,984	(1,532,126)	100.7%	25,689,918	(6.0%)

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

Plan Year Ending	Employer Required Contributions*			Percent Contributed
	State	Court Fees	Total	
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%
June 30, 2020	348,794	3,548,379	3,897,173	100%
June 30, 2021	1,427,719	3,319,567	4,747,286	100%

Note: Contribution information is consistent with that shown in the GASB 67 report prepared for the System.

*ARC less member contributions

**APPENDIX A – MEMBERSHIP DATA****MEMBER DATA RECONCILIATION**

	Active Members	Inactive Vested	Retirees and Beneficiaries	Disabled Members	Total
As of July 1, 2020	148	5	190	4	347
Changes in status					
a) Retirement	(11)	(1)	12	0	0
b) Death	0	0	(19)	0	(19)
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	8	0	8
g) Disability retirements	0	0	0	0	0
h) Return to active service	0	0	0	0	0
i) Expired benefits	<u>0</u>	<u>0</u>	<u>1</u>	<u>(1)</u>	<u>0</u>
Total changes in status	(11)	(1)	2	(1)	(11)
New entrants					
a) Without prior service	8	0	0	0	8
b) With prior service	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total new members	8	0	0	0	8
Net Change	(3)	(1)	2	(1)	(3)
As of July 1, 2021	145	4	192	3	344

**APPENDIX A – MEMBERSHIP DATA****SUMMARY OF MEMBERSHIP DATA**

A. ACTIVE MEMBERS	July 1, 2021	July 1, 2020	% Change
1. Number of Active Members			
(a) Before assumed retirement age	137	137	0.0%
(b) Beyond assumed retirement age	8	11	(27.3%)
(c) Total*	<u>145</u>	<u>148</u>	(2.0%)
2. Annual Reported Salary			
(a) Before assumed retirement age	\$ 23,529,130	\$ 22,713,659	3.6%
(b) Beyond assumed retirement age	1,316,052	1,681,604	(21.7%)
(c) Total	<u>\$ 24,845,182</u>	<u>\$ 24,395,263</u>	1.8%
3. Accumulated Contributions	\$ 19,898,652	\$ 20,003,216	(0.5%)
4. Active Member Averages			
(a) Age	57.5	58.2	(1.2%)
(b) Service	11.5	12.2	(5.7%)
(c) Compensation	\$ 171,346	\$ 164,833	4.0%
B. INACTIVE VESTED MEMBERS			
1. Number of Inactive Vested Members	4	5	(20.0%)
2. Accumulated Member Contributions	\$ 512,885	\$ 624,842	(17.9%)
3. Inactive Vested Member Averages			
(a) Age	58.8	59.2	(0.7%)
(b) Accumulated member contributions	\$ 128,221	\$ 124,968	2.6%
C. RETIREES, DISABLEDS, AND BENEFICIARIES			
1. Number of Members			
(a) Retired	140	142	(1.4%)
(b) Disabled	3	4	(25.0%)
(c) Beneficiaries	52	48	8.3%
(d) Total	<u>195</u>	<u>194</u>	0.5%
2. Annual Benefits			
(a) Retired	\$ 9,607,788	\$ 9,190,403	4.5%
(b) Disabled	294,441	296,015	(0.5%)
(c) Beneficiaries	2,519,899	2,267,524	11.1%
(d) Total	<u>\$ 12,422,128</u>	<u>\$ 11,753,942</u>	5.7%

* As of July 1, 2021, there are 30 members who were hired after July 1, 2017, 15 members hired after July 1, 2015 but before July 1, 2017, 86 members who were hired after July 1, 2004 or who elected the enhanced joint and survivor benefit option, and 14 members who were hired before July 1, 2004 and did not elect the enhanced joint and survivor benefit option.

