



Wichita Employees' Retirement System

**Actuarial Valuation
as of December 31, 2021**

Produced by Cheiron

March 2022

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LETTER OF TRANSMITTAL

March 29, 2022

The Board of Trustees
Wichita Employees' Retirement System
City Hall, 12th Floor
455 N. Main Street
Wichita, KS 67202

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the Wichita Employees' Retirement System (WERS, System, or Plan) as of December 31, 2021. The valuation is organized as follows:

- In Section I **Board Summary**, we describe the purpose of an actuarial valuation and summarize the key results found in this valuation.
- The **Main Body** of the report presents details on the System's:
 - Section II - Identification and Assessment of Risk
 - Section III - Assets
 - Section IV - Liabilities
 - Section V - Contributions
 - Section VI - Accounting Statement Information
- In the **Appendices**, we conclude our report with detailed information describing the System's membership (Appendix A), actuarial assumptions and methods employed (Appendix B), a summary of pertinent plan provisions (Appendix C), and a glossary of terms (Appendix D).

The results of this report rely on future System experience conforming to the underlying assumptions. To the extent that actual System experience deviates from the underlying assumptions, the results will vary accordingly. The demographic actuarial assumptions were adopted by the Board, effective with the December 31, 2018 valuation, based on recommendations from the experience study performed for the period January 1, 2014 through December 31, 2016 prepared by the prior actuary. The economic actuarial assumptions were adopted by the Board, effective with the December 31, 2021 valuation, based on recommendations from the economic experience study presented to the Board on March 9, 2022. Cheiron has reviewed the actuarial assumptions. While we consider these assumptions reasonable, we have not yet performed our own demographic actuarial experience study.

The purpose of this report is to present the annual actuarial valuation of the Wichita Employees' Retirement System. This report is for the use of Board and its auditors in preparing financial reports in accordance with applicable law and accounting requirements. The report does not include calculations related to GASB Statements No. 67 and 68, which are provided in a separate report.

Board of Trustees

March 29, 2022

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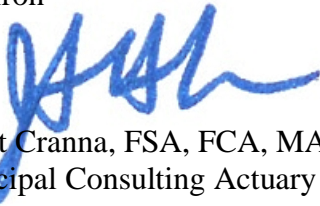
In preparing our report, we relied on information (some oral and some written) supplied by the Wichita Retirement Systems staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice No. 23.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

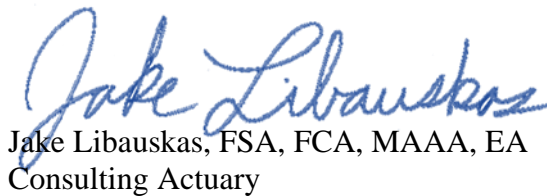
This actuarial report was prepared exclusively for the Wichita Employees' Retirement System for the purpose described herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Sincerely,

Cheiron



Janet Cranna, FSA, FCA, MAAA, EA
Principal Consulting Actuary



Jake Libauskas, FSA, FCA, MAAA, EA
Consulting Actuary

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
DECEMBER 31, 2021 ACTUARIAL VALUATION REPORT**

SECTION I – BOARD SUMMARY

The primary purpose of the actuarial valuation and this report is to measure, describe and identify as of the valuation date:

- The financial condition of the System,
- Past and expected trends in the financial progress of the System,
- The employer contribution rate for fiscal year 2023, and
- Information required for accounting statements.

In the balance of this Board Summary, we present (A) the basis upon which this year's valuation was completed, (B) the key findings of this valuation including a summary of all key financial results, (C) an examination of the historical trends, and (D) the projected financial outlook for the System.

A. Valuation Basis

The December 31, 2021 valuation results are based on the same actuarial assumptions and methods used in the December 31, 2020 valuation, except for the investment return assumption. The investment return assumption was lowered from 7.50% to 7.25%. The demographic assumptions were based on recommendations from the experience study covering the period January 1, 2014 through December 31, 2016, prepared by the prior actuary. The economic actuarial assumptions were adopted by the Board, effective with the December 31, 2021 valuation, based on recommendations from the economic experience study presented to the Board on March 9, 2022. Cheiron has reviewed the assumptions. While we consider these assumptions to be reasonable, we have not performed our own demographic actuarial experience study.

This report was prepared using census data and financial information as of December 31, 2021 provided by the Wichita Retirement Systems' staff and does not reflect any subsequent changes in the membership or assets.

Whereas there remains a lot of uncertainty, we continue to monitor developments regarding the COVID-19 pandemic and the impact it may have on the System. Actual experience, both demographic and economic, will be reflected in subsequent valuations as experience emerges.

B. Key Findings of this Valuation

The key results of the December 31, 2021 actuarial valuation are as follows:

- The actuarially determined employer contribution rate for the city as a percent of payroll increased from 12.9% as of December 31, 2020 to 13.0% as of December 31, 2021. Prior to the assumption change, the actuarially determined employer contribution rate was 10.8% of payroll as of December 31, 2021.
- The Unfunded Actuarial Liability decreased from \$49.3 million as of December 31, 2020 to \$45.6 million as of December 31, 2021.

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- The System's funded ratio, the ratio of actuarial asset value over liabilities, increased from 92.8% as of December 31, 2020 to 93.6% as of December 31, 2021.
- There was a net actuarial experience gain during the year of \$19.5 million.
 - During the year ended December 31, 2021, the System's assets had a 14.6% return on a market value basis, but due to smoothing of prior investment gains and losses, the return on the actuarial asset value was 10.7% (as compared to last year's 7.50% investment return assumption). This resulted in an actuarial gain on investments of \$19.6 million.
 - On the liability side, the System experienced a total loss of \$0.1 million. See Table IV-3 for more details.
- The investment return assumption was lowered from 7.50% to 7.25% which increased the Actuarial Liability by \$17.5 million.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION I – BOARD SUMMARY

Following is Table I-1 which summarizes all the key results of the valuation with respect to the System's membership, assets and liabilities, and contributions. The results are presented and compared for both the current and prior plan year.

Table I-1 Wichita Employees' Retirement System Summary of Principal Results			
Valuation as of:	December 31, 2021	December 31, 2020	% change
Participant Counts			
Active Members			
Plan 2	708	709	(0.1%)
Plan 3	<u>635</u>	<u>638</u>	(0.5%)
Total	1,343	1,347	(0.3%)
DROP Members	71	81	(12.3%)
Retirees and Beneficiaries	1,494	1,459	2.4%
Inactive Vested Members	143	143	0.0%
Inactive Non-Vested Members	<u>94</u>	<u>126</u>	(25.4%)
Total Members	3,145	3,156	(0.3%)
Annual Projected Payroll, including DROP	\$80,187,603	\$79,334,562	1.1%
Annual Retirement Allowances for Retired Members and Beneficiaries ¹	46,807,902	45,353,773	3.2%
Assets and Liabilities			
Actuarial Liability (AL)	\$715,528,135	\$686,221,086	4.3%
Actuarial Value of Assets (AVA)	<u>669,951,808</u>	<u>636,876,961</u>	5.2%
Unfunded Actuarial Liability (UAL)	45,576,327	49,344,125	(7.6%)
Funded Ratio (AVA/AL)	93.6%	92.8%	
Market Value of Assets (MVA)	\$728,717,909	\$667,029,106	9.2%
Funded Ratio (MVA/AL)	101.8%	97.2%	
Contributions as a Percentage of Payroll		Fiscal Year 2023	Fiscal Year 2022
Employer Normal Cost Rate	8.9%	8.3%	
UAL Amortization Rate	<u>4.1%</u>	<u>4.6%</u>	
Employer Contribution Rate	13.0%	12.9%	

¹ Includes retirement allowances for DROP members.

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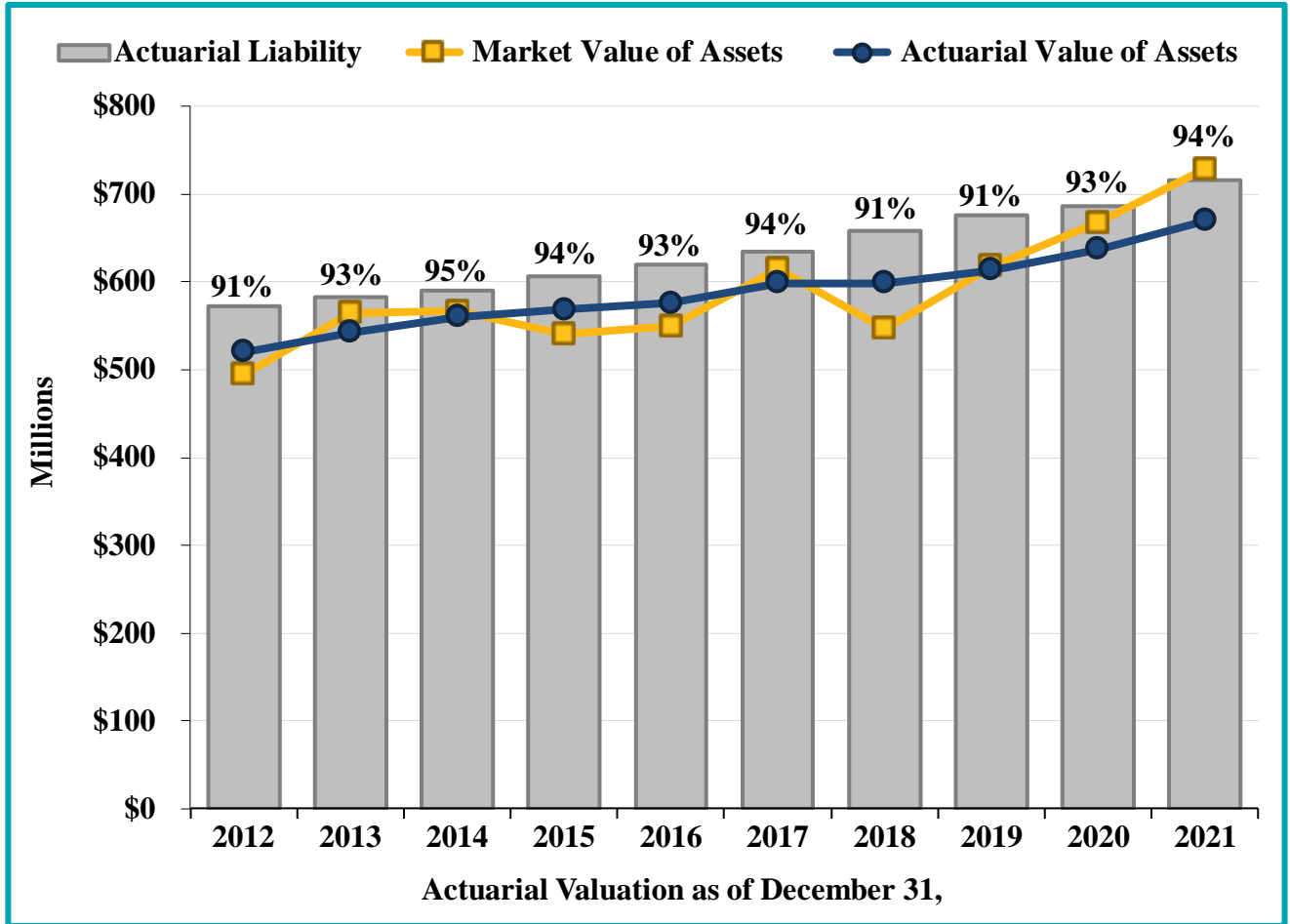
SECTION I – BOARD SUMMARY

C. Historical Trends

Despite the fact that for most retirement systems the greatest attention is given to the current valuation results and in particular the size of the current Unfunded Actuarial Liability and the employer’s contribution, it is important to remember that each valuation is merely a snapshot in the long-term progress of a pension system. It is more important to judge a current year’s valuation result relative to historical trends, as well as trends expected into the future.

Assets and Liabilities

The chart below shows the last ten years of the Actuarial Liabilities, shown as bars, and assets, shown as lines. The Market Value of Assets (MVA) is shown as the gold line and the smoothed Actuarial Value of Assets (AVA) is shown as the blue line. Above the bars is the funded ratio, which is the ratio of the Actuarial Value of Assets to the Actuarial Liability.



