Actuarial Valuation Reports

FOR PENSION PLANS ADMINISTERED BY ERS

As of August 31, 2023
Prepared by Gabriel Roeder Smith & Company

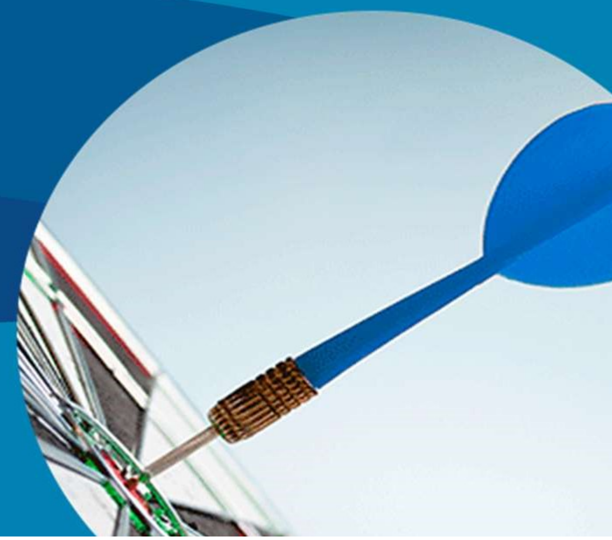
ERS®
Employees Retirement System of Texas

PRESENTATION

Actuarial Valuations of the ERS Retirement Funds as of August 31, 2023

Joe Newton, FSA, EA, MAAA
Dana Woolfrey, FSA, EA, MAAA

December 5, 2023



Agenda

- Primarily, observe impact of State commitment to pension funding in 2023 legislative session
  - House Bill 1 Appropriations and Senate Bill 30 Supplemental Appropriations
  - ERS Funding Valuation Results
    - $1B additional appropriation
  - LECOSRF Valuation Results
    - $772 million appropriation
    - Employer contributions increased from 0.50% to 1.75% of pay
  - JRS2 Valuation Results
    - $99 million appropriation
    - Employer contributions increased from 15.663% to 19.25% of pay

Purpose of Actuarial Valuation

- Snapshot as of August 31, 2023 using member data, financial data, benefit and contribution provisions, actuarial assumptions and methods as of that date
- Purposes:
  - Determine adequacy of current statutory contributions
    - Set future amounts of contributions if current found to be inadequate
  - Measure the actuarial liabilities and funding levels
  - Provide other information for reporting
    - GASB 67/68, Annual Comprehensive Financial Report
  - Explain changes in actuarial condition of the plans
  - Track changes over time
  - Analyze future outlook

GRS

ERS
Funding Valuation Results
at August 31, 2023

Legacy Payment Dynamic

Sec. 815.407 LEGACY PAYMENTS. (a) In addition to the state contributions required by this subtitle, each fiscal year the state shall make an actuarially determined payment in the amount necessary to amortize the system's unfunded actuarial liabilities by not later than the fiscal year ending August 31, 2054.

- This amount is a level dollar amount schedule, not tied to payroll or headcount
- Projected at $510 million per year through 2054 in the initial impact statement
- ERS will also continue to receive contributions from the members and 10% of pay contributions from the State/agencies

Legacy Payment Dynamic

- Statutory commitment to make at least actuarially determined level dollar contribution to fully fund by August 31, 2054
  - Time is the known quantity, not contributions
    - Exactly 31 years at valuation date
  - $510 million annual appropriations were made in 2021 and 2023 sessions
    - Based on analysis during 2021 session
  - Future contributions can vary based on
    - Experience
      - Determines required minimum
    - Choice to hold at $510 million when formula might require a lower amount
      - Reduces chance of required increase from experience
      - Reduces time to full funding
        - » Assuming future contributions aren't reduced

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Senate Bill 30 Supplemental Appropriations

- Extra $165 million to make up unanticipated (method of finance) shortfall on FY 2023 $510 million legacy payment
- Extra $900 million to pay down unfunded liability
  - Reduces future minimum legacy payments needed to meet statutory full funding requirement by $77 million per year or,
  - To the extent State continues $510 million:
    - could reduce time to full funding or,
    - reduces the necessary investment return needed to achieve full funding by 2054
      - Based on current results, need 6.68% annual return to reach full funding in 2054

Larger than expected salary increases had the largest impact on plan liabilities

- Increased UAAL by $869 million
- Adverse impact to static results
  - Funded ratio, unfunded liability as of August 31, 2023
  - This increases the liability (and thus UAAL) because now annuities for current actives are projected to be larger than previous projections
- Limited impact to forward looking results
  - The increase in liabilities is offset over time by higher payroll contributions
  - Minimal impact to long-term trajectory of funded ratio and UAAL, minimum legacy payment

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Investment Experience was very close to expected

- FY23 Market return 6.75%
- 5- year smoothed actuarial return 7.5%
- Compares to actuarial assumption of 7.0%
- Modest gains on valuation results

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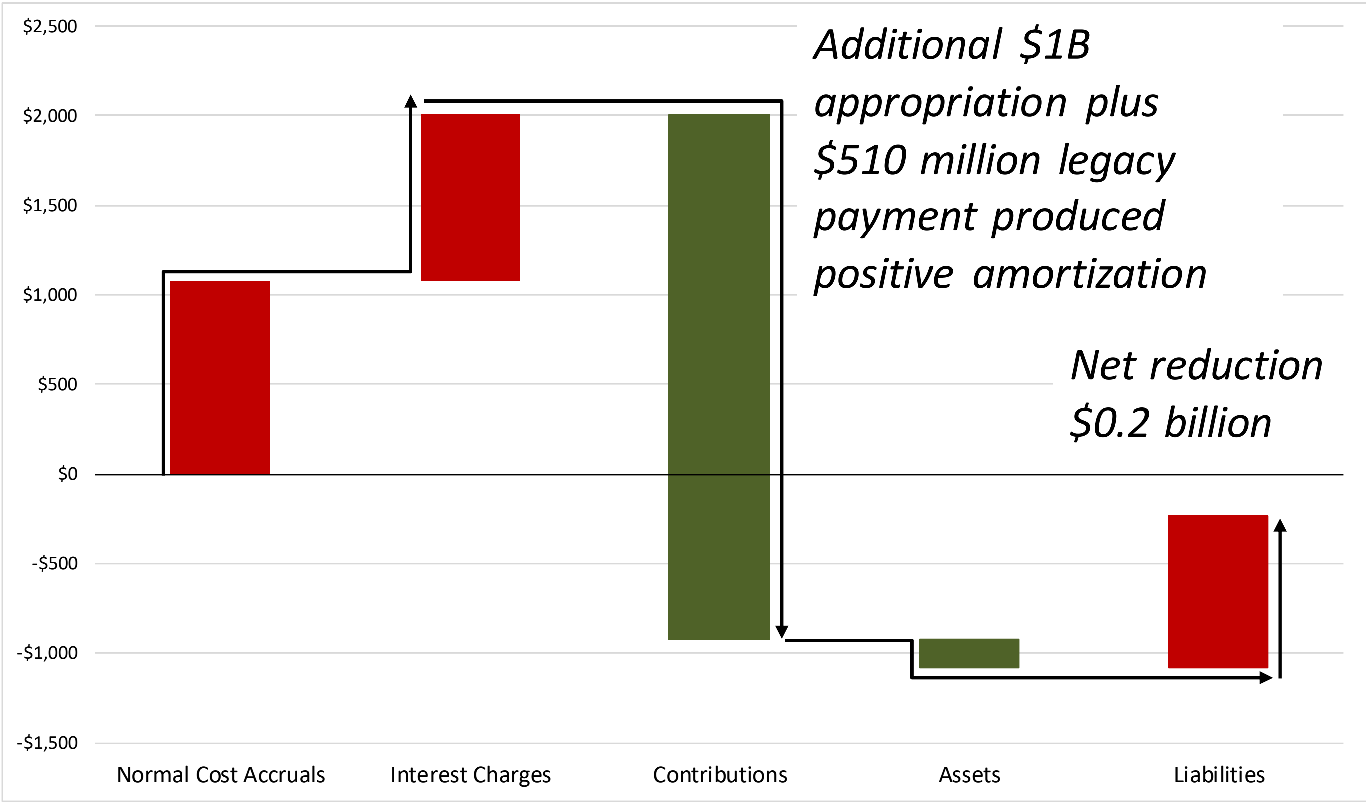
Valuation Results (ERS)

($ in millions)

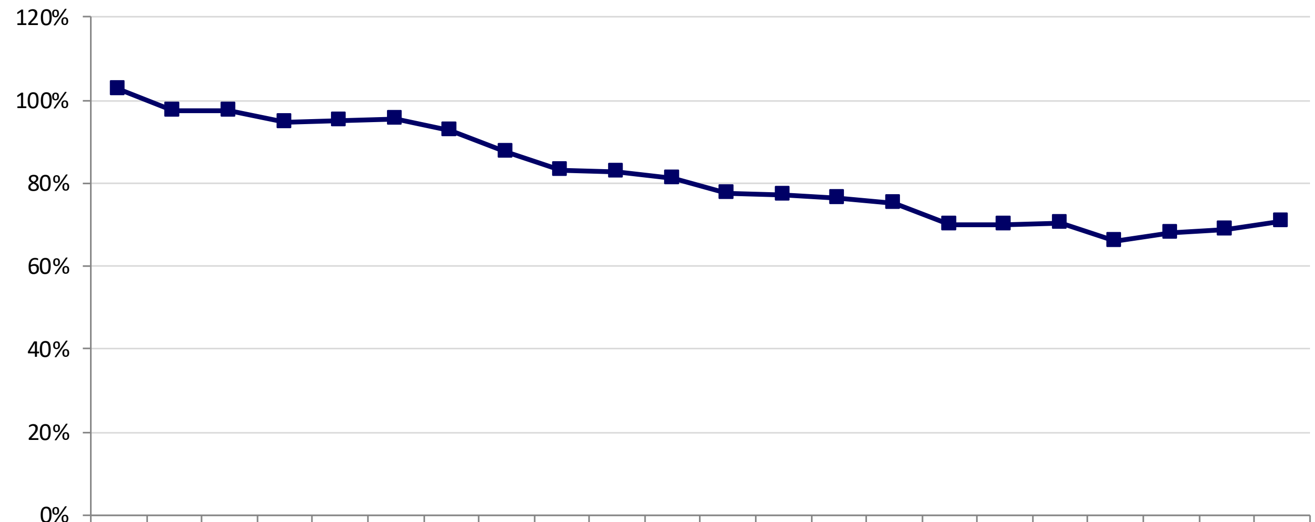
Actuarial Valuation as of August 31,		
	2023	**2022**
Actuarial Accrued Liability	$47,993	$45,862
Actuarial Value of Assets	33,977	31,616
Unfunded Accrued Liability	$14,016	$14,246
Funded Ratio	70.8%	68.9%
Amortization Period Per Section 815.407	31 years	32 years