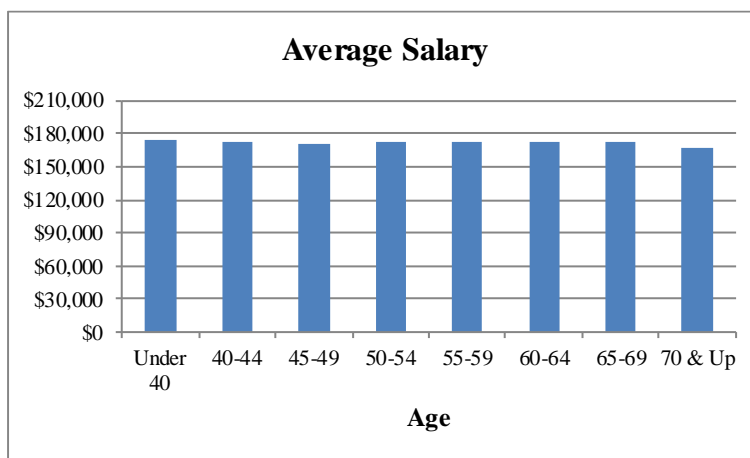
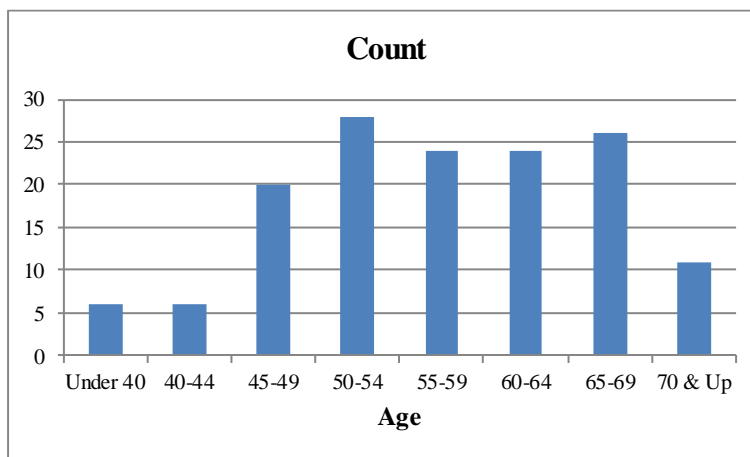


APPENDIX A – MEMBERSHIP DATA

**ACTIVE MEMBERS
AS OF JULY 1, 2021**

Total

<u>Age</u>	<u>Count</u>			<u>Reported FY 2021 Earnings</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
Under 40	5	1	6	\$ 869,717	\$ 173,008	\$ 1,042,725
40-44	1	5	6	173,008	865,042	1,038,050
45-49	13	7	20	2,230,404	1,187,679	3,418,083
50-54	17	11	28	2,917,762	1,889,064	4,806,826
55-59	18	6	24	3,072,066	1,042,726	4,114,792
60-64	16	8	24	2,740,078	1,379,391	4,119,469
65-69	23	3	26	3,965,163	514,349	4,479,512
70 & Up	9	2	11	1,561,751	263,974	1,825,725
Total	102	43	145	\$ 17,529,949	\$ 7,315,233	\$ 24,845,182