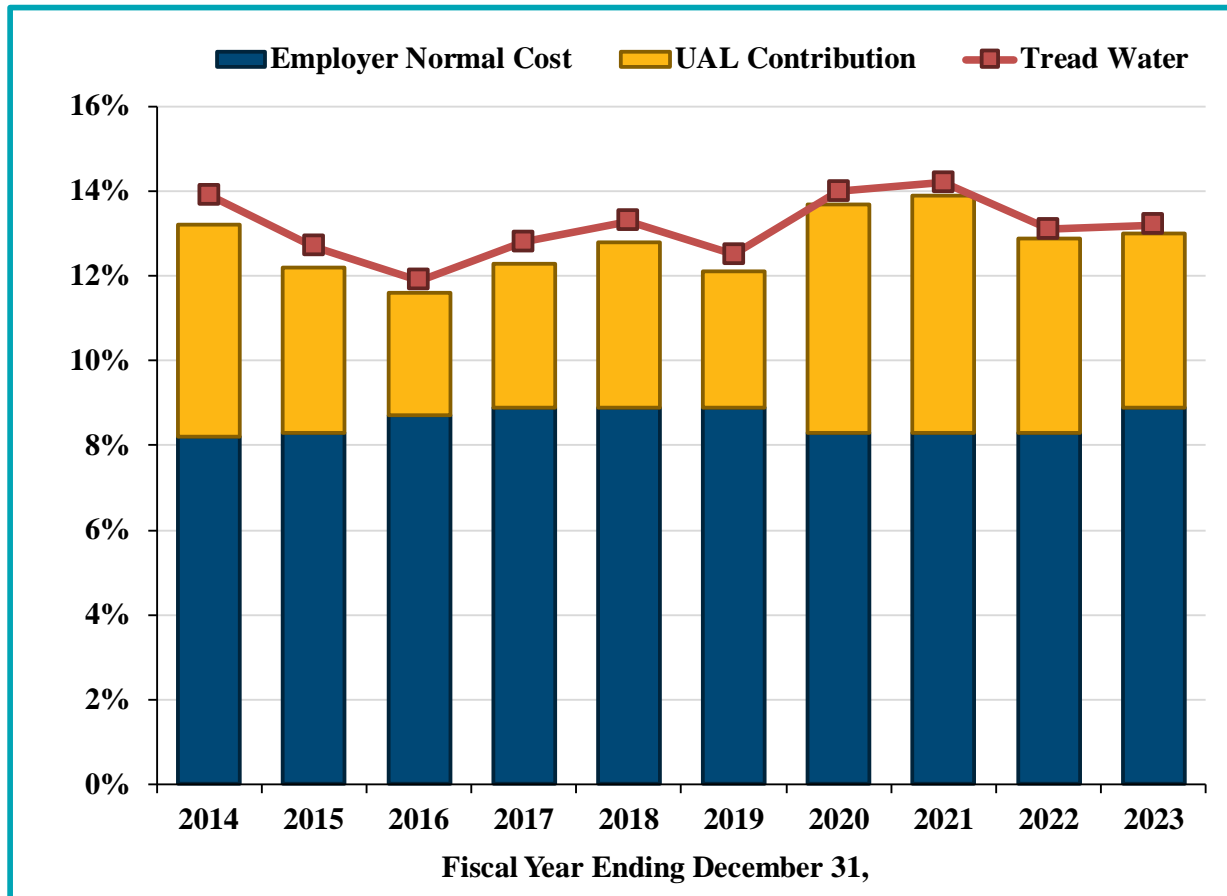
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As shown in the prior chart, there was an increase in the MVA from \$667 million to \$729 million, due to a 14.6% return during the year, which is greater than last year's investment return assumption of 7.50%. The effect of the asset smoothing method, which is shown as the AVA, has tracked a smoother path through the volatility of the market over recent years. The AVA return for 2021 was 10.7%. This chart also shows that the funded ratio has been stable during this period, fluctuating between 91% and 95% for the past ten years.

Contribution Rates

The bars in the chart below show the employer contribution rates for the last ten years. The blue bar is the employer normal cost rate and the gold bar is the Unfunded Actuarial Liability (UAL) contribution rate. The red line shows the tread water contribution rate, which is the employer normal cost-plus interest on the UAL as a percentage of projected payroll. The tread water line shows the minimum contribution rate needed to avoid an increase in the UAL. The employer contribution rates have been slightly less than the tread water contribution rates for the last ten years. The employer contribution rate increased from 12.9% of payroll for 2022 to 13.0% of payroll for 2023 primarily due to the reduction in the investment return assumption which was mostly offset by the actual investment return being greater than assumed during 2021.

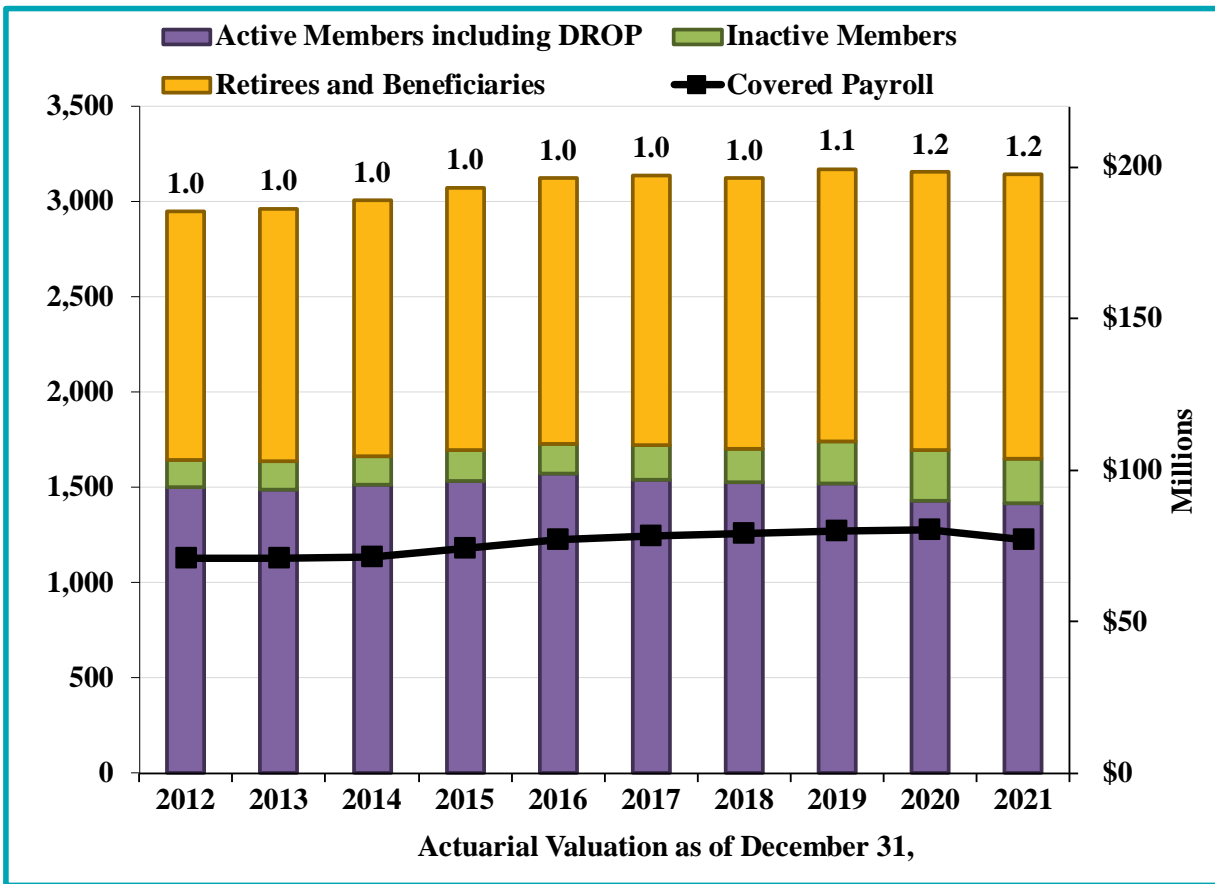


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Membership Trends

The chart below shows the membership counts of the System for the last ten valuations. The numbers which appear above each bar represent the ratio of the number of inactive members to active members at each valuation date and provides a measure of the maturity of the System. This ratio is referred to as the support ratio. The support ratio has been generally stable over the period. In 2012, each active supported 1.0 inactive members and in 2021 each active supports 1.2 inactive members. As the System matures and the support ratio increases, the System will likely experience more volatility in contribution rates when actuarial gains and losses are recognized.



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SECTION I – BOARD SUMMARY

D. Future Expected Financial Trends

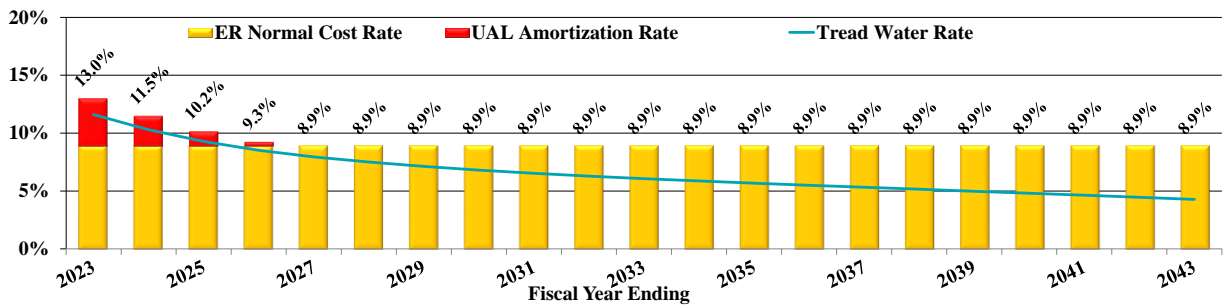
The analysis of projected financial trends is perhaps the most important component of this valuation. In this section, we present the implications of the December 31, 2021 valuation results in terms of (1) the projected employer contributions, and (2) projected System's funded status (ratio of assets over liabilities). We assume future investment returns of 7.25% each year. The projections assume there will be no future gains or losses on the liability and that covered payroll increases at 3.25% per year.

1. Contribution Rate Projections

The chart shows the projected employer normal cost rate (gold bars), UAL amortization rate (red bars), and tread water rate (blue line). The projected actuarially determined employer contribution rates (gold bars plus red bars) are shown above the bars for each year.

Baseline returns of 7.25%

The chart below shows that the employer contribution rate is projected to decrease over the 20-year period from 13.0% for 2023 to 8.9% for 2027 and thereafter. These projections assume that the System earns the assumed investment rate of return of 7.25% on market value each year. The employer contribution rates are projected to decrease over the next few years as deferred investment gains are recognized in the Actuarial Value of Assets. Once the System reaches 100% funded, the employer contribution rate is equal to the employer normal cost rate.



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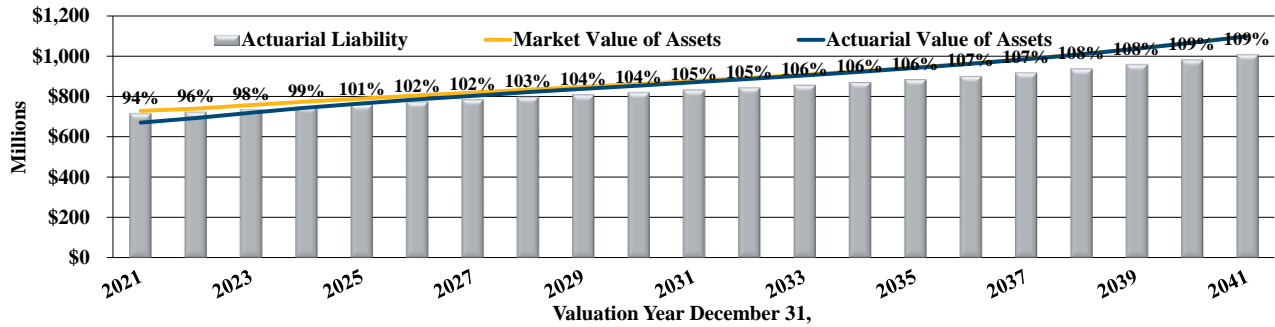
SECTION I – BOARD SUMMARY

2. Asset and Liability Projections

This next projection chart compares the Market Value of Assets (gold line) and the actuarial or smoothed value of assets (blue line) to the System's Actuarial Liabilities (gray bars). In addition, above the bars, we show the System's funded ratio (ratio of Actuarial Value of Assets to Actuarial Liabilities). The projections assume that the employer contribution rates, as shown in the previous charts, are made each year. The years shown in the chart signify the valuation date as of December 31st.

Baseline returns of 7.25%

Assuming that the System earns the assumed investment rate of 7.25%, the funded ratio will increase from 94% to 109% during the 20-year projection period. The UAL is projected to decrease as deferred investment gains are recognized in the Actuarial Value of Assets.



**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Actuarial valuations are based on a set of assumptions about future economic and demographic experience. These assumptions represent a reasonable estimate of future experience, but actual future experience will undoubtedly be different and may be significantly different. This section of the report is intended to identify the primary risks to the System, provide some background information about those risks, and provide an assessment of those risks. Some of the charts within this section compare measures calculated for the Wichita Employees' Retirement System to plans within the Public Plans Database. Information regarding this data can be found at <https://publicplansdata.org/>.

Identification of Risks

The fundamental risk to a pension plan is that the contributions needed to pay the benefits become unaffordable. While we believe it is unlikely that the System by itself would become unaffordable, the contributions needed to support the System may differ significantly from expectations. While there are a number of factors that could lead to contribution amounts deviating from expectations, we believe the primary sources are:

- Investment risk,
- Interest rate risk,
- Longevity and other demographic risks, and
- Assumption change risk.

Other risks that we have not identified may also turn out to be important.