Change in UAAL Since Prior Valuation



Funded Ratio

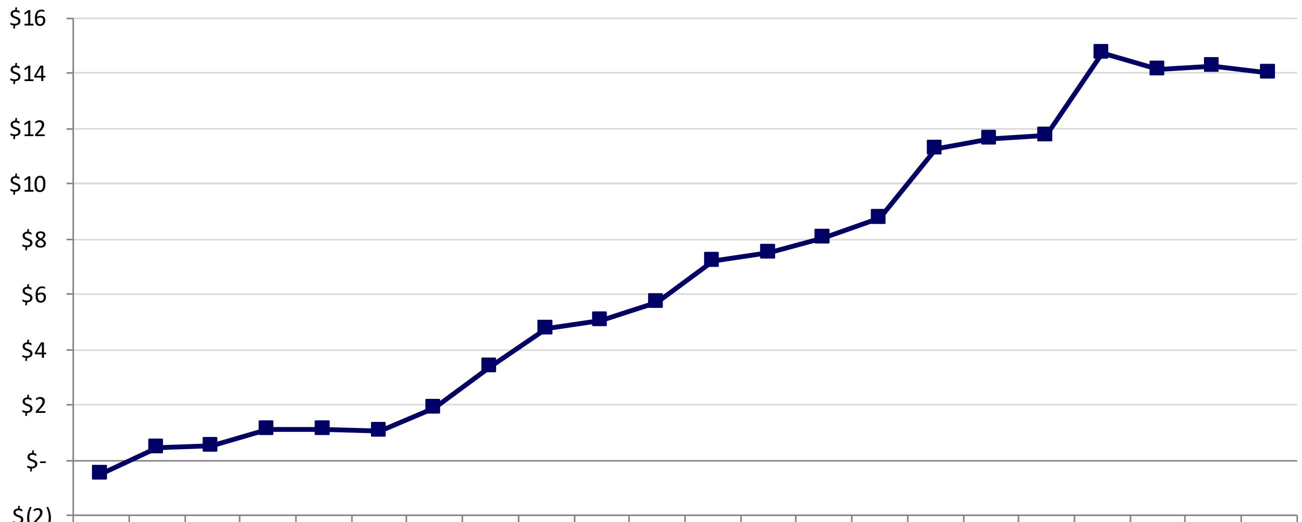
- The Funded Ratio increased from 69% to 71%
- Primarily from additional $1 billion from Senate Bill 30



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Funded Ratio on AVA	102%	98%	97%	95%	95%	96%	93%	87%	83%	83%	81%	77%	77%	76%	75%	70%	70%	71%	66%	68%	69%	71%

UAAL History

- Trend in UAAL is the main metric for monitoring the strength of a pension system
- An increasing UAAL means the accumulation of assets is falling further behind the target
- A declining UAAL (especially for a number of years in a row) means the package of benefits, funding, and investments is strengthening in comparison to the target



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
UAAL	-0.5	0.5	0.6	1.1	1.1	1.0	1.9	3.4	4.8	5.1	5.7	7.2	7.5	8.0	8.7	11.3	11.6	11.7	14.7	14.1	14.2	14.0

LECOSRF
Funding Valuation Results
at August 31, 2023

Timing of LECOS and JRS2 Appropriations

- $772 million for LECOS and $99 million JRS2 came in on September 8 (8 days after the valuation date)
- Completely changes the funding dynamic
- For **funding** valuation / long-term decision making purposes these amounts were **included**
  - Start reflecting the *new normal* now
- For **accounting** these amounts were **not included**
  - still reflects large net pension liability
  - but subsequent event is noted

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LECOSRF *Needed* Additional Funding

Amounts based on prior valuation

- Going into legislative session

Ongoing Costs	Statutory Contributions	Sufficient?
1.94% of Pay	0.50% employee payroll 0.50% employer payroll <u>0.78% of pay court fees</u> 1.78% of pay total	✘

Legacy Debt	Funds Available for Legacy Debt	Sufficient?
$715 million	No contributions available to pay down legacy debt	✘

- Not paying ongoing costs, adding to already significant debt
- Time to depletion = 23 years

LECOSRF *Got* Additional Funding

Amounts based on prior valuation

- Post-legislative session

Ongoing Costs	Statutory Contributions	Sufficient?
1.94% of Pay	0.50% employee payroll **1.75% employer payroll** 0.78% of pay court fees 3.03% of pay total	✓

Legacy Debt	Funds Available for Legacy Debt	Sufficient?
$715 million	Paid $772 million to cover full debt and year of interest	✓

- Paid off unfunded liability, increased contributions sufficiently to pay ongoing costs
- Time to depletion = N/A, time to full funding = now

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Valuation Results - LECOS

($ in millions)

LECO Supplemental Retirement Fund		
Actuarial Valuation as of	**2023**	**2022**
Actuarial Accrued Liability	$1,800	$1,729
Actuarial Value of Assets	1,800	1,014
Unfunded Accrued Liability	$0	$715
Funded Ratio	100.0%	58.6%
Statutory Contributions	3.26%	1.78%
Normal Cost Rate	2.11%	1.94%
Contributions Sufficient?	Yes	No

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JRS2
Funding Valuation Results
at August 31, 2023

JRS2 *Needed* Additional Funding

Amounts based on prior valuation

- Going into legislative session

Ongoing Costs	Statutory Contributions	Sufficient?
26.81% of Pay	9.38% employee payroll 15.66% employer payroll 25.04% of pay total	✗

Legacy Debt	Funds Available for Legacy Debt	Sufficient?
$89 million	No contributions available to pay down legacy debt	✗

- Not paying ongoing costs, adding to already significant debt
- Time to depletion = 47 years

JRS2 *Got* Additional Funding

Amounts based on prior valuation

- Post-legislative session

Ongoing Costs	Statutory Contributions	Sufficient?
26.81% of Pay	9.38% employee payroll **19.25% employer payroll** 28.63% of pay total	✓

Legacy Debt	Funds Available for Legacy Debt	Sufficient?
$89 million	Paid $99 million to cover full debt and year of interest	✓

- Paid off unfunded liability, increased contributions sufficiently to pay ongoing costs
- Time to depletion = N/A, time to full funding = now

Valuation Results – JRS2

($ in millions)

Judicial Retirement System of Texas, Plan 2		
Actuarial Valuation as of	**2023**	**2022**
Actuarial Accrued Liability	$672	$642
Actuarial Value of Assets	679	553
Unfunded Accrued Liability	($8)	$89
Funded Ratio	101.2%	86.2%
Statutory Contributions	28.61%	25.04%
Normal Cost Rate	28.24%	26.81%
Contributions Sufficient?	Yes	No

JRS2 new hire cash balance structure

- Senate Bill 1245 introduced Cash Balance Plan for judges taking office on or after September 1, 2024
- Mirrors most of the ERS provisions
- Lower cost plan
- Does not impact this valuation
- Will increase plan sustainability in the future
  - More buffer between needed and received contributions
  - Benefits more responsive to adverse experience (less volatility in surpus/UAAL)

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Low-Default Risk Obligation Measure

- New Actuarial Standard of Practice Requirement
- Lump sum cost to a plan to purchase low-default-risk fixed income securities whose resulting cash flows essentially replicate in timing and amount the benefits
  – 5.15% discount rate
- Difference = Cost to De-risk

	ERS	LECOS	JRS2
A. LDROM measure of benefits earned as of the measurement date:	$59,717 million	$2,270 million	$799 million
B. Valuation liability at 7% on measurement date:	$47,992 million	$1,800 million	$672 million
C. Cost to mitigate investment risk in the System's portfolio:	$11,725 million	$470 million	$127 million

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Summary

- LECOSRF and JRS2 outlooks completely changed in one legislative session
- ERS is still on track
- Benefit security remarkably improved for all participants in ERS plans over the last 3 years
- Recommend to stay the course

Employees Retirement System of Texas

Annual Actuarial Valuation - Funding

As of August 31, 2023

November 27, 2023

Board of Trustees
Employees Retirement System of Texas
200 East 18th Street
Austin, TX 78701

Re: Actuarial Valuation for Funding Purposes as of August 31, 2023

Members of the Board:

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the Employees Retirement System of Texas (ERS) as of August 31, 2023. This report was prepared at the request of the Board and is intended for use by ERS staff and those designated or approved by the Board. This report may be provided to parties other than ERS only in its entirety and only with the permission of the Board.

Actuarial Valuation

The primary purposes of the actuarial valuation report are to determine the adequacy of the current State and employer contributions, describe the current financial condition of ERS, analyze changes in the condition of ERS, and provide various summaries of the data.