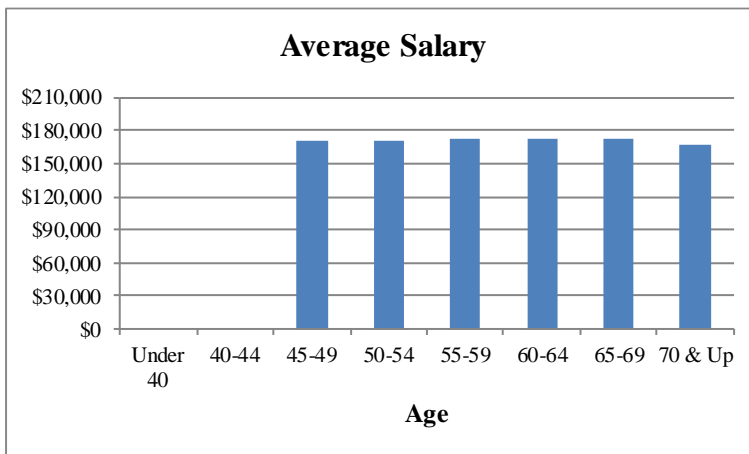
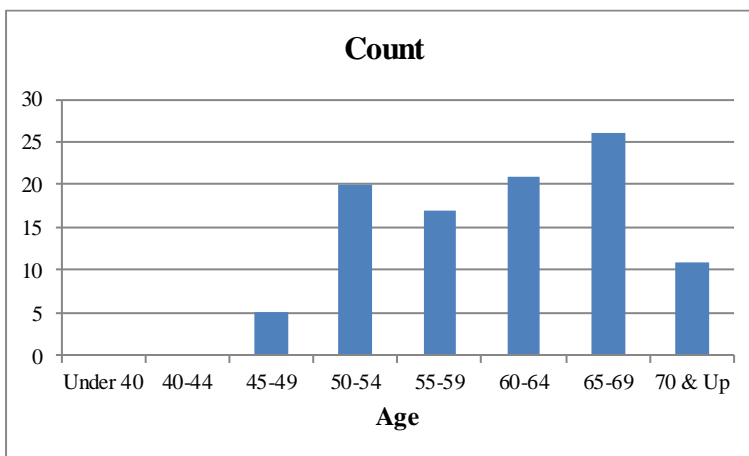


APPENDIX A – MEMBERSHIP DATA

**ACTIVE MEMBERS
AS OF JULY 1, 2021**

Members Hired Before July 1, 2015

<u>Age</u>	<u>Count</u>			<u>Reported FY 2021 Earnings</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
Under 40	0	0	0	\$ 0	\$ 0	\$ 0
40-44	0	0	0	0	0	0
45-49	4	1	5	687,357	168,332	855,689
50-54	11	9	20	1,875,036	1,547,723	3,422,759
55-59	11	6	17	1,875,036	1,042,726	2,917,762
60-64	14	7	21	2,394,061	1,206,382	3,600,443
65-69	23	3	26	3,965,163	514,349	4,479,512
70 & Up	9	2	11	1,561,751	263,974	1,825,725
Total	72	28	100	\$ 12,358,404	\$ 4,743,486	\$ 17,101,890



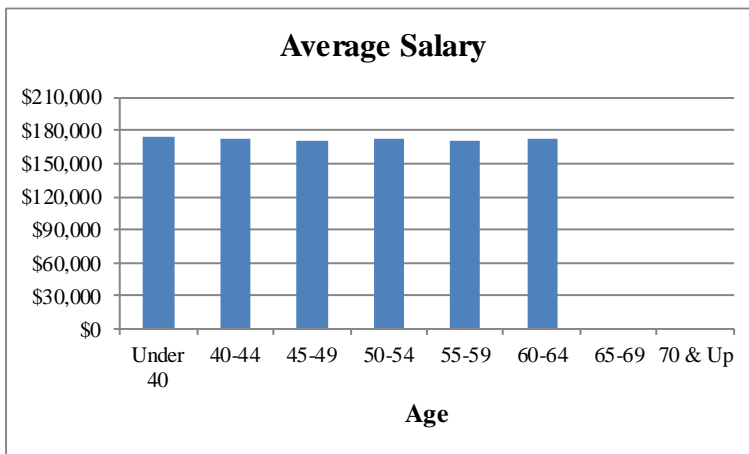
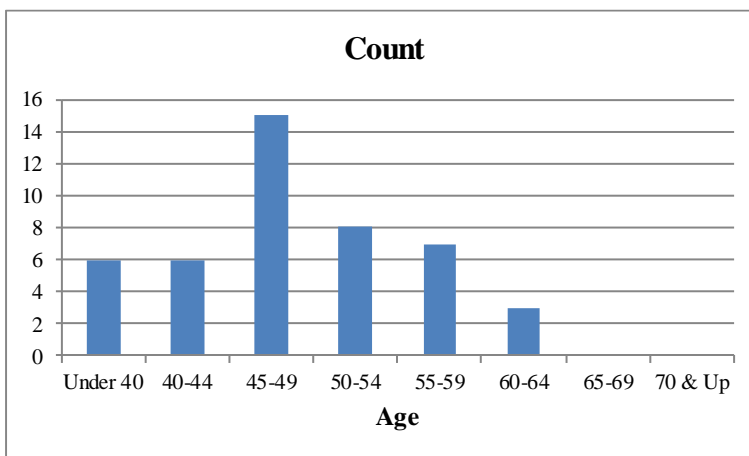