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SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

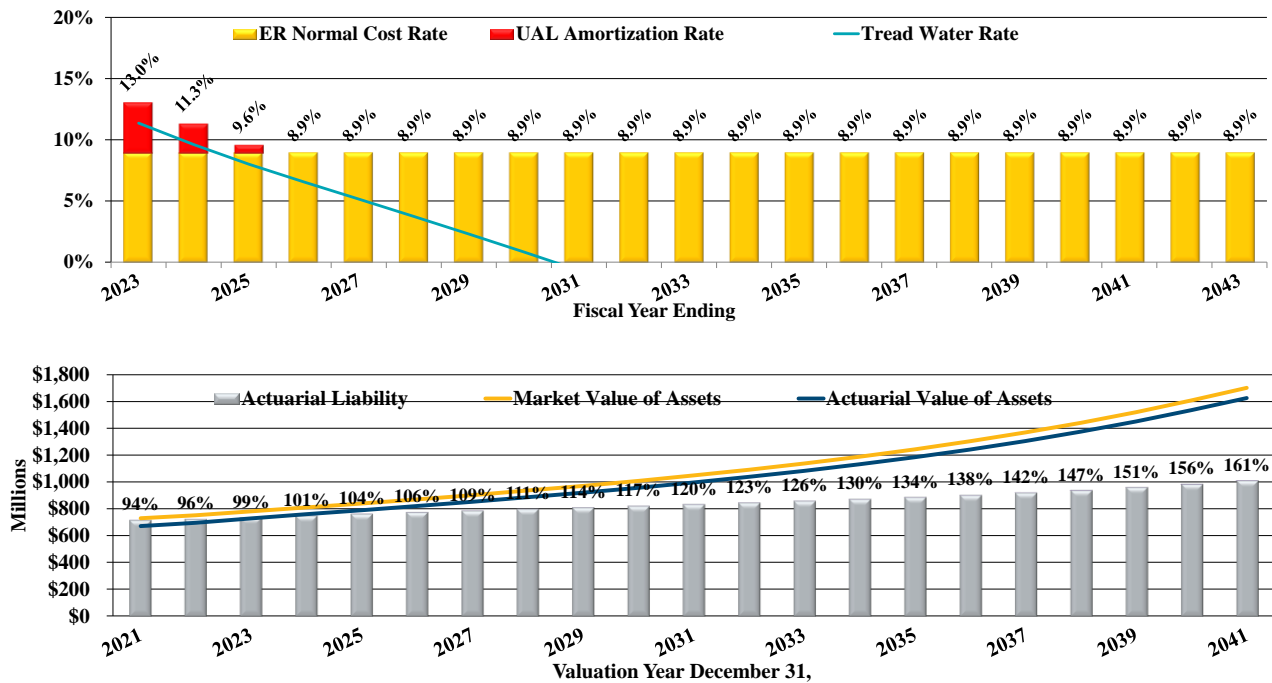
Investment risk is the potential for investment returns to be different than expected. Lower investment returns than anticipated will increase the UAL necessitating higher contributions in the future unless there are other gains that offset these investment losses. The potential volatility of future investment returns is determined by the System's asset allocation, and the affordability of the investment risk is determined by the amount of assets invested relative to the size of the Plan Sponsor or other contribution base.

For stress testing purposes, we include two scenarios to illustrate the impact actual investment returns may have on future funded status and contribution amounts compared to the baseline scenario presented at the end of Section I of this report. The two scenarios are (1) optimistic returns of 8.75% each year and (2) pessimistic returns of 5.75% each year.

As with the baseline, we present the implications of the December 31, 2021 valuation results in terms of the projected employer contributions, and projected System's funded status (ratio of assets over liabilities).

1. Optimistic returns of 8.75%

If the System earns 1.50% greater than the assumed rate in each year of the projection, the employer contribution rate will steadily decrease to the employer normal cost rate of 8.9% by 2026. The funded ratio is projected to increase to 101% by 2024 and 161% by the end of the 20-year projection period.

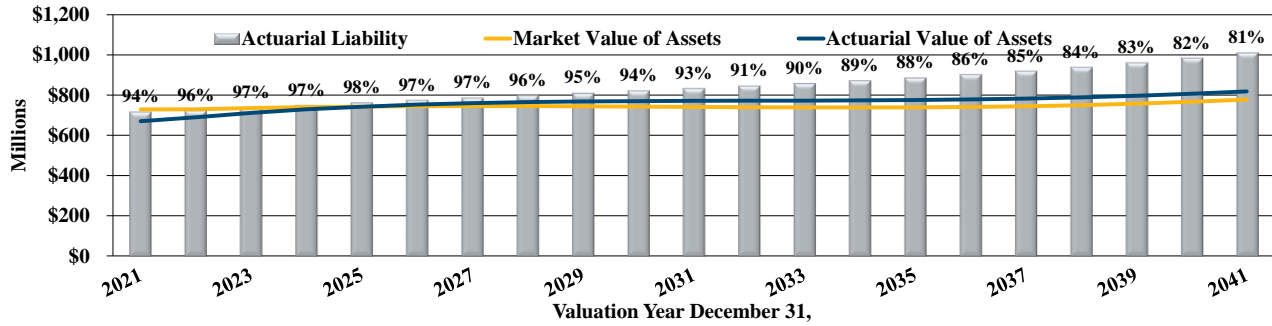
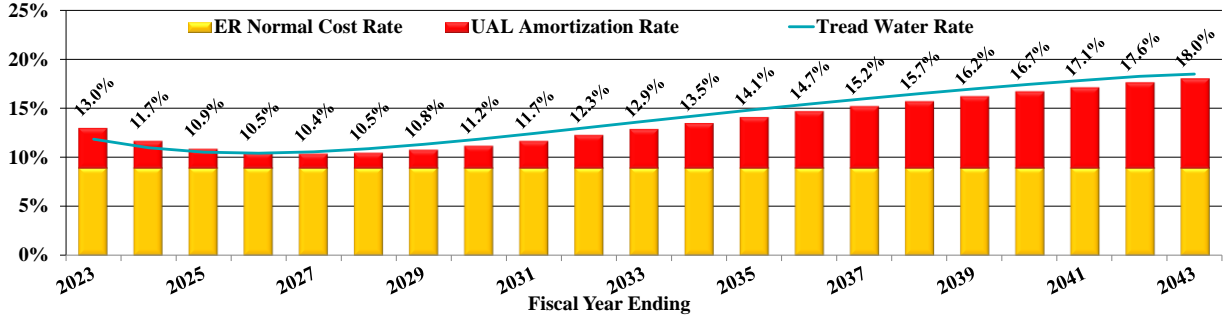


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SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

2. Pessimistic returns of 5.75%

If the System earns 1.50% less than the assumed rate in each year of the projection, the employer contribution rate will decrease for a few years before steadily increasing to 18.0% by the end of the 20-year projection period. The funded ratio will increase for a few years before decreasing to 81% by the end of the 20-year projection period due to the investment losses and employer contribution rates being less than tread water rates.

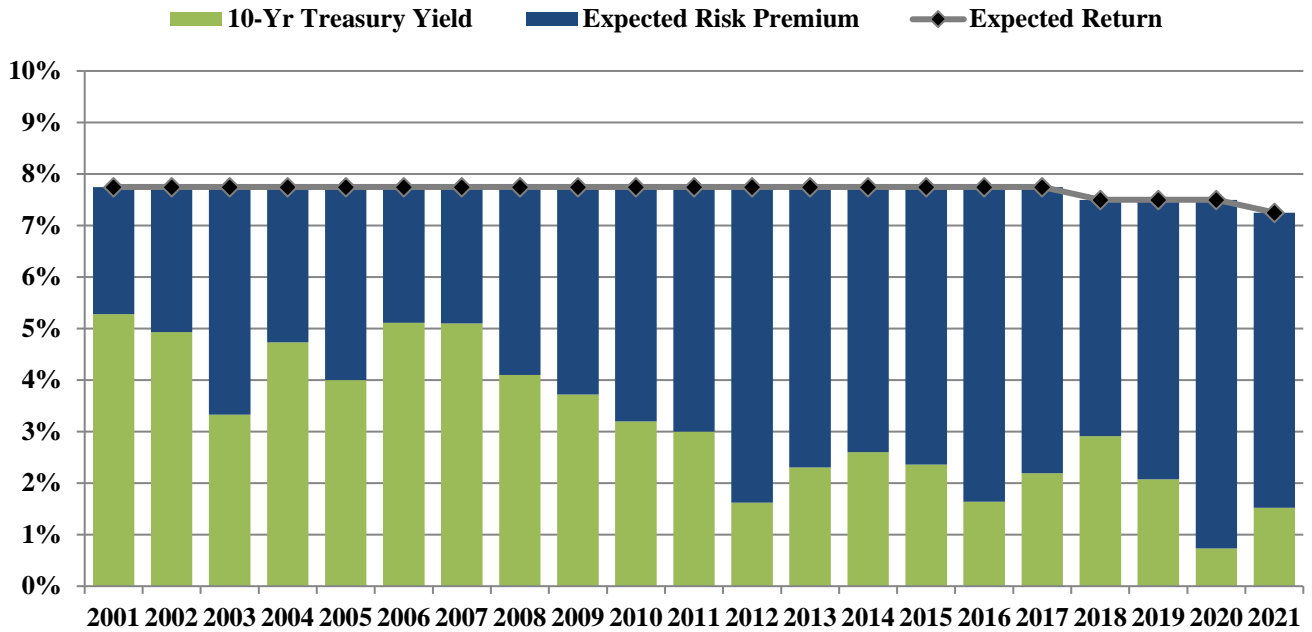


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Interest rate risk is the potential for interest rates to be different than expected. For public plans, short-term fluctuations in interest rates have little or no effect as the plan's liability is usually measured based on the expected return on assets. Longer-term trends in interest rates, however, can have a powerful effect. The chart below shows the yield on a 10-year Treasury security compared to the System's assumed rate of return. The difference is a simple measure of the amount of investment risk taken. As interest rates have declined, plans faced a choice: maintain the same level of risk and reduce the expected rate of return, maintain the same expected rate of return and take on more investment risk, or some combination of the two strategies. As shown below, even though WERS has decreased the discount rate during the period, the amount of risk has increased as interest rates have dropped more than the discount rate.

Wichita ERS Expected Risk Premium



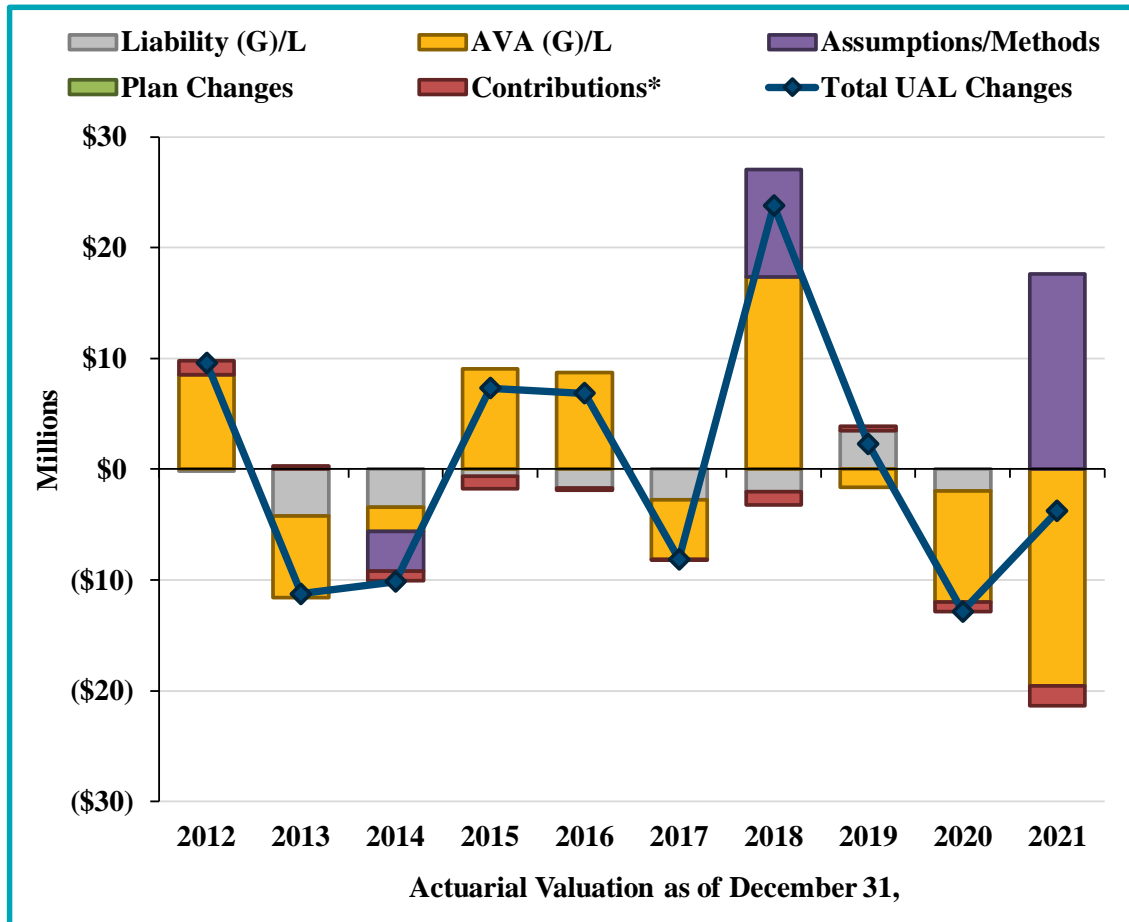
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SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Longevity and other demographic risks are the potential for mortality or other demographic experience to be different than expected. Generally, longevity and other demographic risks emerge slowly over time and are often dwarfed by other changes, particularly those due to investment returns. The System has generally experienced liability gains over the last ten years, except for 2019 and 2021.