Senate Bill 321 in the 2021 Legislative Session significantly improved the funding of the plan as well as introduced a new benefit structure for new hires on or after September 1, 2022. As a result of these changes, the funded ratio is expected to improve every year until the unfunded actuarial accrued liability is eliminated by 2054.

2023 Legislation

Senate Bill 30 appropriated an additional $1 billion to pay down the unfunded liability in addition to continuing to budget for the $510 million annual Legacy Payment. $165 million was to make up for fiscal year 2023 shortfalls on the $510 million legacy payment and $900 million was a one-time contingency payment. The additional payments are the primary source of the funding improvement over the past year.

In addition, House Bill 1393 created a new payment option for retirees. Retirees can take an actuarially reduced initial benefit at retirement in exchange for an automatic increase of 2% per year. Because it is actuarially reduced, this additional retiree option has no impact on the plan's funding results.

Plan Provisions

Our actuarial valuation as of August 31, 2023 reflects the benefit and contribution provisions set forth in Chapters 811 through 815 and Chapter 820 of the Texas Government Code. The current plan provisions are outlined in Section E of this report.

Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation are reasonable and were adopted by the Board of Trustees on May 20, 2020 based on the experience investigation that covered the five-year period from September 1, 2014 through August 31, 2019. The current actuarial assumptions and methods are outlined in Section F of this report.

Data

This valuation was based upon information as of August 31, 2023, furnished by ERS staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by ERS staff.

Certification

All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of, where applicable, the Internal Revenue Code and ERISA.

The signing actuaries are independent of the plan sponsor. Mr. Newton and Ms. Woolfrey are Enrolled Actuaries and Fellows of the Society of Actuaries, and all of the undersigned are Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries. Finally, each of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

Dana Woolfrey

Dana Woolfrey, FSA, EA, MAAA
Senior Consultant & Actuary

Joseph P. Newton, FSA, EA, MAAA
Pension Market Leader & Actuary

Thomas J Bevins

Thomas J. Bevins, ASA, MAAA
Consultant & Actuary

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SECTION A

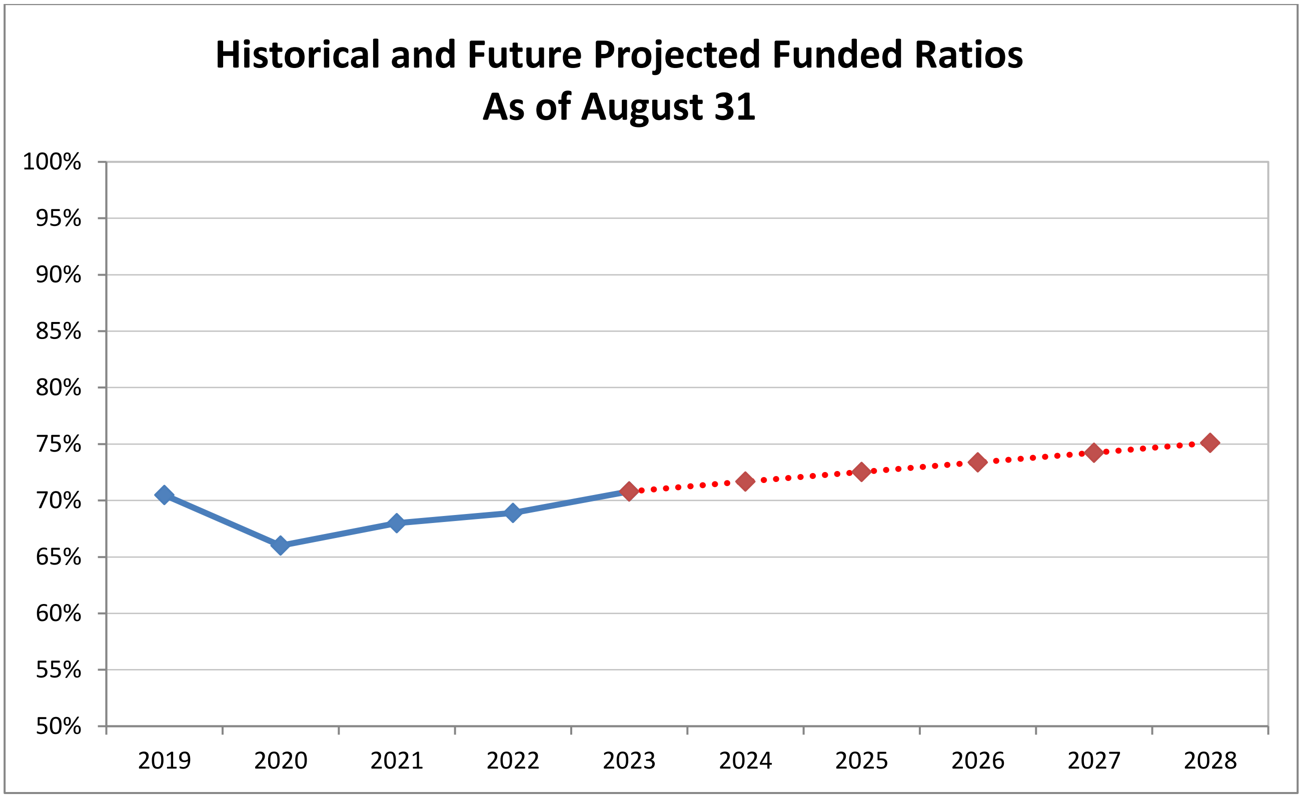
EXECUTIVE SUMMARY

Executive Summary

Item	2023	2022
Membership		
• Number of		
- Active members	139,958	133,751
- Retirees and beneficiaries	124,504	122,720
- Inactive, vested	14,610	14,838
- Inactive, nonvested	149,502	140,310
- Total	428,574	411,619
• Valuation Payroll	$ 8,549,531,392	$ 7,470,847,680
Statutory contribution rates	FY 2024	FY 2023
• Members*	9.08%	9.50%
• Employers	0.50%	0.50%
• State	9.50%	9.50%
• Total	19.08%	19.50%
Recommended Legacy Contributions Projected for Upcoming Biennium Per Section 815.407	$510,000,000	$510,000,000
Assets		
• Market value (MVA)	$ 34,234,697,324	$ 31,986,091,790
• Actuarial value (AVA)	$ 33,976,699,535	$ 31,615,914,625
• Return on market value (gross)	6.75%	-1.55%
• Return on market value (net)	6.72%	-1.59%
• Return on actuarial value	7.5%	8.3%
Actuarial Information on AVA (smoothed)		
• Normal cost %	13.52%	14.07%
• Total normal cost	$ 1,155,896,644	$ 1,051,148,269
• Actuarial accrued liability	$ 47,992,451,024	$ 45,862,486,091
• Unfunded actuarial accrued liability (UAAL)	$ 14,015,751,489	$ 14,246,571,466
• Funded ratio	70.8%	68.9%
• Maximum Amortization Period Per Section 815.407 (ending 2054)	31 years	32 years
• Will payroll contributions and Legacy Payments amortize the UAAL over the Required Period	Yes	Yes
Actuarial Information on MVA		
• Unfunded actuarial accrued liability (UAAL)	$ 13,757,753,700	$ 13,876,394,301
• Funded ratio	71.3%	69.7%

* Member contributions are 9.50% of compensation for all members hired before September 1, 2022, and 6.00% of compensation for all members hired on or after September 1, 2022. The rate shown reflects the blended rate as of the valuation date.

The following chart illustrates the recent history and outlook of the funded status of ERS over the next five years:



August 31,	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Funded Ratio	70.5%	66.0%	68.0%	68.9%	70.8%	71.7%	72.5%	73.4%	74.2%	75.1%
UAAL (in billions)	$11.7	$14.7	$14.1	$14.2	$14.0	$14.0	$13.9	$13.8	$13.7	$13.6

The projections beyond 2023 are based on the same assumptions, methods and provisions used for the August 31, 2023 valuation, which include the State continuing the Legacy Payments. Additionally, the actuarial (smoothed) value of assets is expected to earn 7.00% per year.

With the recent commitment from the State to make consistent adequate contributions, the sustainability of ERS has been materially improved. It is important to put strong, reliable policies in place and then have the discipline to keep a longer-term perspective without overreacting to short term positive, or negative, experience. The policies adopted by the 2021 Legislature are strong long-term policies.

SECTION B

DISCUSSION

Discussion

Introduction

This report presents the results of the August 31, 2023 actuarial valuation of the Employees Retirement System of Texas (ERS).

The primary purposes of this actuarial valuation report are to determine the adequacy of the current State and employer contributions, describe the current financial condition of ERS, analyze the changes in condition of ERS, and provide various summaries of the data.

All of the tables referenced in the following discussion appear in Section C of this report.

Funding Adequacy

Senate Bill 321, enacted during the 2021 Regular Legislative Session, introduced a new level dollar contribution structure in Texas Government Code Section 815.407, called Legacy Payments. These amounts are budgeted for each biennium to fully amortize the Unfunded Actuarial Accrued Liability (UAAL) as required before the end of fiscal year 2054. The 2023 Legislature appropriated $510 million per year for fiscal years 2024 and 2025. We recommended a continued appropriation of $510 million which is still expected to eliminate the UAAL before the end of fiscal year 2054. The target date of 2054 produces an amortization period of 31 years as of this 2023 valuation.

For transparency, based on the results of this actuarial valuation, the minimum annual Legacy Payment beginning in FY2024 that would be expected to eliminate the UAAL by 2054 in accordance with Section 815.407 is $385 million. The primary reason for the change from the prior year was the additional $1B in funding from the State which reduced the annual amount needed over the next 31 years by $77 million. The statutory Actuarially Determined Contribution, as defined as the statutory payroll contributions plus the $385 million minimum annual Legacy Payments needed to fully fund the plan by 2054, are expected to decrease the UAAL annually and thus can be considered a “Reasonable Actuarially Determined Contribution” as required by the Actuarial Standards of Practice.