APPENDIX A – MEMBERSHIP DATA

**ACTIVE MEMBERS
AS OF JULY 1, 2021**

Members Hired On or After July 1, 2015

<u>Age</u>	<u>Count</u>			<u>Reported FY 2021 Earnings</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
Under 40	5	1	6	\$ 869,717	\$ 173,008	\$ 1,042,725
40-44	1	5	6	173,008	865,042	1,038,050
45-49	9	6	15	1,543,047	1,019,347	2,562,394
50-54	6	2	8	1,042,726	341,341	1,384,067
55-59	7	0	7	1,197,030	0	1,197,030
60-64	2	1	3	346,017	173,009	519,026
65-69	0	0	0	0	0	0
70 & Up	0	0	0	0	0	0
Total	30	15	45	\$ 5,171,545	\$ 2,571,747	\$ 7,743,292





APPENDIX A – MEMBERSHIP DATA

**AGE AND SERVICE DISTRIBUTION
AS OF JULY 1, 2021**

Age		0-4	5-9	10-14	15-19	Over 19	Total
Under 40	Number	6	0	0	0	0	6
	Total Salary	\$ 1,042,725	\$ 0	\$ 0	\$ 0	\$ 0	\$ 1,042,725
	Average Sal.	\$ 173,788	\$ 0	\$ 0	\$ 0	\$ 0	\$ 173,788
40-44	Number	6	0	0	0	0	6
	Total Salary	\$ 1,038,050	\$ 0	\$ 0	\$ 0	\$ 0	\$ 1,038,050
	Average Sal.	\$ 173,008	\$ 0	\$ 0	\$ 0	\$ 0	\$ 173,008
45-49	Number	13	5	2	0	0	20
	Total Salary	\$ 2,221,052	\$ 851,014	\$ 346,017	\$ 0	\$ 0	\$ 3,418,083
	Average Sal.	\$ 170,850	\$ 170,203	\$ 173,008	\$ 0	\$ 0	\$ 170,904
50-54	Number	6	18	3	1	0	28
	Total Salary	\$ 1,038,050	\$ 3,072,067	\$ 523,701	\$ 173,008	\$ 0	\$ 4,806,826
	Average Sal.	\$ 173,008	\$ 170,670	\$ 174,567	\$ 173,008	\$ 0	\$ 171,672
55-59	Number	4	11	2	5	2	24
	Total Salary	\$ 687,357	\$ 1,898,415	\$ 336,665	\$ 855,690	\$ 336,665	\$ 4,114,792
	Average Sal.	\$ 171,839	\$ 172,583	\$ 168,332	\$ 171,138	\$ 168,332	\$ 171,450
60-64	Number	2	8	3	4	7	24
	Total Salary	\$ 346,017	\$ 1,370,039	\$ 519,025	\$ 692,033	\$ 1,192,355	\$ 4,119,469
	Average Sal.	\$ 173,008	\$ 171,255	\$ 173,008	\$ 173,008	\$ 170,336	\$ 171,645
65-69	Number	0	3	6	11	6	26
	Total Salary	\$ 0	\$ 519,025	\$ 1,033,374	\$ 1,889,063	\$ 1,038,050	\$ 4,479,512
	Average Sal.	\$ 0	\$ 173,008	\$ 172,229	\$ 171,733	\$ 173,008	\$ 172,289
70 & Up	Number	0	0	1	1	9	11
	Total Salary	\$ 0	\$ 0	\$ 187,036	\$ 173,008	\$ 1,465,681	\$ 1,825,725
	Average Sal.	\$ 0	\$ 0	\$ 187,036	\$ 173,008	\$ 162,853	\$ 165,975
Total	Number	37	45	17	22	24	145
	Total Salary	\$ 6,373,251	\$ 7,710,560	\$ 2,945,818	\$ 3,782,802	\$ 4,032,751	\$ 24,845,182
	Average Sal.	\$ 172,250	\$ 171,346	\$ 173,283	\$ 171,946	\$ 168,031	\$ 171,346