Assumption change risk is the potential for the environment to change such that future valuation assumptions are different than the current assumptions. Increases in UAL from assumption changes were related to experience studies in which demographic and economic assumptions were adjusted. Assumption change risk is an extension of the other risks identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in environment when the current assumption is no longer reasonable.

The chart below shows the components of changes in the UAL over the last ten years, which demonstrates how many of the risks mentioned above impact the financial status of the System. While a lot of attention is given to the demographic assumptions, the primary risk for the health of the System is the return on investments earned each year.



* UAL change due to contributions (greater)/less than normal cost-plus interest on the UAL.

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SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Table II-1 summarizes the changes in the UAL over the last ten years.

Table II-1 Changes in Unfunded Actuarial Liability (Dollar amounts in millions)											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Discount Rate	7.75%	7.75%	7.75%	7.75%	7.75%	7.75%	7.50%	7.50%	7.50%	7.25%	
Source											
AVA (G)/L	\$ 8.5	\$ (7.4)	\$ (2.2)	\$ 9.1	\$ 8.7	\$ (5.3)	\$ 17.4	\$ (1.6)	\$ (10.1)	\$ (19.6)	\$ (2.5)
Liability (G)/L	(0.2)	(4.2)	(3.4)	(0.7)	(1.7)	(2.8)	(2.0)	3.5	(2.0)	0.1	(13.4)
Assumptions/Methods	0.0	0.0	(3.6)	0.0	0.0	0.0	9.7	0.0	0.0	17.5	23.6
Plan/Policy Changes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contributions*	1.3	0.3	(0.9)	(1.1)	(0.2)	(0.0)	(1.2)	0.4	(0.8)	(1.8)	(4.0)
Net UAL Change	\$ 9.6	\$ (11.3)	\$ (10.1)	\$ 7.3	\$ 6.9	\$ (8.1)	\$ 23.8	\$ 2.3	\$ (12.8)	\$ (3.8)	\$ 3.7

* UAL change due to contributions (greater)/less than normal cost plus interest on the UAL

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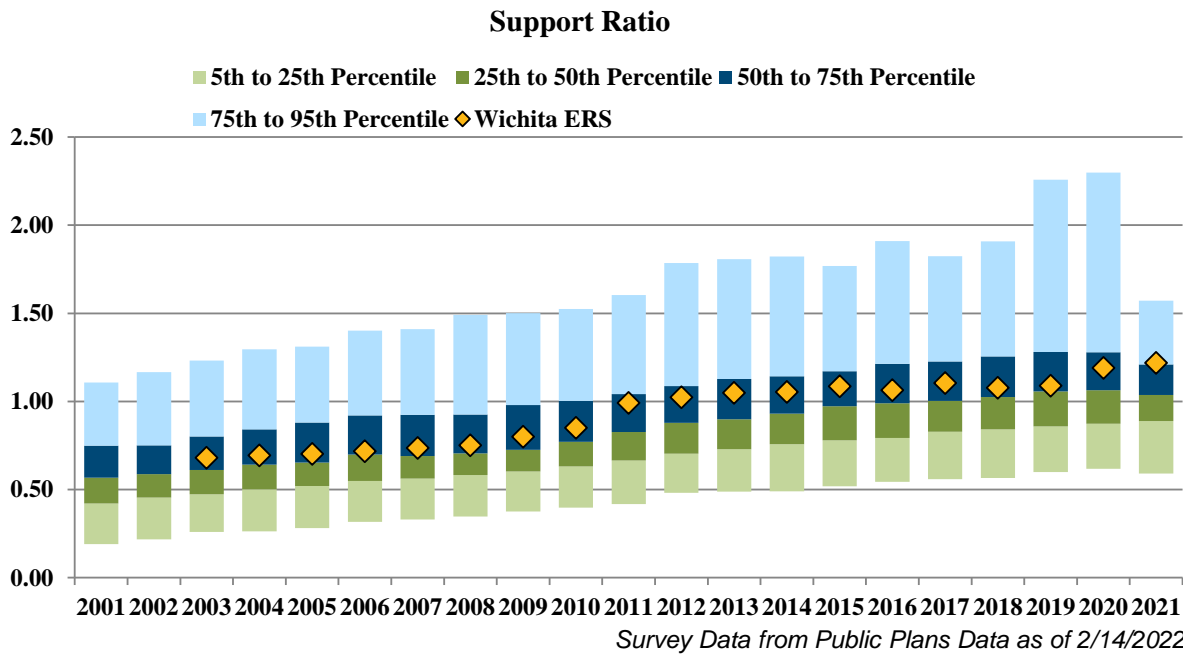
Plan Maturity Measures

The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. It is important to understand the maturity of this System compared to other plans and how the maturity has changed over time.

Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic – the larger the Plan is compared to the contribution or revenue base that supports it, the more sensitive the Plan will be to risk. The measures below have been selected as the most important in understanding the primary risks identified for this System.

Inactives per Active (Support Ratio)

One simple measure of plan maturity is the ratio of the number of inactive members (those receiving benefits or entitled to a deferred benefit) to the number of active members. This ratio is referred to as the support ratio. The revenue base supporting the Plan is usually proportional to the number of active members, so a relatively high support ratio indicates a larger plan relative to its revenue base.



The chart above shows the distribution from the 5th to 95th percentile of support ratios for the Plans in the Public Plans Database. The gold diamond shows how the Wichita Employees' Retirement System compares to the other plans.

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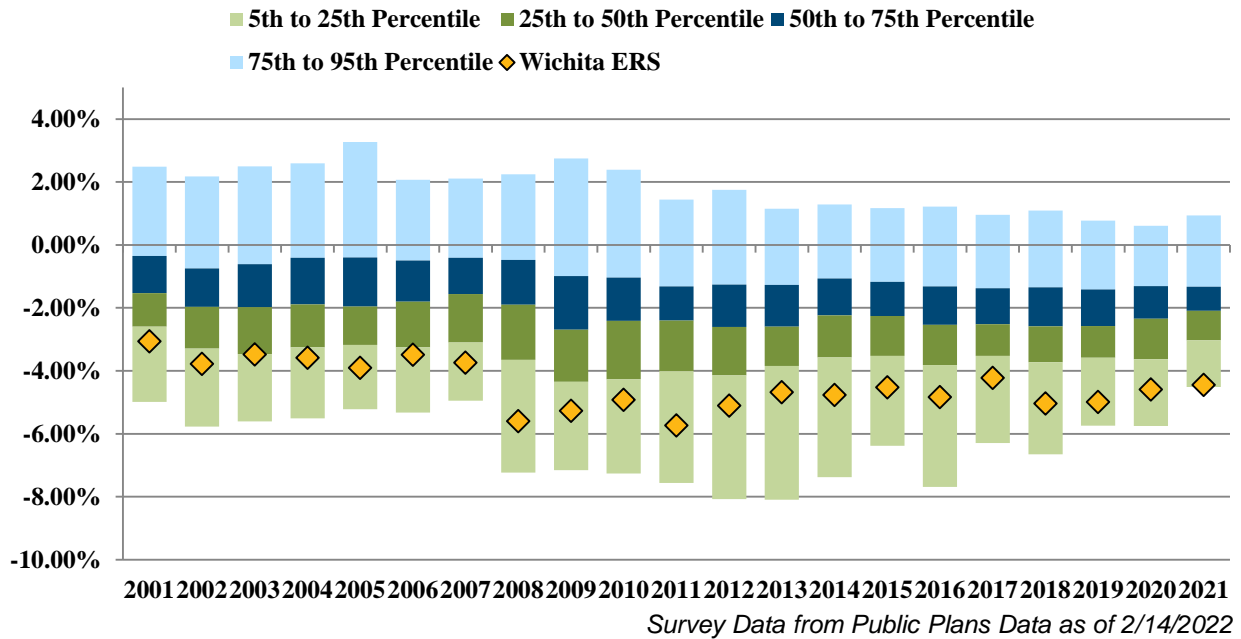
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The System’s support ratio has generally been among the 50th to 75th percentile of the Public Plans Database meaning that the System is slightly more mature than the average plan in the Database. The System’s support ratio has increased similarly to the average plan in the Database. This year’s slight decrease in the active population resulted in the System’s support ratio increasing above the 75th percentile for 2021, based on a limited number of Plans who have 2021 information reported in the Database.

Net Cash Flow

The net cash flow of the Plan as a percentage of the end of year assets indicates the sensitivity of the Plan to short-term investment returns. Net cash flow is equal to contributions less benefit payments. Mature plans can have large amounts of benefit payments compared to contributions, particularly if they are well funded, which is the case for this System. Investment losses in the short-term are compounded by the net withdrawal from the Plan leaving a smaller asset base to try to recover from the investment losses. Large negative cash flows can also create liquidity issues.

Net Cash Flow Rate



The chart above shows the distribution from the 5th to 95th percentile of net cash flow for the Plans in the Public Plans Database. The gold diamond show how the System compares. The System’s net cash flow has historically been in the 5th to 25th percentile compared to other plans. Based on this measure, the System is among the most mature plans in the Database, but this is partially because the contributions are lower than other plans in the Database that are less well funded.

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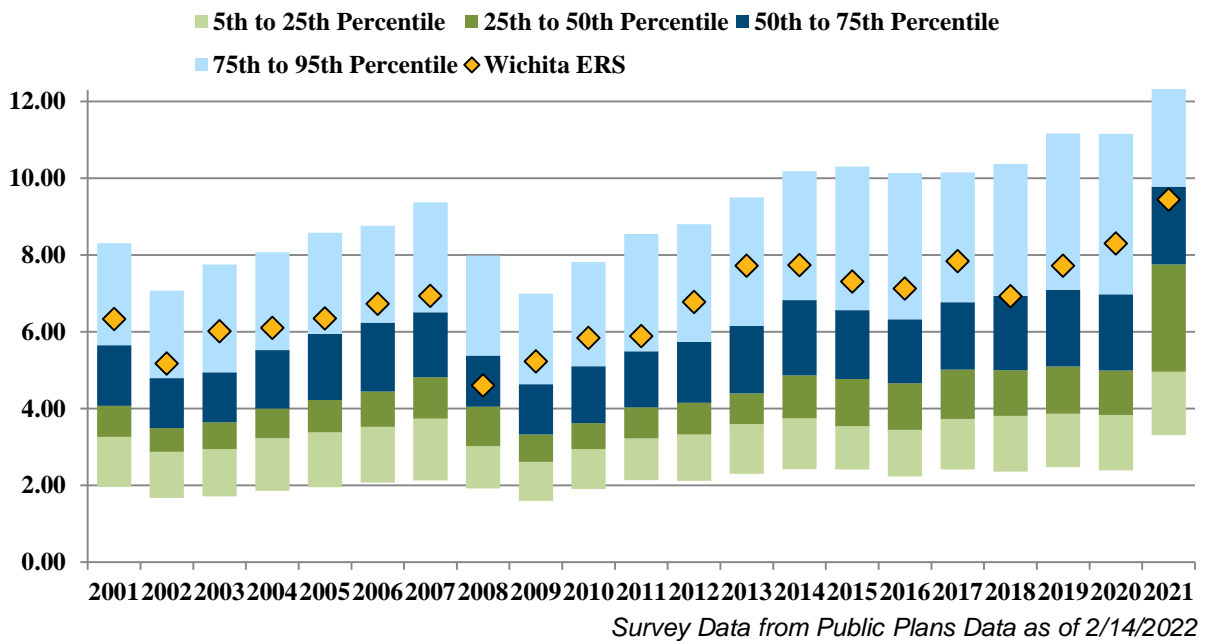
SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Leverage Ratios

Leverage or volatility ratios measure the size of the Plan compared to its revenue base more directly. An asset leverage ratio of 5.0, for example, means that if the System experiences a 10% loss on assets compared to the expected return, the loss would be equivalent to 50% of payroll.

The same investment loss for a system with an asset leverage ratio of 10.0 would be equivalent to 100% of payroll. As the System becomes better funded, the asset leverage ratio will increase, and if it was 100% funded, the asset leverage ratio would equal the liability leverage ratio.