We recommend the actual contributions remain at the $510 million shown in the original legislative analysis. This will not only accelerate the pace the UAAL is eliminated, but will significantly reduce the volatility experienced in the statutorily required Legacy Payments from biennium to biennium.

The ERS Board of Trustees approved the Pension Funding Priorities and Guidelines on May 23, 2018 and adopted updates in August 2020. For the Board, adoption of this policy is intended to:

- Enhance communications and provide transparency to the Legislature and plan members and retirees regarding Board of Trustees’ positions on plan funding strategy;
- Provide policy guidance to current and future Boards;
- Ensure that legislators, elected officials and other stakeholders have clear and accurate information about the Trust’s funding goals and the needs of the Board in supporting sound fiduciary investment decisions in accordance with Texas Government Code Section 815.106; and
- Identify a recommended plan for the state of Texas, as the plan sponsor, to achieve a 100% funded ratio while following funding best practices and sound actuarial principles, in accordance with Texas Government Code Section 802.2011.

The policy states that the main objective of ERS' retirement programs is to fully fund the long-term cost of benefits provided by statute, through disciplined and timely accumulation of contributions and prudent investment of assets to deliver earned benefits on a continuing basis. In support of this objective, the policy laid out a multi-level funding period goal to gradually achieve funding on sound actuarial principles:

1. Fund normal costs;
2. Avoid trust fund depletion of the pre-funded plans;
3. Meet current statutory standard of a less than 31-year funding period for unfunded liabilities, per Texas Government Code Sections 811.006 and 840.106; and
4. Match funding period to the average years of service at retirement once a 31-year funding period is achieved, and closed.

With the Legacy Payment structure, every objective of this policy should eventually be met. This valuation finds ERS now meets the first and second levels of the policy. In addition, since the new policy has a closed amortization structure, actuarial projections indicate the third level funding goal will be met next year and the fourth level will be met within the next decade.

The unfunded actuarial accrued liability (UAAL) decreased from $14.2 billion as of August 31, 2022 to $14.0 billion as of August 31, 2023. **Combined with the new Legacy Payment contribution structure, and assuming all other assumptions are met, it is likely the UAAL will decrease slowly for the next few years and then start to more meaningfully decline year over year going forward.**

Additionally, the funded ratio—actuarial value of assets divided by the actuarial accrued liability—increased from 68.9% to 70.8% as of August 31, 2023. This increase in the funded ratio was primarily due to the additional State contributions received during fiscal year 2023 as part of Senate Bill 30. The funded status is one of many metrics used to show trends and develop future expectations about the health of a retirement system. The funded status measure itself is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

Plan Provisions

There were no changes to the plan provisions during the past year. However, this is the first actuarial valuation to include active and inactive members under the cash balance provisions defined by Chapter 820 of the Texas Government Code for employees hired on or after September 1, 2022. The new structure is a cash balance retirement benefit with meaningful cost and risk sharing mechanisms. As of August 31, 2023, there are 23,860 active members covered under the new structure. The current plan provisions are outlined in Section E of this report.

Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees on May 20, 2020 based on the experience investigation that covered the five-year period from September 1, 2014 through August 31, 2019. We believe the assumptions are internally consistent and are reasonable, based on the actual experience of ERS. There were no changes to the assumptions.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. A review of the impact of a different set of assumptions on the funded status of ERS is outside the scope of this actuarial valuation.

The current actuarial assumptions and methods are outlined in Section F of this report.

System Assets

This report contains several tables that summarize key information with respect to the ERS assets.

The total market value of assets increased from $32.0 billion to $34.2 billion as of August 31, 2023. Table 5 reconciles the changes in the fund during the year. Total contributions increased from $1,981 million to $2,963 million. The significant increase is a result of the one-time contingency funding of $1 billion as a result of Senate Bill 30.

Table 6 shows the development of the Actuarial Value of Assets (AVA). The current AVA method recognizes each year's gain or loss over a closed five-year period and allows for direct offsetting of gains and losses. The AVA increased from $31.6 billion to $34.0 billion, as of August 31, 2023.

When measured on a market value, the gross investment return for the fiscal year ending August 31, 2023 was 6.75% and the return net of investment expenses was 6.72% as reported by the ERS Master Trust Custodian. When measured on an actuarial value, the net investment return was 7.5%. Table 7 shows a history of return rates. The ERS ten-year average gross market return, as reported by the ERS Master Trust Custodian, is 8.04%. The ten-year average return net of investment expenses is 7.99%.

Table 8 provides a history of the contributions paid into ERS and the administrative expenses and benefit payments paid out of ERS. Table 11 provides a history of contribution rates, as a percent of payroll, paid into the trust by the State, agencies, and members. This table also shows a history of the total normal cost and the actuarially determined contribution amounts.

Data

This valuation was based upon information as of August 31, 2023, furnished by ERS staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by ERS staff.

The tables in Section G show key census statistics for the various groups included in the valuation.

Section C

Tables

Table 1
Development of Employer Cost

	August 31, 2023	August 31, 2022
1. Payroll		
a. Reported Payroll (August Payroll of Active Members)	$ 8,549,531,392	$ 7,470,847,680
b. Valuation Payroll (Expected Covered Payroll for Following Plan Year)	8,549,531,392	7,470,847,680
2. Total Normal Cost Rate		
a. Gross normal cost rate	13.19%	13.74%
b. Administrative expenses	0.33%	0.33%
c. Total (Item 2a + Item 2b)	13.52%	14.07%
3. Actuarial Accrued Liability for Active Members		
a. Present value of future benefits for active members	$ 25,532,160,491	$ 23,434,582,108
b. Less: present value of future normal costs	(8,012,162,754)	(7,269,559,904)
c. Actuarial accrued liability	$ 17,519,997,737	$ 16,165,022,204
4. Total Actuarial Accrued Liability for:		
a. Retirees and beneficiaries	$ 28,199,563,604	$ 27,520,483,591
b. Inactive members	2,272,889,683	2,176,980,296
c. Active members (Item 3c)	17,519,997,737	16,165,022,204
d. Total	$ 47,992,451,024	$ 45,862,486,091
5. Actuarial Value of Assets	$ 33,976,699,535	$ 31,615,914,625
6. Unfunded Actuarial Accrued Liability (UAAL) (Item 4d - Item 5)	$ 14,015,751,489	$ 14,246,571,466
7. Recommended Legacy Contributions Projected for Upcoming Biennium Per Section 815.407	$510,000,000	$510,000,000
8. Allocation of Contribution Rate in Addition to Legacy Contribution		
a. Combined State and employer rates	10.00%	10.00%
b. Blended member rate for upcoming year*	9.08%	9.50%
c. Total contribution rate	19.08%	19.50%
d. Total normal cost rate	13.52%	14.07%
e. Available contribution rate to amortize UAAL	5.56%	5.43%
f. Total contribution rate	19.08%	19.50%
9. Maximum Amortization Period Per Section 815.407 (ending 2054)	31 years	32 years

* Member contributions are 9.50% of compensation for all members hired before September 1, 2022, and 6.00% of compensation for all members hired on or after September 1, 2022. The rate shown reflects the blended rate as of the valuation date.

Table 2
Actuarial Present Value of Future Benefits

		August 31, 2023	August 31, 2022
1.	Active Members		
	a. Service Retirement	$ 23,037,112,089	$ 21,176,153,883
	b. Disability Benefits	210,393,714	186,811,574
	c. Death Before Retirement	203,245,511	185,606,414
	d. Termination	2,081,409,177	1,886,010,237
	e. Total	$ 25,532,160,491	$ 23,434,582,108
2.	Inactive Members	$ 2,272,889,683	$ 2,176,980,296
3.	Annuitants*	$ 28,199,563,604	$ 27,520,483,591
4.	Total Actuarial Present Value of Future Benefits	$ 56,004,613,778	$ 53,132,045,995

* The Present Value of Future Benefits as of August 31, 2022 includes $27,414,185,092 for the current annuitant benefits and $106,298,499 for the one-time permanent monthly annuity increase payable to a limited group of retirees described in Section 814.604 of the Texas Government Code which will be paid once the funding period is less than 31 years after the COLA is granted.

The Present Value of Future Benefits as of August 31, 2023 includes $28,086,259,073 for the current annuitant benefits and $113,304,531 for the one-time permanent monthly annuity increase payable to a limited group of retirees described in Section 814.604 of the Texas Government Code which will be paid once the funding period is less than 31 years after the COLA is granted.

Table 3
Analysis of Normal Cost

	August 31, 2023	August 31, 2022
1. Gross Normal Cost Rate		
a. Service Retirement	9.26%	9.71%
b. Disability Benefits	0.15%	0.15%
c. Death Before Retirement	0.12%	0.13%
d. Termination	3.66%	3.75%
e. Total	13.19%	13.74%
2. Administrative Expenses	0.33%	0.33%
3. Total Normal Cost	13.52%	14.07%
4. Less: Blended Member Rate*	9.08%	9.50%
5. Employer Normal Cost Rate	4.44%	4.57%

* Member contributions are 9.50% of compensation for all members hired before September 1, 2022, and 6.00% of compensation for all members hired on or after September 1, 2022. The rate shown reflects the blended rate as of the valuation date.