**INACTIVE VESTED MEMBERS
AS OF JULY 1, 2021**

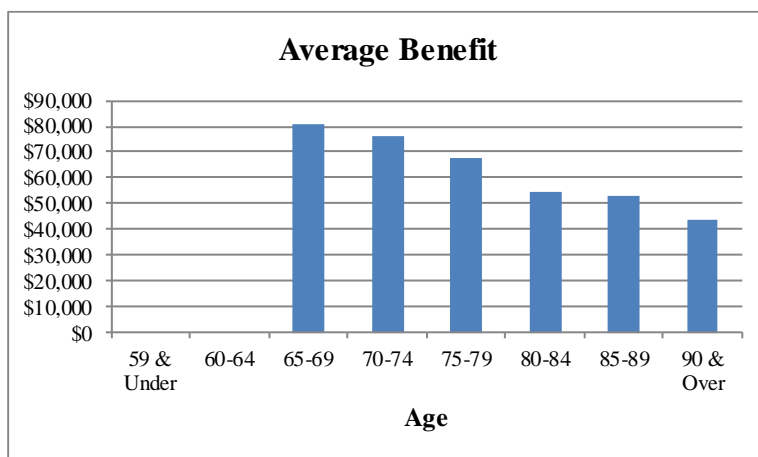
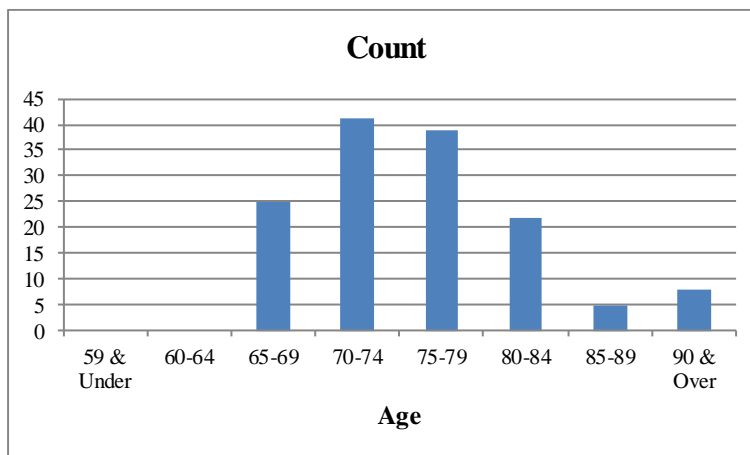
<u>Age</u>	<u>Count</u>			<u>Annual Benefits</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
59 & Under	1	1	2	\$ 16,492	\$ 51,052	\$ 67,544
60-64	2	0	2	139,103	0	139,103
65-69	0	0	0	0	0	0
70-74	0	0	0	0	0	0
75-79	0	0	0	0	0	0
80-84	0	0	0	0	0	0
85-89	0	0	0	0	0	0
90 &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