Asset Leverage Ratio

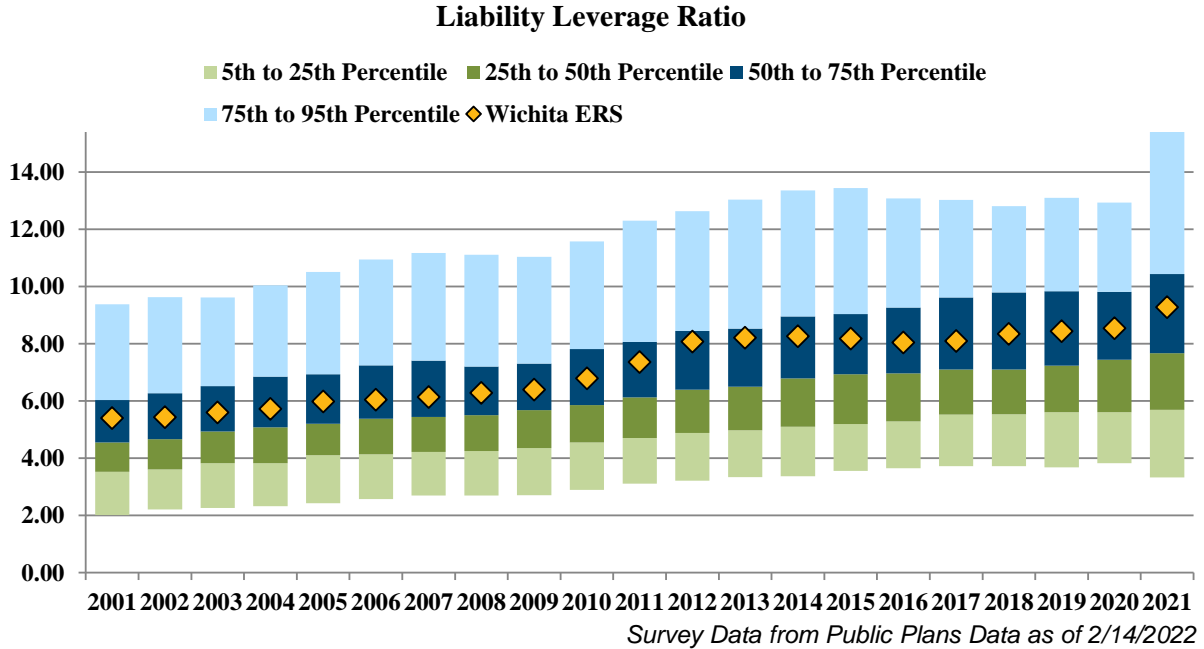


The chart above shows the distribution from the 5th to 95th percentile of asset leverage ratios for the plans in the Public Plans Database. The gold diamond shows how the System compares. The System’s asset leverage ratio has historically been in the 75th to 95th percentile compared to other plans, except for the current year which may be due to the limited number of Plans who have 2021 information reported in the Database. Based on this measure, the System is among the most mature plans in the Database partially because it is better funded than most plans in the Database.

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SECTION II – IDENTIFICATION AND ASSESSMENT OF RISK

Similar to the asset leverage ratio, a liability leverage ratio of 5.0 means that if the System experiences a 10% loss on liabilities, the liability loss would be equivalent to 50% of payroll.



The chart above shows the distribution from the 5th to 95th percentile of liability leverage ratios for the Plans in the Public Plans Database. The gold diamond shows how the System compares.

The System’s liability leverage ratio has historically been in the 50th to 75th percentile compared to other plans, meaning that the System is more sensitive to risk compared to the average plan in the Database. As the System matures and more of the liability is due to inactive members, this ratio will continue to increase. The ratio has increased from about 5.4 in 2001 to a ratio of about 9.3 in 2021.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION III – ASSETS

Pension plan assets play a key role in the financial operation of the System and in the decisions the Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, employer contributions, and the ultimate security of members' benefits.

In this section, we present detailed information on the System assets including:

- Disclosure of the System assets as of December 31, 2020 and December 31, 2021;
- Statement of the changes in market values during the year;
- Development of the Actuarial Value of Assets;
- An assessment of investment performance; and
- A projection of the System's expected cash flows for the next ten years.

Disclosure

There are two types of asset values disclosed in this valuation, the Market Value of Assets and the Actuarial Value of Assets. The market value represents a "snap-shot" or "cash-out" value which provides the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not as suitable for long-range planning as are the Actuarial Value of Assets which reflect smoothing of annual investment returns.

Table III-1 below discloses and compares the Market Value of Assets as of December 31, 2020 and December 31, 2021.

Table III-1				
Statement of Assets at Market Value as of December 31,				
Assets	2021	2020	% change	
Cash	\$ 107,095	\$ 121,319	(11.7%)	
Receivables	7,176,326	3,953,021	81.5%	
U.S. Government Securities	17,635,756	15,919,896	10.8%	
Fixed Income	127,315,808	116,314,013	9.5%	
Domestic Equity	306,462,152	275,437,918	11.3%	
International Equity	194,958,750	185,839,428	4.9%	
Real Estate	46,945,401	39,776,588	18.0%	
Timber	32,460,828	35,108,322	(7.5%)	
Derivatives	110,554	196,014	(43.6%)	
Accounts Payable	(1,261,927)	(855,595)	47.5%	
Investment Purchases Pending	<u>(3,192,834)</u>	<u>(4,781,818)</u>	(33.2%)	
Market Value of Assets	\$ 728,717,909	\$ 667,029,106	9.2%	
Plans 1 & 2	716,107,449	653,520,089	9.6%	
Plan 3 ¹	<u>12,610,460</u>	<u>13,509,017</u>	(6.7%)	
Total	\$ 728,717,909	\$ 667,029,106	9.2%	

¹ Excludes Plan 3b assets.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION III – ASSETS

Changes in Market Value

Table III-2 below shows the components of change between the Market Value of Assets as of December 31, 2020 and December 31, 2021.

Table III-2			
Changes in Market Values¹			
	Plans 1 & 2	Plan 3	Total
Market Value of Assets as of December 31, 2020	\$ 653,520,089	\$ 13,509,017	\$ 667,029,106
Additions			
Employee Contributions	2,302,063	1,330,650	3,632,713
Employer Contributions	9,391,963	1,330,531	10,722,494
Transfers	4,129,580	(4,546,718)	(417,138)
Interest and Dividends	30,760,143	573,184	31,333,327
Net Investment Return	<u>62,858,665</u>	<u>1,164,935</u>	<u>64,023,600</u>
Total Additions	109,442,414	(147,418)	109,294,996
Deductions			
Benefit Payments	46,116,218	0	46,116,218
Administrative Expenses	621,091	(15,173)	605,918
Refunds	<u>117,745</u>	<u>766,312</u>	<u>884,057</u>
Total Deductions	46,855,054	751,139	47,606,193
Market Value of Assets as of December 31, 2021	\$ 716,107,449	\$ 12,610,460	\$ 728,717,909

¹ Excludes Plan 3b assets.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION III – ASSETS

Actuarial Value of Assets

The Actuarial Value of Assets (AVA) represents a “smoothed” value developed by the actuary to reduce, or eliminate, erratic results which could develop from short-term fluctuations in the Market Value of Assets (MVA). For this System, the Actuarial Value of Assets is calculated as the expected Actuarial Value of Assets plus 25% of the difference between the expected Actuarial Value of Assets and the actual Market Value of Assets. The expected Actuarial Value of Assets is calculated based on the prior year’s Actuarial Value of Assets, plus net cash flows, plus an expected return of 7.50% for the year ended December 31, 2021. If the resulting Actuarial Value of Assets is less than 80% or more than 120% of the market value, an adjustment is made to the actuarial value to bring the value within this corridor. Table III-3 illustrates the calculation of the Actuarial Value of Assets for the December 31, 2021 valuation.

Table III-3			
Development of Actuarial Value of Assets			
	Plans 1 & 2	Plan 3	Total
AVA as of December 31, 2020	\$ 624,044,184	\$ 12,832,777	\$ 636,876,961
Employee Contributions	\$ 2,302,063	\$ 1,330,650	\$ 3,632,713
Employer Contributions	9,391,963	1,330,531	10,722,494
Benefit Payments and Refunds	(46,233,963)	(766,312)	(47,000,275)
Transfers	<u>4,129,580</u>	<u>(4,546,718)</u>	<u>(417,138)</u>
Net Cash Flow	\$ (30,410,357)	\$ (2,651,849)	\$ (33,062,206)
Expected Return at 7.50%	\$ 45,683,541	\$ 864,812	\$ 46,548,353
Expected AVA as of December 31, 2021	\$ 639,317,368	\$ 11,045,740	\$ 650,363,108
MVA as of December 31, 2021	716,107,449	12,610,460	728,717,909
Difference Between Expected AVA and Actual MVA	\$ 76,790,081	\$ 1,564,720	\$ 78,354,801
Initial AVA	\$ 658,514,888	\$ 11,436,920	\$ 669,951,808
Corridor for AVA			
80% of MVA	\$ 572,885,959	\$ 10,088,368	\$ 582,974,327
120% of MVA	859,328,939	15,132,552	874,461,491
AVA as of December 31, 2021	\$ 658,514,888	\$ 11,436,920	\$ 669,951,808
AVA / MVA	92.0%	90.7%	91.9%
MVA Less AVA	\$ 57,592,561	\$ 1,173,540	\$ 58,766,101

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION III – ASSETS

Investment Performance

The Market Value of Assets (MVA) returned 14.6% during plan year ending December 31, 2021, which is more than the assumed 7.50% return for the year. A return of 10.7% was experienced on the Actuarial Value of Assets (AVA), resulting in an actuarial gain for the year. Below, we show additional historical returns.

Table III-4 Historical Returns		
Fiscal Year	MVA	AVA
2012	13.3%	6.1%
2013	19.6%	9.2%
2014	5.1%	8.2%
2015	-0.1%	6.1%
2016	6.7%	6.2%
2017	17.0%	8.7%
2018	-6.7%	4.8%
2019	19.3%	7.8%
2020	13.3%	9.2%
2021	14.6%	10.7%

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION III – ASSETS

Projection of System's Future Cash Flows

Table III-5 Projection of System's Expected Cash Flows			
Year Beginning January 1,	Benefit Payments	Employer and Employee Contributions	Net Cash Flow
2022	\$54,213,162	\$14,113,018	(\$40,100,144)
2023	49,419,307	14,654,485	(34,764,822)
2024	50,543,010	13,848,488	(36,694,522)
2025	52,610,800	13,151,148	(39,459,652)
2026	53,191,945	12,758,379	(40,433,566)
2027	55,733,372	12,796,654	(42,936,718)
2028	55,876,590	13,212,546	(42,664,044)
2029	58,735,584	13,641,953	(45,093,631)
2030	59,917,191	14,085,317	(45,831,874)
2031	60,181,419	14,543,090	(45,638,329)

Expected contributions assume contribution rates as shown in the graph on page 6 and that payroll will increase at the actuarially assumed rate of 3.25% per year. Expected benefit payments are projected for the closed group valued at December 31, 2021. Projecting any farther than ten years using a closed group would not yield reliable predictions due to the omission of new hires.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION IV – LIABILITIES

In this section, we present detailed information on the System liabilities including:

- **Disclosure** of the System liabilities as of December 31, 2020 and December 31, 2021, and
- Statement of **changes** in the Unfunded Actuarial Liability during the year.

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them.

- **Present Value of All Future Benefits:** Used for measuring all future System obligations, represents the amount of money needed today to fully fund all benefits of the System both earned as of the valuation date and those expected to be earned in the future by current plan members, under the current plan provisions.
- **Actuarial Liability:** Calculated as of the valuation date as the Present Value of Benefits allocated to service prior to that date. The Actuarial Liability is determined using the Entry Age Normal method.

These liabilities are for funding purposes and are not appropriate for measuring the cost of settling plan liabilities by purchasing annuities or paying lump-sums.

Table IV-1, which follows, discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of plan assets yields, for each respective type, a **net surplus** or an **Unfunded Liability**.

Table IV-1				
Liabilities/Net (Surplus)/Unfunded				
	December 31, 2021		December 31, 2020	
<u>Present Value of Future Benefits</u>				
Active and DROP Member Benefits	\$	328,632,003	\$	315,700,708
Retiree, Disabled and Beneficiaries Benefits		433,690,158		409,324,401
Inactive Member Benefits		<u>31,408,287</u>		<u>31,964,390</u>
Present Value of Future Benefits (PVB)	\$	793,730,448	\$	756,989,499
<u>Actuarial Liability</u>				
Active and DROP Member Benefits	\$	250,429,690	\$	244,932,295
Retiree, Disabled and Beneficiaries Benefits		433,690,158		409,324,401
Inactive Member Benefits		<u>31,408,287</u>		<u>31,964,390</u>
Actuarial Liability (AL)	\$	715,528,135	\$	686,221,086
Actuarial Value of Assets (AVA)	\$	<u>669,951,808</u>	\$	<u>636,876,961</u>
Net (Surplus)/Unfunded (AL-AVA)	\$	45,576,327	\$	49,344,125

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
DECEMBER 31, 2021 ACTUARIAL VALUATION REPORT**

SECTION IV – LIABILITIES

Changes in Unfunded Actuarial Liability

Each of the liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- System amendments changing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Members retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

The Unfunded Actuarial Liability will change because of all of the above, and also due to changes in plan assets resulting from:

- Employer contributions more or less than tread water (normal cost-plus interest on the UAL)
- Investment earnings different than expected
- A change in the method used to measure plan assets

In each valuation, we report on those elements of change which are of particular significance, potentially affecting the long-term financial outlook of the System. Below, we present the reconciliation of the Unfunded Actuarial Liability since the last valuation.