Table 4
Historical Summary of Active Member Data

	Active Members		Covered Payroll		Average Salary			
Valuation as of August 31,	Number	Percent Increase	Amount in $ Millions	Percent Increase	$ Amount	Percent Increase	Average Age	Average Service
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2008	134,626	N/A	5,313	N/A	39,468	N/A	43.7	9.4
2009	141,223	4.9%	5,677	6.8%	40,202	1.9%	43.6	9.2
2010	142,490	0.9%	5,845	3.0%	41,022	2.0%	43.8	9.2
2011	137,293	-3.6%	5,714	-2.2%	41,620	1.5%	44.1	9.5
2012	132,669	-3.4%	5,597	-2.0%	42,188	1.4%	44.3	9.7
2013	133,669	0.8%	5,689	1.7%	42,564	0.9%	44.3	9.6
2014	134,162	0.4%	5,953	4.6%	44,374	4.3%	44.3	9.4
2015	142,409	6.1%	6,407	7.6%	44,990	1.4%	43.6	8.8
2016	146,390	2.8%	6,806	6.2%	46,495	3.3%	43.3	8.5
2017	141,629	-3.3%	6,796	-0.2%	47,986	3.2%	43.6	8.7
2018	141,535	-0.1%	6,876	1.2%	48,581	1.2%	43.6	8.6
2019	141,865	0.2%	6,983	1.6%	49,220	1.3%	43.5	8.4
2020	142,062	0.1%	7,222	3.4%	50,834	3.3%	43.6	8.3
2021	136,726	-3.8%	7,097	-1.7%	51,910	2.1%	44.0	8.6
2022	133,751	-2.2%	7,471	5.3%	55,856	7.6%	44.1	8.5
2023	139,958	4.6%	8,550	14.4%	61,086	9.4%	44.0	8.2

Table 5
Reconciliation of Plan Net Assets

		Year Ending	
		August 31, 2023	August 31, 2022
		(1)	(2)
1.	Market value of assets at beginning of year	$ 31,986,091,790	$ 33,608,244,434
2.	Revenue for the year		
	a. Contributions for the year		
	i. State (including membership fees)	$ 2,205,085,539	$ 1,259,883,400
	ii. Member (including penalty interest)	758,060,144	721,520,247
	iii. Total	$ 2,963,145,683	$ 1,981,403,647
	b. Net investment income	$ 2,252,892,642	$ (728,035,727)
	c. Total revenue	$ 5,216,038,325	$ 1,253,367,920
3.	Disbursements for the year		
	a. Benefit payments and refunds	2,998,709,355	$ 2,940,512,598
	b. Net transfers from TRS	(79,483,191)	(96,633,848)
	c. Administrative expenses	48,206,627	31,641,814
	d. Total expenditures	2,967,432,791	2,875,520,564
4.	Increase in net assets (Item 2c - Item 3d)	$ 2,248,605,534	$ (1,622,152,644)
5.	Market value of assets at end of year (Item 1 + Item 4)	$ 34,234,697,324	$ 31,986,091,790

Table 6
Development of Actuarial Value of Assets

	Year Ending August 31, 2023
1. Market value of assets at beginning of year	$ 31,986,091,790
2. Net new investments	
a. Contributions for the year (Table 5)	$ 2,963,145,683
b. Disbursements for the year (Table 5)	(2,967,432,791)
c. Subtotal	(4,287,108)
3. Market value of assets at end of year	$ 34,234,697,324
4. Net earnings (Item 3 - Item 1 - Item 2)	$ 2,252,892,642
5. Assumed investment return rate for fiscal year	7.00%
6. Expected return	$ 2,238,876,377
7. Excess return (Item 4 - Item 6)	$ 14,016,265

8. Development of amounts to be recognized as of August 31, 2023:

Fiscal Year End	Remaining Deferrals of Excess (Shortfall) of Investment Income	Offsetting of Gains/(Losses)	Net Deferrals Remaining	Years Remaining	Recognized for this valuation	Remaining after this valuation
	(1)	(2)	(3) = (1) + (2)	(4)	(5) = (3) / (4)	(6) = (3) - (5)
2019	$ 0	$ 0	$ 0	1	$ 0	$ 0
2020	0	0	0	2	0	0
2021	370,177,165	0	370,177,165	3	123,392,388	246,784,777
2022	0	0	0	4	0	0
2023	14,016,265	0	14,016,265	5	2,803,253	11,213,012
Total	$ 384,193,430	$ 0	$ 384,193,430		$ 126,195,641	$ 257,997,789

9. Actuarial value of assets as of August 31, 2023 (Item 3 - Item 8, Column 6)	$ 33,976,699,535
10. Ratio of actuarial value to market value	99.2%

Table 7
History of Investment Return Rates

Year Ending August 31 of	Market Returns (Gross)	Market Returns (Net)	Actuarial
(1)	(2)	(3)	(4)
1998	8.30%	8.23%	11.5%
1999	16.26%	16.46%	12.5%
2000	9.43%	9.40%	11.8%
2001	-6.91%	-6.93%	7.6%
2002	-7.17%	-7.21%	4.7%
2003	9.20%	9.14%	5.4%
2004	11.69%	11.64%	6.4%
2005	12.71%	12.62%	7.5%
2006	8.83%	8.76%	7.7%
2007	13.88%	13.76%	8.6%
2008	-4.58%	-4.69%	5.7%
2009	-6.60%	-6.71%	3.2%
2010	6.65%	6.48%	3.6%
2011	12.58%	12.36%	5.0%
2012	8.22%	8.04%	5.4%
2013	10.07%	9.87%	6.1%
2014	14.70%	14.58%	7.6%
2015	0.49%	0.44%	6.1%
2016	5.32%	5.28%	5.9%
2017	12.15%	12.11%	2.8%
2018	9.58%	9.54%	7.9%
2019	3.04%	3.00%	6.9%
2020	6.85%	6.82%	6.1%
2021	25.51%	25.46%	10.0%
2022	-1.55%	-1.59%	8.3%
2023	6.75%	6.72%	7.5%
Average Returns			
Last Five Years:	7.75%	7.71%	7.8%
Last Ten Years:	8.04%	7.99%	6.9%
Last Fifteen Years:	7.34%	7.25%	6.1%
Last Twenty Years:	7.58%	7.49%	6.4%

Market returns provided by ERS Master Trust Custodian.
Rates in Column (2) represent the market returns gross of all expenses.
Rates in Column (3) represent the market returns net of investment expenses.
Net returns may exceed gross returns in years where adjustments are made to fee expenses.

Table 8
History of Cash Flow

Year Ending August 31,	Contributions	Distributions and Expenditures: Benefit Payments and Refunds	Administrative Expenses	Total	External Cash Flow for the Year	Market Value of Assets	External Cash Flow as Percent of Market Value
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2007	$ 657.7	$ (1,333.2)	$ (16.0)	$ (1,349.2)	$ (691.5)	$ 23,480	-2.9%
2008	678.8	(1,383.9)	(16.2)	(1,400.1)	(721.3)	21,464	-3.4%
2009	716.1	(1,449.0)	(17.3)	(1,466.3)	(750.2)	19,098	-3.9%
2010	810.4	(1,512.4)	(19.0)	(1,531.4)	(721.0)	19,581	-3.7%
2011	839.9	(1,612.5)	(18.8)	(1,631.3)	(791.4)	21,204	-3.7%
2012	758.1	(1,733.7)	(17.8)	(1,751.5)	(993.4)	21,826	-4.6%
2013	798.3	(1,834.4)	(18.7)	(1,853.1)	(1,054.8)	22,869	-4.6%
2014	912.8	(1,963.5)	(20.2)	(1,983.7)	(1,070.9)	25,050	-4.3%
2015	962.6	(2,049.3)	(21.8)	(2,071.1)	(1,108.5)	23,998	-4.6%
2016	1,361.4	(2,147.3)	(20.4)	(2,167.7)	(806.3)	24,466	-3.3%
2017	1,385.5	(2,288.8)	(23.1)	(2,311.9)	(926.4)	26,372	-3.5%
2018	1,381.1	(2,406.4)	(23.5)	(2,429.9)	(1,048.8)	27,753	-3.8%
2019	1,407.4	(2,540.3)	(27.7)	(2,568.0)	(1,160.6)	27,351	-4.2%
2020	1,449.8	(2,621.7)	(24.2)	(2,645.9)	(1,196.1)	27,946	-4.3%
2021	1,457.9	(2,711.2)	(21.9)	(2,733.1)	(1,275.2)	33,608	-3.8%
2022	1,981.4	(2,843.9)	(31.6)	(2,875.5)	(894.1)	31,986	-2.8%
2023	2,963.1	(2,919.2)	(48.2)	(2,967.4)	(4.3)	34,235	0.0%

Dollar amounts in millions

Column (6) = Column (2) + Column (5).

Table 9
Total Experience Gain or Loss

Item (1)	% of AAL	Year Ending August 31, 2023 (2)	Year Ending August 31, 2022 (3)
A. Calculation of total actuarial gain or loss			
1. Unfunded actuarial accrued liability (UAAL), previous year		$ 14,246,571,466	$ 14,118,331,031
2. Assumption/Method changes - Liability Only		$ 0	$ 0
3. UAAL, previous year, after assumption changes (Item 1 + Item 2)		$ 14,246,571,466	$ 14,118,331,031
4. Normal cost for the year (excluding administrative expenses)		1,026,494,471	985,243,572
5. Actual administrative expenses		48,206,627	31,641,814
6. Contributions for the year (excluding service purchases)		(2,932,747,568)	(1,944,532,503)
7. Interest at 7.00%			
a. On UAAL		$ 997,260,003	$ 988,283,172
b. On normal cost and administrative expenses		37,614,538	35,590,989
c. On contributions		(102,646,165)	(68,058,638)
d. Total		$ 932,228,376	$ 955,815,523
8. Expected UAAL (Sum of Items 3 through 7)		13,320,753,372	14,146,499,437
9. Actual UAAL		14,015,751,489	14,246,571,466
10. Total (gain)/loss for the year (Item 9 - Item 8)		$ 694,998,117	$ 100,072,029
B. Source of gains and losses	% of AAL		
11. Asset (Gain)/Loss for the year	0.32%	(152,108,043)	(371,394,570)
12. Pay Increases (Less)/Greater than Expected	1.81%	869,084,655	625,888,255
13. Non-Retired Demographic (Gains)/Losses	0.04%	20,563,123	(24,134,490)
14. Post-Retirement Mortality (Gains)/Losses	0.06%	(28,347,229)	(98,702,501)
15. Other Demographic (Gains)/Losses	0.03%	(14,194,389)	(31,584,665)
16. Total (Sum of Items 11 through 15)	1.45%	$ 694,998,117	$ 100,072,029