APPENDIX A – MEMBERSHIP DATA

**RETIRED MEMBERS
AS OF JULY 1, 2021**

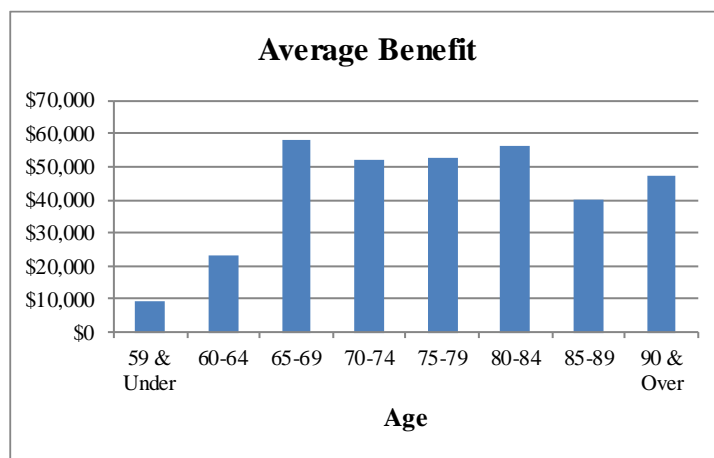
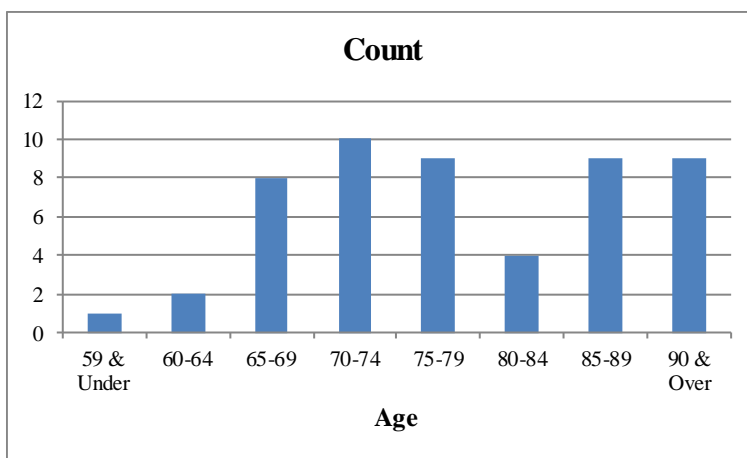
Age	Count			Annual Benefits		
	Male	Female	Total	Male	Female	Total
59 & Under	0	0	0	\$ 0	\$ 0	\$ 0
60-64	0	0	0	0	0	0
65-69	14	11	25	1,223,761	802,559	2,026,320
70-74	29	12	41	2,337,393	795,516	3,132,909
75-79	29	10	39	2,269,121	367,661	2,636,782
80-84	13	9	22	910,555	285,413	1,195,968
85-89	2	3	5	190,506	74,409	264,915
90 & Over	5	3	8	266,557	84,337	350,894
Total	92	48	140	\$7,197,893	\$2,409,895	\$9,607,788





**BENEFICIARIES RECEIVING BENEFITS
AS OF JULY 1, 2021**

Age	Count			Annual Benefits		
	Male	Female	Total	Male	Female	Total
59 & Under	0	1	1	\$ 0	\$ 9,309	\$ 9,309
60-64	1	1	2	12,262	34,648	46,910
65-69	1	7	8	65,308	397,649	462,957
70-74	0	10	10	0	519,408	519,408
75-79	0	9	9	0	471,354	471,354
80-84	0	4	4	0	223,852	223,852
85-89	0	9	9	0	362,396	362,396
90 & Over	0	9	9	0	423,713	423,713
Total	2	50	52	\$ 77,570	\$2,442,329	\$2,519,899





APPENDIX A – MEMBERSHIP DATA

**DISABLED MEMBERS
AS OF JULY 1, 2021**

<u>Age</u>	<u>Count</u>			<u>Annual Benefits</u>		
	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
59 & Under	0	0	0	\$ 0	\$ 0	\$ 0
60-64	0	0	0	0	0	0
65-69	0	0	0	0	0	0
70-74	1	0	1	102,048	0	102,048
75-79	1	0	1	98,705	0	98,705
80-84	1	0	1	93,688	0	93,688
85-89	0	0	0	0	0	0
90 & Over	0	0	0	0	0	0
Total	3	0	3	\$ 294,441	\$ 0	\$ 294,441



APPENDIX B – SUMMARY OF PLAN PROVISIONS

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 hired before July 1, 2015 contribute 7% of pensionable pay during the first twenty years of service, and 1% of pensionable pay thereafter. Judges who first became members on or after July 1, 2015 will contribute 10% of compensation. 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.