In the table that follows, we show the components of change in the Actuarial Liability between December 31, 2020 and December 31, 2021.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
DECEMBER 31, 2021 ACTUARIAL VALUATION REPORT**

SECTION IV – LIABILITIES

Table IV-2 Development of Experience (Gain)/Loss			
	Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability
Value as of December 31, 2020	\$ 686,221,086	\$ 636,876,961	\$ 49,344,125
Changes for the year:			
Normal Cost	\$ 8,748,390	\$ 0	\$ 8,748,390
Contributions	0	14,355,207	(14,355,207)
Benefit Payments	(47,000,275)	(47,000,275)	0
Transfers to Plan 3b	(417,138)	(417,138)	0
Expected Interest	50,376,704	46,548,353	3,828,351
Change in Methods/Assumptions	17,545,038	0	17,545,038
Change in Benefits	<u>0</u>	<u>0</u>	<u>0</u>
Expected Value as of December 31, 2021	\$ 715,473,805	\$ 650,363,108	\$ 65,110,697
Actual Value as of December 31, 2021	\$ 715,528,135	\$ 669,951,808	\$ 45,576,327
Actuarial (Gain)/Loss	\$ 54,330	\$ (19,588,700)	\$ (19,534,370)

In addition, we breakdown the change in Actuarial Liability further by showing the liability (gain)/loss by source, as shown in Table IV-3 below.

Table IV-3 Liability (Gain)/Loss by Source as of December 31, 2021	
Service and Salary Increases	\$ (1,721,547)
Retirements	656,353
Terminations	719,630
Pre-Retirement Mortality	(956,956)
Post-Retirement Mortality	413,272
New Hires	639,532
Other Demographic Changes	750,628
Plan 3 Reserve	<u>(446,582)</u>
Total Liability (Gain)/Loss	\$ 54,330

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION IV – LIABILITIES

Table IV-4				
Present Value of Future Benefits (PVFB)				
As of December 31, 2021				
	Plan 1	Plan 2	Plan 3	Total
Active Members				
Retirement Benefits	\$ 0	\$ 223,913,869	\$ 48,706,540	\$ 272,620,409
Pre-Retirement Death Benefits	0	2,508,774	777,419	3,286,193
Termination Benefits	0	6,050,092	7,211,507	13,261,599
Total	\$ 0	\$ 232,472,735	\$ 56,695,466	\$ 289,168,201
DROP Members				
DROP Account Balance	\$ 0	\$ 5,237,723	\$ 0	\$ 5,237,723
Monthly Retirement Benefit	0	34,226,079	0	34,226,079
Total	\$ 0	\$ 39,463,802	\$ 0	\$ 39,463,802
Inactive Vested Members	\$ 0	\$ 30,883,636	\$ 0	\$ 30,883,636
Inactive Non-Vested Members	\$ 0	\$ 2,276	\$ 522,375	\$ 524,651
In Pay Members				
Retirees	\$ 170,573,156	\$ 225,739,753	\$ 0	\$ 396,312,909
Disabled Members	906,653	1,472,244	0	2,378,897
Beneficiaries	21,905,377	13,092,975	0	34,998,352
Total	\$ 193,385,186	\$ 240,304,972	\$ 0	\$ 433,690,158
Grand Total	\$ 193,385,186	\$ 543,127,421	\$ 57,217,841	\$ 793,730,448

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION IV – LIABILITIES

Table IV-5				
Actuarial Liability				
As of December 31, 2021				
	Plan 1	Plan 2	Plan 3	Total
Active Members				
Present Value of Future Benefits	\$ 0	\$ 232,472,735	\$ 56,695,466	\$ 289,168,201
Present Value of Future Normal Cost	0	(38,837,363)	(38,191,410)	(77,028,773)
Actuarial Liability	\$ 0	\$ 193,635,372	\$ 18,504,056	\$ 212,139,428
DROP Members	\$ 0	\$ 39,463,802	\$ 0	\$ 39,463,802
Inactive Vested Members	\$ 0	\$ 30,883,636	\$ 0	\$ 30,883,636
Inactive Non-Vested Members	\$ 0	\$ 2,276	\$ 522,375	\$ 524,651
In Pay Members				
Retirees	\$ 170,573,156	\$ 225,739,753	\$ 0	\$ 396,312,909
Disabled Members	906,653	1,472,244	0	2,378,897
Beneficiaries	21,905,377	13,092,975	0	34,998,352
Total	\$ 193,385,186	\$ 240,304,972	\$ 0	\$ 433,690,158
Reserve for Plan 3 Members	\$ 0	\$ 0	\$ (1,173,540)	\$ (1,173,540)
Grand Total	\$ 193,385,186	\$ 504,290,058	\$ 17,852,891	\$ 715,528,135

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION V – CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the System. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this System, the funding method employed as of the December 31, 2021 valuation is the **Entry Age Normal (EAN)** actuarial cost method. Under this funding method, a normal cost rate is determined as a level percentage of pay for each active member. The normal cost rate multiplied by payroll equals the total normal cost for each active member. The total anticipated member contributions for the year are then subtracted from the sum of the total normal cost to arrive at the employer normal cost. The normal cost contributions (employer and active member) will pay for projected benefits at retirement for each active member. The EAN Actuarial Liability is the difference between the System's total Present Value of Future Benefits and the present value of future normal costs. The difference between the EAN Actuarial Liability and the Actuarial Value of Assets is the Unfunded Actuarial Liability (UAL).

The UAL is amortized over an open (rolling) 20-year period as a level percentage of payroll. Due to the nature of a rolling amortization method, the process of fully amortizing the UAL is slow and heavily contingent on investment returns.

Table V-1 below presents and compares the employer contribution rates for the System for this valuation and the prior one.

Table V-1		
Employer Contribution Rate		
	Fiscal Year	Fiscal Year
	Ending 2023	Ending 2022
Total Normal Cost Rate	13.6%	13.0%
Member Contribution Rate	<u>-4.7%</u>	<u>-4.7%</u>
Employer Normal Cost Rate	8.9%	8.3%
UAL Amortization Rate	<u>4.1%</u>	<u>4.6%</u>
Employer Contribution Rate	13.0%	12.9%

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION V – CONTRIBUTIONS

The UAL is amortized over an open (rolling) 20-year period as a level percentage of payroll. Table V-2 shows the calculation of the UAL amortization rates for this valuation and the prior one.

Table V-2 UAL Contribution Rate				
Valuation Date:	December 31, 2021		December 31, 2020	
Contribution Rate For Fiscal Year Ending:	2023		2022	
Actuarial Liability (AL)	\$	715,528,135	\$	686,221,086
Actuarial Value of Assets (AVA)		<u>669,951,808</u>		<u>636,876,961</u>
Unfunded Actuarial Liability (UAL)	\$	45,576,327	\$	49,344,125
UAL Amortization Payment at Mid-Year		3,306,326		3,653,000
Total Projected Payroll ¹		80,187,603		79,334,562
UAL Amortization Rate		4.1%		4.6%

¹ Includes payroll for DROP members

Table V-3 shows the calculation of the total normal cost rates for this valuation and the prior one.

Table V-3 Normal Cost Rate				
Valuation Date:	December 31, 2021		December 31, 2020	
Contribution Rate For Fiscal Year Ending:	2023		2022	
	Amount	% of Pay	Amount	% of Pay
Normal Cost				
Retirement Benefits	\$ 7,682,950	11.2%	\$ 7,174,858	10.7%
Pre-Retirement Death Benefits	147,283	0.2%	143,286	0.2%
Termination Benefits	<u>1,494,228</u>	<u>2.2%</u>	<u>1,430,246</u>	<u>2.1%</u>
Total Normal Cost ¹	9,324,461	13.6%	8,748,390	13.0%
Expected Payroll for Current Actives ^{1,2}	68,387,618		67,474,566	

¹ As of the beginning of the year

² Excludes payroll for DROP members

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION VI – ACCOUNTING STATEMENT INFORMATION

GFOA Recommended Information

The Government Finance Officers Association (GFOA) maintains a checklist of items to be included in a public retirement system's Annual Comprehensive Financial Report in order to receive recognition for excellence in financial reporting. The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in this report.

- Table VI-1: Analysis of Financial Experience
- Table VI-2: Schedule of Funded Liabilities by Type (Solvency Test)
- Table VI-3: Schedule of Funding Progress
- Table VI-4: Schedule Retirees and Beneficiaries Added to and Removed From Rolls

Table VI-1 Analysis of Financial Experience Change in Unfunded Actuarial Accrued Liability¹						
Valuation Date	Actuarial Value Of Assets Investment	Actuarial Accrued Liability	Assumption & Method Changes	Plan Changes	Contributions²	Change in Unfunded Actuarial Accrued Liability
December 31,	(Gain)/Loss	(Gain)/Loss				
2012	\$ 8,500,000	\$ (200,000)	\$ 0	\$ 0	\$ 1,300,000	\$ 9,610,063
2013	(7,400,000)	(4,200,000)	0	0	300,000	(11,256,917)
2014	(2,200,000)	(3,400,000)	(3,600,000)	0	(900,000)	(10,145,169)
2015	9,072,224	(656,102)	0	0	(1,108,924)	7,307,198
2016	8,728,130	(1,700,343)	0	0	(170,715)	6,857,072
2017	(5,328,204)	(2,782,038)	0	0	(23,513)	(8,133,755)
2018	17,362,307	(2,031,565)	9,670,284	0	(1,184,746)	23,816,280
2019	(1,609,761)	3,504,370	0	0	369,201	2,263,810
2020	(10,050,715)	(1,950,150)	0	0	(848,933)	(12,849,798)
2021	(19,588,700)	54,330	17,545,038	0	(1,778,466)	(3,767,798)

¹ Prior to 2015, the details were reported rounded to the nearest \$100,000, so the components do not sum to the total change in the UAL.

² Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-2								
Schedule of Funded Liabilities by Type (Solvency Test)								
Valuation Date	Active	Inactive Members,	Active Member	Reported	Portion of Actuarial Liabilities			
December 31,	Member	Retirees, and	Employer Financed	Actuarial Value	Covered by Reported Assets			
	Contributions¹	Beneficiaries	Contributions¹	of Assets	(1)	(2)	(3)	
	(1)	(2)	(3)					
2012	\$ 49,519,050	\$ 347,350,296	\$ 174,936,109	\$ 520,320,051	100.0%	100.0%	70.6%	
2013	50,337,976	362,224,034	169,823,819	542,157,342	100.0%	100.0%	76.3%	
2014	51,408,059	369,926,908	168,780,115	560,031,764	100.0%	100.0%	82.2%	
2015	51,609,961	378,186,127	176,058,606	568,464,178	100.0%	100.0%	78.8%	
2016	53,587,062	385,231,766	181,400,097	575,971,337	100.0%	100.0%	75.6%	
2017	55,050,806	395,107,729	184,748,720	598,793,422	100.0%	100.0%	80.5%	
2018	56,965,551	408,534,420	193,208,730	598,778,588	100.0%	100.0%	69.0%	
2019	56,989,509	422,969,785	195,297,778	613,063,149	100.0%	100.0%	68.2%	
2020	56,284,261	441,288,791	188,648,034	636,876,961	100.0%	100.0%	73.8%	
2021	55,727,450	465,098,445	194,702,240	669,951,808	100.0%	100.0%	76.6%	

¹ Includes DROP members.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
DECEMBER 31, 2021 ACTUARIAL VALUATION REPORT**

SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-3 Schedule of Funding Progress						
Valuation Date December 31,	Actuarial Value of Assets (a)	Actuarial Liability (b)	Unfunded Actuarial Liability (b) - (a)	Ratio Ratio (a) / (b)	Covered Payroll (c)	UAL as a Percentage of Covered Payroll [(b) - (a)] / (c)
2012	\$ 520,320,051	\$ 571,805,455	\$ 51,485,404	91.0%	\$ 70,783,047	72.7%
2013	542,157,342	582,385,829	40,228,487	93.1%	70,953,452	56.7%
2014	560,031,764	590,115,082	30,083,318	94.9%	71,391,212	42.1%
2015	568,464,178	605,854,694	37,390,516	93.8%	74,028,385	50.5%
2016	575,971,337	620,218,925	44,247,588	92.9%	77,121,241	57.4%
2017	598,793,422	634,907,255	36,113,833	94.3%	78,394,634	46.1%
2018	598,778,588	658,708,701	59,930,113	90.9%	78,898,648	76.0%
2019	613,063,149	675,257,072	62,193,923	90.8%	80,029,364	77.7%
2020	636,876,961	686,221,086	49,344,125	92.8%	80,365,628	61.4%
2021	669,951,808	715,528,135	45,576,327	93.6%	77,140,245	59.1%