Table 10
Solvency Test

Actuarial Accrued Liability and Percent of Active Member Payroll for:

	Accumulated Member Contributions Including Interest		Retirees and Beneficiaries Currently Receiving Benefits		Employer Financed Portion of Vested and Nonvested Benefits			Portion of Accrued Liabilities Covered by Assets		
August 31,	(1)	% of Payroll	(2)	% of Payroll	(3)	% of Payroll	Actuarial Value of Assets	(1)	(2)	(3)
2007	$ 4,059.7	77%	$ 11,519.9	219%	$ 8,407.5	160%	$ 22,938.9	100%	100%	88%
2008	4,256.2	79%	12,195.8	227%	8,951.2	166%	23,511.9	100%	100%	79%
2009	4,460.6	77%	12,648.2	218%	9,799.0	169%	23,509.6	100%	100%	65%
2010	4,719.7	80%	13,407.8	226%	10,284.3	173%	23,628.6	100%	100%	54%
2011	4,943.7	85%	14,325.2	247%	9,781.3	169%	23,997.4	100%	100%	48%
2012	5,075.2	89%	15,244.0	269%	9,658.0	170%	24,272.5	100%	100%	41%
2013	5,201.0	91%	16,148.2	284%	10,536.8	185%	24,667.6	100%	100%	31%
2014	5,213.6	88%	17,113.9	287%	10,597.2	178%	25,431.9	100%	100%	29%
2015	5,235.1	82%	18,080.0	282%	10,553.3	165%	25,850.5	100%	100%	24%
2016	5,509.4	81%	19,018.0	279%	10,775.8	158%	26,557.1	100%	100%	19%
2017	5,709.1	84%	21,378.8	315%	10,541.9	155%	26,371.8	100%	97%	0%
2018	5,897.5	86%	22,528.0	328%	10,563.8	154%	27,359.9	100%	95%	0%
2019	6,044.4	87%	23,686.0	339%	10,070.9	144%	28,060.1	100%	93%	0%
2020	6,279.0	87%	25,604.8	355%	11,374.5	158%	28,543.2	100%	87%	0%
2021	6,524.1	92%	26,547.2	374%	11,112.4	157%	30,065.4	100%	89%	0%
2022	6,691.3	90%	27,520.5	368%	11,650.7	156%	31,615.9	100%	91%	0%
2023	7,019.9	82%	28,199.6	330%	12,773.0	149%	33,976.7	100%	96%	0%

Note: Dollar amounts in millions

Table 11
Historical Contribution Rates

Actuarial Valuation as of August 31,	Contributions from: State	Agency	Members	Total	Budgeted Legacy Payments (millions)	Total Normal Cost Rate	ASC **
1998	6.00%	0.00%	6.00%	12.00%		11.86%	Not calculated
1999	6.00%	0.00%	6.00%	12.00%		12.33%	Not calculated
2000	6.00%	0.00%	6.00%	12.00%		12.41%	Not calculated
2001	6.00%	0.00%	6.00%	12.00%		12.67%	Not calculated
2002	6.00%	0.00%	6.00%	12.00%		12.71%	Not calculated
2003	6.00%	0.00%	6.00%	12.00%		12.26%	12.82%
2004	6.00%	0.00%	6.00%	12.00%		12.45%	13.12%
2005	6.45%	0.00%	6.00%	12.45%		12.28%	13.59%
2006	6.45%	0.00%	6.00%	12.45%		11.98%	13.20%
2007	6.45%	0.00%	6.00%	12.45%		11.98%	13.10%
2008	6.45%	0.00%	6.00%	12.45%		13.37%	15.45%
2009 *	6.78%	0.00%	6.48%	13.26%		12.38%	15.84%
2010	6.95%	0.00%	6.50%	13.45%		12.30%	17.07%
2011	6.00%	0.00%	6.50%	12.50%		12.31%	17.47%
2012	6.50%	0.00%	6.50%	13.00%		12.31%	18.25%
2013	7.50%	0.50%	6.60%	14.60%		11.57%	18.73%
2014	7.50%	0.50%	6.90%	14.90%		11.58%	18.76%
2015	9.50%	0.50%	9.50%	19.50%		12.27%	19.62%
2016	9.50%	0.50%	9.50%	19.50%		12.28%	19.88%
2017	9.50%	0.50%	9.50%	19.50%		13.95%	23.21%
2018	9.50%	0.50%	9.50%	19.50%		13.86%	23.12%
2019	9.50%	0.50%	9.50%	19.50%		13.76%	23.26%
2020	9.50%	0.50%	9.50%	19.50%		14.16%	25.48%
2021	9.50%	0.50%	9.50%	19.50%	$510	14.12%	***
2022	9.50%	0.50%	9.50%	19.50%	$510	14.07%	***
2023	9.50%	0.50%	9.50%	19.50%	$1,410	13.52%	***

* For Fiscal Year 2010, members contributed 6.45% from September through December and 6.50% from January through August. Similarly, the State contributed 6.45% from September through December and 6.95% from January through August.

** Prior to 2021, the Actuarially Sound Contribution Rate (ASC) was the rate determined as of the valuation date to fund the normal cost and amortize the UAAL over a 31 year period.

*** Beginning with the 2022-2023 biennium, the legislature will appropriate an amount each biennium that is expected to eliminate the unfunded liability by no later than 2054 in accordance with Section 815.407 of the Texas Government Code.

SECTION D

RISKS ASSOCIATED WITH MEASURING THE ACCRUED LIABILITY AND ACTUARIALLY DETERMINED CONTRIBUTION, AND LOW-DEFAULT-RISK OBLIGATION MEASURE

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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 due to changing conditions; 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. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
6. **Other demographic risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

ERS Specific Risks

While ERS has various levels of exposure to all of the risks listed above, in our opinion the ones that warrant the most observation for the ERS Board specifically are assumption change risk and political risk.

Assumption Change Risk is the potential for the environment to change such that future valuation assumptions are adjusted to be different than the current assumptions. For example, declines in interest rates or increases in earnings multiples over time may result in a change in the assumed rates of return used in the valuation. A healthier workforce may result in changes in employee behavior such that retirement rates are adjusted to reflect employees working longer. And the difference in changing an assumption versus the other experience related risks listed above is instead of the loss slowly building over time, there is the immediate recognition of the change. Over the past decade, the changing of assumptions has increased the liabilities of ERS more than any other source. While those changes were warranted and put ERS on a stronger path going forward, it did cause a setback in many of the actuarial measurements and at least gives the appearance of a weaker System. We do not currently anticipate any significant changes to assumptions in the future and will continue to communicate with the Board if any issues arise.

Political Risk is the risk that stakeholders and decision makers change their priorities concerning the financial goals of ERS. The current funding policy is expected to strengthen the financial status of ERS over time and provide full benefit security to ERS members that they will receive the benefits they currently expect to receive. If benefits are enhanced without additional funding or if the funding was reduced to finance other priorities, this would weaken the financial outlook for ERS.

The actuarially sound contribution rate may be considered as a minimum contribution rate that complies with State statute. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Currently, this, and other Board funding policy objectives are not being met. Users of this report should be aware that even contributions made at the actuarially sound contribution rate do not necessarily guarantee benefit security.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Ratio of the market value of assets to total payroll	4.0	4.3	4.7	3.9	3.9	4.0	3.9	3.6	3.6	4.1
Ratio of actuarial accrued liability to payroll	5.6	6.1	6.2	6.0	5.7	5.7	5.5	5.2	5.1	5.3
Ratio of actives to retirees and beneficiaries	1.1	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.4
Ratio of net cash flow to market value of assets	0.0%	-2.8%	-3.8%	-4.3%	-4.2%	-3.8%	-3.5%	-3.3%	-4.6%	-4.3%
Duration of the actuarial accrued liability*	12.1	12.0	12.0	12.1	11.6	11.7				

*Duration measure not available before 2018

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the actuarial accrued liability would increase approximately 10% if the assumed rate of return were lowered 1%.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

Low-Default-Risk Obligation Measure

In Actuarial Standards of Practice No. 4 (ASOP No. 4) was revised and reissued in December 2021 by the Actuarial Standards Board (ASB). It includes a new calculation called a low-default-risk obligation measure (LDROM) to be prepared and issued annually for defined benefit pension plans. The transmittal memorandum for ASOP No. 4 includes the following explanation:

"The ASB believes that the calculation and disclosure of this measure provides appropriate, useful information for the intended user regarding the funded status of a pension plan. The calculation and disclosure of this additional measure is not intended to suggest that this is the "right" liability measure for a pension plan. However, the ASB does believe that this additional disclosure provides a more complete assessment of a plan's funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date."

The LDROM estimates the amount of money the plan would need to invest in low risk securities to provide the benefits with greater certainty. The current model expects lower costs but with higher risk, which creates less certainty and a possibility of higher costs. The LDROM model creates higher expected costs but more predictability when compared to the current model. Thus, the difference between the two measures (Valuation and LDROM) is one illustration of the possible costs the sponsor could incur if there was a reduction in the investment risk in comparison to the current diversified portfolio. However, the downside risk would be limited in the scenarios where the current portfolio would fail to achieve returns in excess of the low-default-risk discount, in this case 5.15%. The following information has been prepared in compliance with this new requirement. Unless otherwise noted, the measurement date, actuarial cost methods, and assumptions used are the same as for the funding valuation covered in this actuarial valuation report.