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.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

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.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

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 joint 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. Beginning July 1, 2021, this fee was increased to \$8 and is scheduled to increase by \$1 each year until reaching the ultimate rate of \$12 beginning July 1, 2025. These increases do not apply to any criminal cause of action, traffic misdemeanor or infraction, and city or village ordinance violation, which shall remain at \$6 after July 1, 2021.

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

Prior to July 1, 2023, 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.

Beginning July 1, 2023, the State shall contribute up to 5% of total annual compensation to the System as recommended by the actuary



APPENDIX B – SUMMARY OF PLAN PROVISIONS

and approved by the Board. If the 5% contribution is insufficient to meet the full actuarial required contribution in any given year, then an additional State contribution will still be required. If the funded ratio on the actuarial value of assets is at or above 100% for two consecutive years, then the actuary shall assess whether the contribution percentage should be adjusted.

Benefits Reflected in Valuation

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

Plan Provision Effective After July 1, 2021

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 was one change in the benefit provisions since the prior valuation. LB 17, which was passed by the 2021 Nebraska Legislature, increased the amount of court fees directed to fund the Judges retirement System with increases phased-in over five years. The bill also provided for a payroll-related contribution from the State beginning July 1, 2023, not to exceed 5% of pay.



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 25-year amortization bases, each with their own individual payment schedules, beginning June 30, 2021 and after. If the UAAL is less than or equal to zero, then all prior bases shall be considered fully funded and the UAAL shall be amortized over a 25-year period as of the actuarial valuation date. 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.



APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS

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

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

The compensation amounts used in the projection of benefits and liabilities for active members were prior plan year compensations. Salary increases are assumed to apply to annual amounts.

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).

Decrement assumptions 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.

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.



APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS

Changes in Methods and Procedures Since the Prior Year

At their meeting on December 21, 2020, the Public Employees Retirement Board adopted a new set of actuarial assumptions, based on the recommendations in the 2020 experience study. Following this, Legislative Bill 17 was passed by the 2021 Nebraska Legislature which changed the UAAL amortization method to use a 25-year period instead of a 30-year period for UAAL bases established on or after July 1, 2021.



APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS

ACTUARIAL ASSUMPTIONS

Economic Assumptions

1. Investment Return 7.30% per annum, compounded annually, net of all expenses.
Note: The assumption will decrease by 0.10% per year until reaching the ultimate rate of 7.00% in the 2024 valuation.
2. Inflation 2.65% per annum, compounded annually.
Note: The assumption will decrease by 0.10% per year until reaching the ultimate rate of 2.35% in the 2024 valuation.
3. Salary Increases Salaries are assumed to increase 3.40% each year.
Note: The assumption will decrease by 0.10% per year until reaching the ultimate rate of 3.10% in the 2024 valuation.
4. Payroll Growth 3.15% per annum
Note: The assumption will decrease by 0.10% per year until reaching the ultimate rate of 2.85% in the 2024 valuation.
5. Interest on Employee Contributions 2.50% per annum, compounded annually.
6. Increases in Compensation And Benefit Limits 2.65% per annum on the 401(a)(17) compensation limit and 415 benefit limit
Note: The assumption will decrease by 0.10% per year until reaching the ultimate rate of 2.35% in the 2024 valuation.