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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SECTION VI – ACCOUNTING STATEMENT INFORMATION

Table VI-4								
Schedule Retirees and Beneficiaries Added to and Removed From Rolls¹								
Valuation Date December 31,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance	% Increase in Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance		
2012	50	\$ 1,010,373	58	\$ 1,036,870	1,302	\$ 31,730,663	\$ 24,371	-2.9%
2013	72	1,676,296	47	744,036	1,327	33,294,857	25,090	3.0%
2014	68	1,549,070	54	927,726	1,341	34,427,388	25,673	2.3%
2015	90	1,830,381	51	1,132,754	1,380	35,726,088	25,888	0.8%
2016	78	1,730,868	65	1,194,869	1,393	36,931,056	26,512	2.4%
2017	71	1,678,547	48	1,153,410	1,416	38,125,080	26,924	1.6%
2018	77	1,811,362	72	1,537,746	1,421	39,094,992	27,512	2.2%
2019	78	2,148,529	69	1,428,652	1,430	40,503,100	28,324	2.9%
2020	86	2,425,255	57	1,426,896	1,459	42,141,748	28,884	2.0%
2021	103	2,911,475	68	1,555,927	1,494	44,052,935	29,487	2.1%

¹ Excludes DROP members.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

Table A-1			
Table of Plan Coverage			
	December 31, 2021	December 31, 2020	% change
Active Members (excludes DROP)			
Number	1,343	1,347	-0.3%
Average Age	46.5	46.9	-0.8%
Average Service	11.6	11.7	-1.0%
Total Payroll	\$71,480,161	\$70,301,792	1.7%
Average Payroll	53,224	52,191	2.0%
DROP Members			
Number	71	81	-12.3%
Average Age	64.3	64.3	0.1%
Average Service	26.1	29.0	-9.9%
Total DROP Account Balances	\$5,237,723	\$5,294,979	-1.1%
Average DROP Account Balances	73,771	65,370	12.9%
Inactive Vested Members	143	143	0.0%
Inactive Non-Vested Members	94	126	-25.4%
Pensioners:			
Number in Pay Status			
Retirees	1,204	1,172	2.7%
Disabled Retirees	<u>15</u>	<u>16</u>	-6.3%
Total	1,219	1,188	2.6%
Average Age	72.7	72.6	0.2%
Average Monthly Benefit	\$2,723	\$2,683	1.5%
Beneficiaries:			
Number in Pay Status ¹	275	271	1.5%
Average Age	75.9	75.1	1.2%
Average Monthly Benefit	\$1,278	\$1,197	6.7%

¹ Includes 10 QDROs in 2020 and 9 QDROs in 2021

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

**Table A-2
Member Status Reconciliation**

	<u>Active</u>		<u>Inactive Vested</u>		<u>Inactive Non-Vested</u>		<u>Disabled</u>		<u>Retired</u>		<u>Beneficiary</u>		<u>Total</u>
	<u>Plan 2</u>	<u>Plan 3</u>	<u>Plan 2</u>	<u>Plan 2</u>	<u>Plan 3</u>	<u>Plan 1</u>	<u>Plan 2</u>	<u>Plan 1</u>	<u>Plan 2</u>	<u>Plan 1</u>	<u>Plan 2</u>		
	December 31, 2020	709	638	81	143	126	4	12	419	753	155	116	
New hires	1	164	0	0	0	0	0	0	0	0	0	165	
Re-hires	3	3	(1)	(1)	(4)	0	0	0	0	0	0	0	
Enter DROP	(24)	0	24	0	0	0	0	0	0	0	0	0	
Exit DROP	0	0	(33)	0	0	0	0	0	33	0	0	0	
Terminated	(11)	(49)	0	13	47	0	0	0	0	0	0	0	
Refunded	(3)	(51)	0	(1)	(68)	0	0	0	0	0	0	(123)	
Retired	(20)	(5)	0	(19)	0	0	0	0	44	0	0	0	
Disabled	0	0	0	0	0	0	0	0	0	0	0	0	
Deceased (with beneficiary)	(4)	0	0	0	0	0	(1)	(11)	(8)	13	13	2	
Deceased (without beneficiary)	0	(1)	0	(1)	0	0	0	(14)	(12)	(11)	(7)	(46)	
Transfer to Plan 2	57	(57)	0	0	0	0	0	0	0	0	0	0	
Transfer to Plan 3b	0	(7)	0	0	(1)	0	0	0	0	0	0	(8)	
Benefits expired	0	0	0	0	0	0	0	0	0	0	(4)	(4)	
Status correction	<u>0</u>	<u>0</u>	0	<u>9</u>	<u>(6)</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>	
Net Change	(1)	(3)	(10)	0	(32)	0	(1)	(25)	57	2	2	(11)	
December 31, 2021	708	635	71	143	94	4	11	394	810	157	118	3,145	

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

Table A-3										
Average Monthly Benefits for New Retirees¹										
	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Average Monthly Pension										
0 - 5 Years of Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5 - 10 Years of Service	806	711	779	709	1,092	648	746	665	1,164	980
10 - 15 Years of Service	1,824	1,169	1,196	989	1,332	1,159	1,095	950	1,278	921
15 - 20 Years of Service	1,785	1,799	1,986	1,795	2,175	1,915	1,791	1,624	1,621	2,026
20 - 25 Years of Service	2,127	2,412	2,155	2,291	2,299	2,249	1,861	1,957	1,992	2,492
25 - 30 Years of Service	4,109	2,568	3,485	2,617	2,395	2,849	2,983	2,230	2,433	2,477
30+ Years of Service	3,721	4,281	3,752	4,020	4,235	3,456	4,003	3,217	3,891	3,455
Average for All Years of Service	\$ 2,343	\$ 2,431	\$ 2,551	\$ 2,573	\$ 2,310	\$ 2,167	\$ 2,174	\$ 1,921	\$ 1,760	\$ 2,084
Average Final Average Salary										
0 - 5 Years of Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
5 - 10 Years of Service	4,632	3,914	4,490	4,185	5,807	3,293	3,823	3,206	5,437	3,361
10 - 15 Years of Service	6,156	4,030	4,403	3,930	4,722	4,226	3,617	3,353	4,091	3,472
15 - 20 Years of Service	4,945	4,751	4,795	4,422	5,699	4,837	4,546	4,343	3,914	4,541
20 - 25 Years of Service	4,262	4,837	4,413	4,523	4,609	4,442	3,727	4,027	4,288	5,275
25 - 30 Years of Service	6,780	4,132	5,817	4,276	3,868	4,419	4,799	4,065	4,397	4,762
30+ Years of Service	4,771	5,419	4,811	5,148	5,425	4,322	5,197	4,495	5,388	5,125
Average for All Years of Service	\$ 5,287	\$ 4,827	\$ 4,843	\$ 4,617	\$ 4,971	\$ 4,289	\$ 4,367	\$ 4,026	\$ 4,409	\$ 4,460
Number of Members Retiring										
0 - 5 Years of Service	-	-	-	-	-	-	-	-	-	-
5 - 10 Years of Service	11	3	5	5	4	7	11	11	8	2
10 - 15 Years of Service	16	14	11	11	14	15	7	10	17	6
15 - 20 Years of Service	12	15	5	9	8	8	13	19	12	5
20 - 25 Years of Service	7	19	7	15	10	13	9	14	6	4
25 - 30 Years of Service	8	9	5	8	6	7	9	9	7	6
30+ Years of Service	14	17	22	26	10	17	13	20	4	4
Total for All Years of Service	68	77	55	74	52	67	62	83	54	27

¹Includes new disabilities and members entering DROP.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

**Table A-4
Retired Members by Type and Benefit Amount
(as of December 31, 2021)**

Amount of Monthly Benefit	Active in DROP	Non- Service Disability	QDRO ¹	Service			Total
				Service	Disability	Survivor	
\$ 0-500	0	1	1	41	0	56	99
500-1000	3	5	4	132	1	55	200
1000-1500	4	1	2	166	0	60	233
1500-2000	9	2	0	162	2	49	224
2000-2500	6	1	1	133	1	28	170
2500-3000	11	1	1	107	0	10	130
3000-3500	10	0	0	98	0	3	111
3500-4000	8	0	0	114	0	3	125
4000-4500	7	0	0	66	0	0	73
4500-5000	6	0	0	66	0	0	72
>5000	7	0	0	119	0	2	128
Total	71	11	9	1,204	4	266	1,565

¹ Qualified Domestic Relations Order

**Table A-5
Schedule of Active Member Valuation Data**

Valuation Date	Number of Members ¹				Annual Covered Payroll (in Thousands)	Average Annual Pay	% Increase In Average Annual Pay
	Plan 1	Plan 2	Plan 3	Total			
12/31/2012	26	950	527	1,503	\$ 70,783	\$ 47,095	-2.7%
12/31/2013	15	957	517	1,489	70,953	47,652	1.2%
12/31/2014	8	989	520	1,517	71,391	47,061	-1.2%
12/31/2015	5	988	539	1,532	74,028	48,321	2.7%
12/31/2016	3	952	617	1,572	77,121	49,059	1.5%
12/31/2017	3	891	647	1,541	78,395	50,873	3.7%
12/31/2018	2	852	675	1,529	78,899	51,601	1.4%
12/31/2019	1	821	696	1,518	80,029	52,720	2.2%
12/31/2020	0	790	638	1,428	80,366	56,278	6.7%
12/31/2021	0	779	635	1,414	77,140	54,555	-3.1%

¹ Includes DROP members.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

1. Investment Rate of Return

7.25% per year, compounded annually, net of investment and administrative expenses. This assumption is composed of a 2.75% long-term price inflation and a 4.50% real rate of return over price inflation.

2. Payroll Growth

3.25% per year.

3. Salary Increase

Salary increase varies by service as follows:

Years of Service	Inflation	Productivity	Merit and Longevity	Total Increase
0	2.75%	0.50%	3.25%	6.50%
1	2.75	0.50	3.10	6.35
2	2.75	0.50	2.90	6.15
3	2.75	0.50	2.70	5.95
4	2.75	0.50	2.50	5.75
5	2.75	0.50	2.30	5.55
6	2.75	0.50	2.10	5.35
7	2.75	0.50	1.90	5.15
8	2.75	0.50	1.80	5.05
9	2.75	0.50	1.70	4.95
10	2.75	0.50	1.60	4.85
11	2.75	0.50	1.50	4.75
12	2.75	0.50	1.40	4.65
13	2.75	0.50	1.30	4.55
14	2.75	0.50	1.20	4.45
15	2.75	0.50	1.06	4.31
16	2.75	0.50	0.92	4.17
17	2.75	0.50	0.78	4.03
18	2.75	0.50	0.64	3.89
19	2.75	0.50	0.50	3.75
20	2.75	0.50	0.35	3.60
21+	2.75	0.50	0.25	3.50

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

4. Mortality Rates

Healthy Retirees and Beneficiaries:

RP-2000 Healthy Annuitant Mortality Tables (set forward 2 years for males) with generational projection using Scale AA.

Disabled Retirees:

RP-2000 Disabled Mortality Tables with generational projection using Scale AA.

Active Members:

RP-2000 Employee Mortality Tables (set forward 2 years for males) with generational projection using Scale AA.

5. Termination Rates before Retirement

Termination rates vary by years of service as follows:

Years of Service	Rates	Years of Service	Rates
0-1	13.50%	15	3.00%
2	12.00	16	2.75
3	10.00	17	2.50
4	9.00	18	2.25
5	8.00	19	2.00
6	7.00	20	1.75
7	6.00	21	1.50
8	5.00	22	1.25
9-11	4.50	23-25	1.00
12	4.00	26-29	0.50
13	3.50	30+	0.00
14	3.25		

No termination is assumed after attainment of retirement eligibility. A percentage of vested members terminating employment are assumed to forfeit their deferred retirement benefit in lieu of a refund of their accumulated contributions with interest. The table below shows the percent of vested members assumed to forfeit their deferred annuity.

Years of Service	Percent Forfeiting
Under 15	60%
15-19	40
20-24	20
25+	0

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

6. Retirement Rates and Deferred Retirement Option Plan (DROP) Elections

Retirement rates vary by age and by plan as follows:

Age	Plan 1	Plan 2
55-59	15%	1%
60	40	3
61	40	10
62	20	50
63	20	25
64	20	25
65	100	40
66-69	N/A	40
70	N/A	100

In addition, 75% of Plan 2 members with 33 1/3 or more years of service who are at least age 62 are assumed to elect the DROP with an average DROP period of 36 months. The remaining 25% of Plan 2 members with 33 1/3 or more years of service who are at least age 62 are assumed to retire immediately.

Inactive vested members are assumed to retire at age 62.

7. Disability Rates

None assumed.

8. DROP Members

For purposes of calculating the Actuarial Liability, members in the DROP on the valuation date are assumed to exit the DROP immediately. For purposes of calculating projected payroll, members in DROP on the valuation date are assumed to exit the DROP based on the demographic assumptions for active members.

9. Unknown Data for Members

Same as those exhibited by members with similar known characteristics.

10. Rehires

No explicit assumption or load.