A. LDROM measure of benefits earned as of the measurement date:	$59,717 million
B. Valuation liability at 7% on measurement date:	$47,992 million
C. Cost to mitigate investment risk in the System's portfolio:	$11,725 million

Disclosures: Discount rate used to calculate LDROM: 5.15% Intermediate FTSE Pension Discount Curve as of August 31, 2023. This measure may not be appropriate for assessing the need for or amount of future contributions as the current portfolio is expected to generate significantly more investment earnings than the low-default-risk portfolio. This measure is also not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation as this measure includes projections of salary increases and the ability for current members to continue to accrue eligibility and vesting service.

SECTION E

SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions for Employees Retirement System of Texas

Classes of Membership

1. Elected Class Membership:
    a. Membership is optional and limited to:
        i. Elected State officials not covered by either of the Judicial Retirement Systems;
        ii. Members of the Legislature; and
        iii. District and Criminal District Attorneys paid by the State general revenue fund.
2. Employee Class Membership:
    a. Membership is mandatory for all employees and appointed officers of every department, commission, board, agency, or institution of the State except for:
        i. Independent contractors;
        ii. Persons covered by the Teacher Retirement System or either of the Judicial Retirement Systems; and
        iii. Employee Class Members already receiving retirement benefits under the System.
    b. Includes two types of Employee Class service:
        i. CPO/CO: Certified Peace Officer / Custodial Officer – in general, service rendered while a law enforcement officer, custodial officer, parole officer or caseworker (collectively referred to as "LECOs"); and
        ii. Regular: Non-CPO/CO service.
    c. Prior to September 1, 2015, membership begins after a 90-day waiting period. Effective September 1, 2015, membership begins immediately.

Member Contributions

1. Elected Class (for all members hired before September 1, 2022):
    a. *Legislators*:
        i. *Fiscal year 2015:* 8.00% of compensation
        ii. *Fiscal year 2016 and beyond:* 9.50% of compensation
    b. *Non-legislators*:
        i. *Fiscal year 2015:* 6.90% of compensation
        ii. *Fiscal year 2016 and beyond:* 9.50% of compensation. Beginning in fiscal year 2018, the 9.50% will be reduced one-tenth of one percent for each one-tenth of one percent that the State contribution rate for the fiscal year to which the service relates is less than the State contribution rate established for the 2017 fiscal year.

2. Employee Class (for all members hired before September 1, 2022):

    a. *Fiscal year 2015*: 6.90% of compensation

    b. *Fiscal year 2016 and beyond*: 9.50% of compensation. Beginning in fiscal year 2018, the 9.50% will be reduced one-tenth of one percent for each one-tenth of one percent that the State contribution rate for the fiscal year to which the service relates is less than the State contribution rate established for the 2017 fiscal year.

    c. Additional member contributions may be allowable for service purchases.

3. Member contributions cease when a member's benefit accrual has reached 100% of Average Monthly Compensation.

4. Member contributions accumulate interest at 5.00% per year through December 31, 2013 and 2.00% interest per year, thereafter.

5. For all members hired on or after September 1, 2022: 6.00% of compensation.

State of Texas and Employer Contributions

State and employer contributions are set biennially by the legislature. The current projected contribution rates, as a percentage of compensation, are shown below. In addition, the State makes contributions for lump-sum death benefits, establishing service not previously established, and annual membership fees. State payroll contributions cease when a member's benefit accrual has reached 100% of Average Monthly Compensation.

	FY2015	**FY2016 and beyond**
Employer (agency appropriations)	0.50%	0.50%
State (statewide appropriations)	7.50%	9.50%

Additionally, Texas Government Code Section 815.407 provides for Legacy Payments that are actuarially determined State contributions necessary to eliminate the UAAL by no later than August 31, 2054. For the 2024-2025 biennium, the Legacy Payments were budgeted at $510 million annually.

Return to Work Surcharge

For members who, on or after September 1, 2009, retire from the employee class and are rehired as a retiree into a position that would otherwise include membership in the employee class, the department or agency that employs the member must remit to the retirement system an amount equal to the amount of the State contribution that the department or agency would remit for an active member employed in the person's position.

Compensation

Compensation includes base salary, longevity and hazardous duty pay and excludes overtime pay. This amount is limited by Section 401(a)(17) of the Internal Revenue Code for members hired after August 31, 1996.

Average Monthly Compensation (AMC)

1. Elected Class Service:

    a. *Elected class members other than district attorneys or criminal district attorneys*: The State base salary, excluding longevity pay, of a district judge, as adjusted from time to time.

b. *District attorneys and criminal district attorneys*: The State salary, excluding longevity pay, of a district judge of the same number of years of service credit as the member on the member's last day of service as a district or criminal district attorney, as adjusted from time to time.

2. Employee Class Service:

   a. *Members hired prior to September 1, 2009*: Average of the 36 highest months of compensation for service in the employee class of membership

   b. *Members hired on or after September 1, 2009 and prior to September 1, 2013*: Average of the 48 highest months of compensation for service in the employee class of membership

   c. *Members hired on or after September 1, 2013 and prior to September 1, 2022*: Average of the 60 highest months of compensation for service in the employee class of membership

Creditable Service

The types of service creditable in ERS are membership service, military service and equivalent membership service. Equivalent membership service includes: previously cancelled service, service not previously established, waiting period service, and Additional Service Credit.

Unused Sick and Annual Leave

In many cases, unused sick and annual leave can be used to establish Creditable Service. Members hired prior to September 1, 2009 can use unused sick and annual leave to satisfy service requirements for Retirement and Death Benefit Plan eligibility as well as to calculate plan benefits. Members hired on or after September 1, 2009 can only use unused sick and annual leave to calculate plan benefits. However, members hired on or after September 1, 2013 cannot use unused annual leave to calculate plan benefits if the member opts to receive the unused annual leave as a lump-sum payment. Creditable Service in the Elected Class is not granted for unused sick and annual leave.

Cash Balance Benefit for Members hired on or after September 1, 2022

Member's hired on or after September 1, 2022 will be eligible for the cash balance benefit. Members eligible for the cash balance benefit will contribute 6% of compensation on an ongoing basis. The member's contribution balance will be accumulated each year with the member's contributions plus an Annual Interest Adjustment and, if applicable, a Gain Sharing Interest Adjustment. The Annual Interest Adjustment is equal to 4% of the member's accumulated account balance.

In years when the five-year average of ERS' total Trust Fund investment returns exceeds 4%, the member's accumulated account balance will also receive a Gain Sharing Interest Adjustment equal to 50% of the return in excess of 4%—up to 3% additional per year. The gain sharing amount will not be less than 0% nor greater than 3% in a given year.

At retirement, the member's accumulated account balance (contributions plus Annual Interest Adjustments plus Gain Sharing Interest Adjustments) will be matched by 150% from the State. The member will receive a cash balance annuity equal to this total amount annuitized over the life expectancy of the member as of the effective date of the member's retirement. The annuity factors will be based on 4% interest and mortality tables adopted by the ERS Board.

Members that leave active employment before retirement but leave their contributions on account with ERS will continue to receive Annual Interest Adjustments and Gain Sharing Interest Adjustments each year. The member can annuitize their accumulated account balance, along with the State match, once they are eligible to commence their annuity.

Once retired, the member's cash balance annuity will also be eligible for the Gain Sharing Interest Adjustment in the form of an increase in their benefit equal to the same percentage of gain-sharing interest credited to non-retired member's accounts.

Standard Service Retirement Annuity

1. Elected Class:
   a. *Eligibility*:
      i. Age 60 and eight years of elected class service; or
      ii. Age 50 and 12 years of elected class service.
   b. *Benefits:*
      i. *Members hired prior to September 1, 2022*: 2.3% of AMC times years of Creditable Service, adjusted automatically based on the State base salary of a district judge. Alternatively, an elected class member may elect to transfer their elected class service to the employee class in order to have their AMC based on actual compensation. However, if the elected service is transferred to the employee class, the member forfeits increases based on changes in the State base salary of a district judge unless the service is transferred back to the elected class.
      ii. *Members hired on or after September 1, 2022*: Cash balance benefit.
2. Employee Class:
   a. *Eligibility*:
      i. *Members hired prior to September 1, 2009*: Age 60 with five years of employee class service
      ii. M*embers hired on or after September 1, 2009 and prior to September 1, 2022*: Age 65 with 10 years of employee class service
      iii. Five years of service and age plus employee class service is at least 80 (Rule of 80)
      iv. Age 55 with 10 years of CPO/CO service
      v. Any age with 20 years of CPO/CO service
      vi. *Members hired on or after September 1, 2022*: Age 65 with 5 years of employee class service
   b. *Benefits:*
      i. Members hired prior to September 1, 2022: 2.3% of AMC times years of Creditable Service
      ii. Members hired on or after September 1, 2022: Cash balance benefit.
   c. *Applicable Reductions for eligibilities 2.a.iii. and 2.a.iv.:*
      i. For members hired prior to September 1, 2009, none.
      ii. For members hired on or after September 1, 2009, but prior to September 1, 2013, reduced five percent for each year the member retires prior to age 60, with a maximum possible reduction of 25 percent.

iii. For members hired on or after September 1, 2013, but prior to September 1, 2022, reduced five percent for each year the member retires prior to age 62, with no maximum possible reduction.

iv. For members hired on or after September 1, 2022, none.

d. *Applicable Reductions for eligibility 2.a.v.:*

i. For members hired prior to September 1, 2009, retiring after attaining age 50 or after attaining Rule of 80, there is no reduction. Otherwise, the member receives the percentage of the benefit stated in the following table:

Attained Age at Retirement	Reduction Percentage	Attained Age at Retirement	Reduction Percentage
36	31.2%	43	55.3%
37	33.9%	44	60.1%
38	36.7%	45	65.3%
39	39.8%	46	71.1%
40	43.2%	47	77.3%
41	46.9%	48	84.2%
42	50.9%	49	91.7%

ii. For members hired after on or after September 1, 2009, but prior to September 1, 2013, reduced five percent for each year the member retires prior to age 55, with a maximum possible reduction of 25 percent.

iii. For members hired on or after September 1, 2013 but prior to September 1, 2022, reduced five percent for each year the member retires prior to age 57, with no maximum possible reduction.

iv. For members hired on or after September 1, 2022, none.