Demographic Assumptions

1. Mortality
 - a. Healthy lives - Active Members Pub-2010 General Members (Above Median) Employee Mortality Table (100% of male rates, 95% of female rates), both male and female rates set back one year, projected generationally using MP-2019 modified to 75% of the ultimate rates.
 - b. Healthy lives - Retired Members Pub-2010 General Members (Above Median) Retiree Mortality Table (100% of male rates, 95% of female rates), both male and female rates set back one year, projected generationally using MP-2019 modified to 75% of the ultimate rates.
 - c. Healthy lives - Beneficiaries Pub-2010 General Members (Above Median) Contingent Survivor Mortality Table (100% of male rates, 95% of female rates), both male and female rates set back one year, projected generationally using MP-2019 modified to 75% of the ultimate rates.
 - d. Disabled Members Pub-2010 Non-Safety Disabled Retiree Mortality Table (static table).



APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS

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

Pre-retirement Mortality		
Mortality Rate (Base Rates)		
Sample Age	Males	Females
20	0.04%	0.01%
30	0.04	0.01
40	0.07	0.03
50	0.11	0.06
60	0.27	0.16

Post-retirement Mortality		
Mortality Rate (Base Rates)		
Sample Age	Males	Females
50	0.11%	0.06%
60	0.53	0.35
70	1.17	0.80
80	3.60	2.60
90	11.73	9.07

Projection Scale – Post-retirement Mortality						
Sample Age	Scale (2020)		Scale (2030)		Scale (2040)	
	Males	Females	Males	Females	Males	Females
50	0.0004	0.0030	0.0026	0.0036	0.0075	0.0075
60	0.0004	-0.0041	0.0063	0.0069	0.0075	0.0075
70	0.0017	0.0052	0.0069	0.0063	0.0075	0.0075
80	0.0067	0.0061	0.0066	0.0070	0.0075	0.0075
90	0.0048	0.0032	0.0067	0.0067	0.0069	0.0069

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

Sample Age	Males	Females
30	0.35%	0.26%
40	0.65	0.63
50	1.61	1.48
60	2.50	1.96
70	3.90	2.86
80	7.35	6.01



APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS

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

Rates by Age	
Age	Rate
55-59	1.5%
60-63	3.0
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 7.00%

b. Mortality Pub-2010 General members (Above Median) Retiree Mortality Table (100% of male rates, 95% of female rates), both male and female rates set back one year, projected to 2040 using MP-2019 modified to 75% of the ultimate rates 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.



APPENDIX C – SUMMARY OF ACTUARIAL ASSUMPTIONS

4. Administrative Expense	0.31% of payroll
5. Cost of Living Adjustment	2.15% per annum, compounded annually for members hired before July 1, 2015. Note: The assumption will decrease by 0.05% per year until reaching the ultimate rate of 2.00% in the 2024 valuation. 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

At their meeting on December 21, 2020, the Public Employees Retirement Board adopted a new set of actuarial assumptions based on the recommendations in the 2020 experience study. Changes to the set of economic assumptions are phased in over four years. Below is a summary of the key assumption changes:

- Price inflation assumption was lowered from 2.75% to 2.65%.
- Investment return assumption was lowered from 7.50% to 7.30%.
- Interest on employee contributions was lowered from 3.00% to 2.50%.
- COLA assumption for Tier 1 members was lowered from 2.25% to 2.15%.
- General wage inflation assumption was lowered from 3.50% to 3.15%.
- Payroll growth assumption was lowered from 3.50% to 3.15%.
- Salary increases were lowered from a flat 3.50% to 3.40%.
- An explicit assumption for administrative expenses was adopted as a component of the actuarial contribution rate and was set to 0.31% of pay.
- Retirement rates were adjusted to better reflect observed experience.
- Mortality assumption for non-disabled participants was changed to the Pub-2010 General Members (Above Median) Mortality Tables (100% of male rates, 95% female rates), set back one-year, projected generationally using MP-2019 modified to 75% of ultimate rates.
- Mortality assumption for disabled participants was changed to the Pub-2010 Non-Safety Disabled Retiree Mortality Table (static).



APPENDIX D – GLOSSARY OF TERMS

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.”