11. Sick Leave Load

The calculated normal retirement benefits are increased by 1.75% to account for the inclusion of unused sick leave in the calculation of service.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

12. Percent Married

70% of non-retired members are assumed to be married for purposes of death benefits.

13. Age of Spouse

Females (or males) are three years younger (or older) than their spouses.

14. Vested Deferred Pensions

Benefit amount is assumed to increase during the deferral period at 3.50% per year, compounded annually.

15. Increase in Section 415 and Section 401(a)(17) limits

2.75% per year.

16. Decrement Timing

Decrements are assumed to occur mid-year.

17. Plan 3 Transfer

All Plan 3 members are assumed to transfer to Plan 2 when they acquire 7 years of service.

18. Disclosures regarding Models Used

Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech) for the intended purpose of calculating liabilities and projected benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal and have a basic understanding of it and have used ProVal in accordance with its original intended purpose. We are not aware of any material inconsistencies, unreasonable output resulting from the aggregation of assumptions, material limitations or known weaknesses that would affect this report.

Projections in this report were developed using P-scan, our proprietary tool for the intended purpose of developing projections. The projections shown in this report cover multiple individual scenarios and the variables are not necessarily correlated. We are not aware of any material inconsistencies, unreasonable output resulting from aggregation of assumptions, material limitations or known weaknesses that would affect the projections shown in this report.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

19. Rationale for actuarial assumptions

The demographic actuarial assumptions were adopted by the Board of Trustees based upon recommendations made in an actuarial experience study covering the period January 1, 2014 through December 31, 2016, prepared by the prior actuary. The economic actuarial assumptions were adopted by the Board, effective with the December 31, 2021 valuation, based on recommendations from the economic experience study presented to the Board on March 9, 2022. Cheiron has reviewed the assumptions. While we consider these assumptions to be reasonable, we have not performed our own demographic actuarial experience study.

20. Changes in actuarial assumptions since last valuation

The investment return assumption was changed from 7.50% to 7.25%.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

B. Projection Assumptions

1. New Entrants

Active population is assumed to remain level.

2. Administrative Expenses

Assumed to be paid through future investment returns.

C. Actuarial Methods

1. Actuarial Value of Assets

The expected Actuarial Value of Assets plus 25% of the difference between the expected Actuarial Value of Assets and the actual Market Value of Assets. The expected Actuarial Value of Assets is calculated based on the prior year's Actuarial Value of Assets, plus net cash flows, plus the expected investment return. If the resulting Actuarial Value of Assets is less than 80% or more than 120% of the market value, an adjustment is made to the actuarial value to bring the value within this corridor.

2. Actuarial Cost Method

The cost method for valuation of liabilities used for this valuation is the Entry Age Normal (EAN) method. Under this funding method, a normal cost rate is determined as a level percentage of pay for each active member. The normal cost rate multiplied by payroll equals the total normal cost for each active member. The total anticipated member contributions for the year are then subtracted from the sum of the total normal cost to arrive at the employer normal cost. The EAN Actuarial Liability is the difference between the System's total Present Value of Future Benefits and the present value of future normal costs. The Unfunded Actuarial Liability is the difference between the Actuarial Liability and the Actuarial Value of Assets.

3. Amortization Method

The Unfunded Actuarial Liability is amortized over an open (rolling) 20-year period as a level percentage of payroll. If the Unfunded Actuarial Liability is negative, the Unfunded Actuarial Liability is not amortized and the actuarially determined employer contribution rate is equal to the employer normal cost rate.

4. Changes in Actuarial Methods since last valuation

None.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
DECEMBER 31, 2021 ACTUARIAL VALUATION REPORT**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

1. Plan Year

January 1 through December 31.

2. Plans

Plan 1 is applicable to members employed prior to July 18, 1981, who have not elected to be covered by Plan 2.

Plan 2 is applicable to members employed or reemployed on or after July 18, 1981 and before January 1, 1994 and to other employees who have elected Plan 2 coverage.

Plan 3 is applicable to members employed on or after January 1, 1994, who have not become covered by Plan 2. Plan 3 members are automatically transferred to Plan 2 after they have seven years of service unless they file an irrevocable election to remain in Plan 3.

3. Final Average Salary

Average salary for the three consecutive years of service out of the last ten years of service which produce the highest average.

4. Normal Retirement

Eligibility:

For Plan 1 members, the earlier of:

- Age 60 with seven years of service, or
- 30 years of service.

For Plan 2 members, age 62 with seven years of service.

Amount:

For Plan 1 members, 2.50% of Final Average Salary times years of service.

For Plan 2 members, 2.25% of Final Average Salary times years of service.

Maximum amount is 75% of Final Average Salary.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

5. Early Retirement

Eligibility: Age 55 with seven years of service.

Amount: For Plan 1 members, the normal retirement amount reduced for each month retirement precedes age 60. The reduction for each month retirement precedes age 60 is 0.05% for each year of service less than 30 to a maximum of 0.50% if years of service is less than 21.

For Plan 2 members, the normal retirement amount reduced for each month retirement precedes age 62. The reduction is 0.6% per month for every year of age less than 62 with a maximum reduction of 50.4% at age 55.

6. Deferred Retirement

Eligibility: Seven years of service. Member may apply for a reduced benefit after attainment of early retirement eligibility or an unreduced benefit after attainment of normal retirement eligibility. Member may also elect a refund of accumulated contributions with interest in lieu of a deferred retirement benefit.

Amount: The Accrued Benefit at termination is based on the normal retirement benefit formula. The Accrued Benefit is adjusted during the deferral period based on changes in the National Average Earnings, up to 5.5% annual adjustments.

7. Service-Connected Disability

Eligibility: No age or service requirement. Requires total and permanent disability for employment by the city in a position commensurate with the employee's training, experience, and education.

Amount: For Plan 1 members, 60% of final rate of salary.

For Plan 2 members, 50% of final rate of salary.

For Plan 3 members, 50% of final rate of salary or a refund of the vested portion of their Plan 3 account balance.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

8. Non-Service Disability

Eligibility: Seven years of service, requires total and permanent disability for employment by the city in a position commensurate with the employee's training, experience, and education.

Amount: For Plan 1 members, 30% of Final Average Salary plus 1% of Final Average Salary times years of service in excess of 7 years. Maximum benefit is 50% of Final Average Salary.

For Plan 2 members, 25% of final rate of salary.

For Plan 3 members, 25% of final rate of salary, or a refund of the vested portion of their Plan 3 account balance.

9. Deferred Retirement Option Plan (DROP)

Eligibility: Member must be eligible to retire under early or normal retirement and elect to participate in DROP for up to five years.

Amount: Early or normal retirement benefit computed based on years of service and Final Average Salary as of the DROP election date. Benefit is paid into member's notional DROP account while the member remains actively employed. Post-Retirement Adjustments are applied to the monthly benefit paid into the notional DROP account. Interest at an annual rate of 5%, compounded monthly, is credited to the notional DROP account. Voluntary termination of employment during the DROP period results in loss of accrued interest. Member and employer contributions continue to be paid to the System while the member remains actively employed. Balance of DROP account is payable within 90 days of actual termination of employment. Benefit amount paid to the member after actual termination of employment includes Post-Retirement Adjustments as if the member had retired on the DROP election date.

**WICHITA EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

10. Spouse Pre-Retirement Death Benefits

Eligibility: None

Amount: For Plan 1 and 2 members:

If married with 7 or more years of service, 50% of the benefit the deceased member would have been entitled to had they been on an unreduced retirement at time of death. The spouse's benefit is payable immediately regardless of the deceased member's age.

If non-married or less than seven years of service, the deceased employees' accumulated contributions with interest, plus one month's salary for each full year of service up to a maximum of six months of salary.

For Plan 3 members:

The deceased employee's contributions, plus the vested portion of matching employer contributions, plus any investment gains and losses.

Death benefits are payable to members who have terminated employment.

11. Post-Retirement Death Benefits

Eligibility: For retirements prior to January 1, 2000, surviving spouse must have been married to retired employee at retirement.

For retirements on or after January 1, 2000, surviving spouse must have been married to retired employee for at least one year at time of death.

Minor children must be under the age of 18.

Amount: For surviving spouses, 50% of the amount that was being paid to the retiree.

For minor children with surviving spouses, 10% of the member's Final Average Salary for each child under age 18. Maximum benefit, including surviving spouse benefit, is 75% of Final Average Salary.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

For minor children without surviving spouses, 20% of member's Final Average Salary for each child under age 18. Maximum benefit is 60% of Final Average Salary.

If no survivor benefits are payable, any accumulated member contributions with interest in excess of benefit payments made is refunded to the member's beneficiary or estate.

12. Post-Retirement Funeral Benefits

Eligibility: Beneficiary must have been designated by the retiree.

Amount: For Plan 1 members, \$1,500.

Plan 2 members are not eligible for this benefit.

13. Other Termination Benefits

Eligibility: Termination of employment without eligibility for any other benefit.

Amount: For Plan 1 and 2 members, refund of accumulated member contributions with interest at 5% per year compounded monthly.

For Plan 3 members, refund of member contributions, plus the vested portion of matching employer contributions, plus any investment gains and losses.

14. Post-Retirement Adjustments (PRA)

Eligibility: For Plan 1 members and Plan 2 members who retired on or after January 1, 2000, completion of 12 months of retirement.

Plan 2 members who retired before January 1, 2000, are not eligible for this provision.

Amount: For Plan 1 members, 3% of the original base benefit (simple COLA).

For Plan 2 members, 2% of the original base benefit (simple COLA).

15. Member Contributions

Plan 1: 6.4% of total compensation.

Plan 2: 4.7% of base salary and longevity pay.

Plan 3: 4.7% of base salary and longevity pay.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS

16. City Contributions

Actuarially determined amount which together with member contributions and investment earnings will fund the obligations of the System in accordance with generally accepted actuarial principles.

Plan 3: 4.7% of base salary and longevity pay, less forfeitures from non-vested terminations.

17. Vesting of Contributions

Plan 3: Member contributions and investment earnings thereon are 100% vested. City contributions and investment earnings thereon are 25% vested after three years of service, 50% vested after five years of service, and 100% vested after seven years of service.

18. Distribution of Vested Accounts

Plan 3: Vested accounts are payable upon termination of City employment or death. Available forms of payment are prescribed by the Board.

19. Unused Sick Leave

Each bi-weekly service credit of accumulated unused sick leave is converted to a service credit for the purpose of computing annual benefit amounts.

20. Section 415 limit

\$230,000, effective January 1, 2021.

21. Section 401(a)(17) limit

\$290,000, effective January 1, 2021.

22. Changes Since Last Valuation

None.

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APPENDIX D – GLOSSARY OF TERMS

1. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation; inflation; rates of investment earnings, and asset appreciation or depreciation; and other relevant items.

2. Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a normal cost and an Actuarial Liability.

3. Actuarial Gain/(Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, as determined in accordance with a particular actuarial cost method.

4. Actuarial Liability

The portion of the Actuarial Present Value of projected benefits which will not be paid by future normal costs. It represents the value of the past normal costs with interest to the valuation date.

5. Actuarial Present Value (Present Value)

The value as of a given date of a future amount or series of payments. The Actuarial Present Value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made. As a simple example: assume you owe \$100 to a friend one year from now. Also, assume there is a 1% probability of your friend dying over the next year, in which case you will not be obligated to pay him. If the assumed investment return is 10%, the Actuarial Present Value is:

$$\begin{array}{ccccccc} \frac{\text{Amount}}{\text{Payment}} & & \frac{\text{Probability of}}{\text{Payment}} & & \frac{1}{(1+\text{Investment Return})} & & \\ \$100 & \times & (1 - .01) & \times & 1/(1+.1) & = & \$90 \end{array}$$

6. Actuarial Valuation

The determination, as of a specified date, of the normal cost, Actuarial Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

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APPENDIX D – GLOSSARY OF TERMS

7. Actuarial Value of Assets

The value of cash, investments and other property belonging to a pension plan as used by the actuary for the purpose of an actuarial valuation. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values. This way long-term costs are not distorted by short-term fluctuations in the market.

8. Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of actuarial assumptions.

9. Amortization Payment

The portion of the pension plan contribution which is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

10. Entry Age Normal Actuarial Cost Method

A method under which the Actuarial Present Value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages.

11. Funded Ratio

The ratio of the Actuarial Value of Assets to the Actuarial Liabilities.

12. Investment Return Assumption

The assumed interest rate used for projecting dollar related values in the future.

13. Mortality Table

A set of percentages which estimate the probability of death at a particular point in time. Typically, the rates are annual and based on age and sex.

14. Normal Cost

That portion of the Actuarial Present Value of pension plan benefits and expenses, which is allocated to a valuation year by the actuarial cost method.

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APPENDIX D – GLOSSARY OF TERMS

15. Projected Benefits

Those pension plan benefit amounts which are expected to be paid in the future under a particular set of actuarial assumptions, taking into account such items as the effect of advancement in age and increases in future compensation and service credits.

16. Unfunded Actuarial Liability

The excess of the Actuarial Liability over the Actuarial Value of Assets.



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