3. Normal Form of Payment: Payable for the life of the member with any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Standard Non-Occupational Disability Annuity

1. Elected Class:

a. *Eligibility*:

i. 8 years of elected class service; or

ii. 6 years of elected class service plus 2 years of pre-1978 military service; and

iii. Not eligible for a Standard Service Retirement Annuity.

b. Benefits:

i. Members hired prior to September 1, 2022: 2.3% of AMC times years of Creditable Service, adjusted automatically based on the State base salary of a district judge.

ii. Members hired on or after September 1, 2022: Cash balance benefit. The ERS Board may also enter into agreements to provide additional disability benefits.

2. Employee Class:

    a. *Eligibility*:

        i. 10 years of employee class service; and

        ii. Not eligible for a Standard Service Retirement Annuity on the basis of Rule of 80 or age 55 and 10 years of CPO/CO Service.

    b. Benefits:

        i. Members hired prior to September 1, 2022: 2.3% of AMC times years of Creditable Service

        ii. Members hired on or after September 1, 2022: Cash balance benefit. The ERS Board may also enter into agreements to provide additional disability benefits.

    c. Applicable Reductions: Actuarially reduced from the age that the member would have been eligible for Standard Service Retirement Annuity

3. Normal Form of Payment: Annuity payable for life or until member is no longer incapacitated for the performance of duty. Any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Standard Occupational Disability Annuity

1. Elected Class:

    a. *Eligibility*: Disability as a direct result of some risk or hazard inherent to employment

    b. *Benefits:*

        i. *Members hired prior to September 1, 2022*: 2.3% of AMC times years of Creditable Service, but not less than 18.4% of AMC, adjusted automatically based on the State base salary of a district judge.

        ii. *Members hired on or after September 1, 2022*: Cash balance benefit. The ERS Board may also enter into agreements to provide additional disability benefits.

2. Employee Class (Regular State Employees):

    a. *Eligibility*: Disability as a direct result of some risk or hazard inherent to employment

    b. *Benefits:*

        i. *Members hired prior to September 1, 2022*: 2.3% of AMC times years of Creditable Service, but not less than 35% of AMC

        ii. *Members hired on or after September 1, 2022:* Cash balance benefit. The ERS Board may also enter into agreements to provide additional disability benefits.

3. Employee Class (LECO Members):

    a. *Eligibility*: Disability as a direct result of some risk or hazard inherent to law enforcement or custodial duties

        i. Total: Incapable of substantial gainful activity and eligible for Social Security disability benefits

        ii. Non-total: Does not satisfy definition of Total Disability

b. *Benefits for Members hired prior to September 1, 2022:*

   i. Non-total with less than 20 years of CPO/CO Service: 2.3% of AMC times years of Creditable Service, but not less than 50% of AMC. 15% of AMC payable from LECOSRF and the remaining 35% of AMC is payable from the ERS trust

   ii. Non-total with 20 years of CPO/CO Service: 2.3% of AMC times years of Creditable Service

   iii. Total: 2.3% of AMC times years of Creditable Service, but not less than 35% of AMC. The annuity shall be increased to a monthly amount computed based on the maximum salary authorized under the position classification salary schedule prescribed by the General Appropriations Act, as adjusted from time to time, applicable to the position from which the person retired.

c. *Benefits for Members hired on or after September 1, 2022*: Cash balance benefit. The ERS Board may also enter into agreements to provide additional disability benefits.

4. Normal Form of Payment: Annuity payable for life or until member is no longer incapacitated for the performance of duty. Any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Occupational Disability Lump-Sum Death Benefit

If a member receiving an occupational disability retirement annuity dies and it is determined that the death was an occupational death, a lump-sum death benefit is payable in an amount equal to one year's salary, computed on the basis of the retiree's rate of compensation at the time of disability retirement, and payable to a surviving spouse or dependent minor child.

Death Benefit Plan (DBP) Annuity

1. Eligibility:

   a. 10 years of employee class service; or

   b. Eligible for Standard Service Retirement Annuity at time of death.

2. Benefits:

   a. *Members hired prior to September 1, 2022*: Benefits are calculated as if the member had elected an optional form of payment, received a standard service retirement annuity, and died immediately thereafter. If the member dies before becoming eligible for the Standard Service Retirement Annuity, the benefit is reduced for early retirement as follows:

      i. With 12 years of elected class service, the benefit is actuarially reduced from the member's age 50,

      ii. With 10 years of CPO/CO service, the benefit is actuarially reduced from the member's age 55,

      iii. With five years of employee class service for members hired before September 1, 2009 or eight years of elected class service, the benefit is actuarially reduced from the member's age 60, and

      iv. With 10 years of employee class service for members hired on or after September 1, 2009, the benefit is actuarially reduced from the member's age 65.

b. *Members hired on or after September 1, 2022*: Cash balance benefit. The ERS Board may also enter into agreements to provide additional death benefits.

Pre-Retirement Death Refund Alternative

A refund of accumulated contributions is payable in cases of pre-retirement death where the member did not meet the eligibility requirements for a Death Benefit Plan Annuity, or the eligible beneficiary chooses to receive a refund of the member account balance in lieu of an annuity. For members hired prior to September 1, 2022, this amount is increased by 5% of the member's account balance at death, times full years of service credit at death, to a maximum of 100%.

Occupational Death Lump-Sum Benefit

If an active member dies and it is determined that the death was an occupational death, a lump-sum death benefit is payable to members hired prior to September 1, 2022 in an amount equal to one year's salary, computed on the basis of the member's rate of compensation at the time of death and payable to a surviving spouse or dependent minor child in addition to any other death benefits.

Post-Retirement Death General Lump-Sum Benefit

$5,000 upon the death of a retired member. This amount is funded separately by the State and not reflected in this valuation.

Deferred Service Retirement Annuity

1. Elected Class:
    a. *Eligibility*: Eight years of elected class service
    b. *Benefits:*
        i. *Members hired prior to September 1, 2022*: Standard Service Retirement Annuity payable at age 60 (or 50 with 12 years of elected class service)
        ii. *Members hired on or after September 1, 2022*: Cash balance benefit.
2. Employee Class:
    a. *Eligibility*:
        i. *Members hired prior to September 1, 2009*: Five years of employee class service
        ii. *Members hired on or after September 1, 2009, but prior to September 1, 2022*: 10 years of employee class service
        iii. *Members hired on or after September 1, 2022*: Five years of employee class service
    b. *Benefits:*
        i. *Members hired prior to September 1, 2009*: Standard Service Retirement Annuity payable at age 60
        ii. *Members hired on or after September 1, 2009, but prior to September 1, 2022*: Standard Service Retirement Annuity payable at age 65
        iii. *Members hired on or after September 1, 2022:* Cash balance benefit.
        iv. *Members with 10 years of CPO/CO service*: Standard Service Retirement Annuity payable at age 55

3. Normal Form of Payment: Payable for the life of the member with any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Refund of Accumulated Contributions

A refund of accumulated contributions is payable in cases where a terminated member did not meet the eligibility requirements for an annuity, or a terminated member chooses to receive a refund of his or her account balance in lieu of an annuity.

Maximum Benefits

Annuity benefits are limited to 100% of Average Monthly Compensation. For members with CPO/CO service, this benefit limitation includes benefits from all sources (ERS and the Law Enforcement and Custodial Officer Supplemental Retirement Fund).

Limit on Plan Modifications

According to Section 811.006 of the Texas Government Code – a rate of member or State contributions to or a rate of interest required for the establishment of credit in the retirement system may not be reduced or eliminated, a type of service may not be made creditable in the retirement system, a limit on the maximum permissible amount of a type of creditable service may not be removed or raised, a new monetary benefit payable by the retirement system may not be established, and the determination of the amount of a monetary benefit from the system may not be increased, if, as a result of the particular action, the time, as determined by an actuarial valuation, required to amortize the UAAL of the retirement system would be increased to a period that exceeds 30 years by one or more years.

SECTION F

ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees on May 20, 2020 based on the experience investigation that covered the five-year period from September 1, 2014 through August 31, 2019.

I. Valuation Date

The valuation date is August 31 of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

II. Actuarial Cost Method

The actuarial valuation is used to determine the adequacy of the State contribution rate (established by Legislative appropriation) and employer contribution rate (established by statute) and to describe the current financial condition of ERS.

The actuarial valuation uses the Entry Age Normal actuarial cost method. Under this method, the first step is to determine the contribution rate (level as a percentage of pay) required to provide the benefits to each member, or the normal cost rate. The normal cost rate consists of two pieces: (i) the member's contribution rate, and (ii) the remaining portion of the normal cost rate which is the employer's normal cost rate. The total normal cost rate is based on the benefits payable to each individual active member.

The Unfunded Actuarial Accrued Liability (UAAL) is the liability for future benefits which is in excess of (i) the actuarial value of assets, and (ii) the present value of future normal costs. The employer contribution provided in excess of the employer normal cost is applied to amortize the UAAL.

The funding period is calculated as the number of years required to fully amortize the UAAL, and is calculated with the use of an open group projection that takes into account: (a) future market earnings, net of investment-related expenses, will equal 7.00% per year, (b) there will be no changes in assumptions, (c) the number of active members will remain unchanged, (d) active members who leave employment will be replaced by new entrants each year, and (e) State and employer contributions will remain the same percentage of payroll as described in Section E of the valuation report.

The Entry Age actuarial cost method is an "immediate gain" method (i.e., experience gains and losses are separately identified as part of the UAAL). However, they are amortized over the same period applied to all other components of the UAAL.

III. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income. Offsetting unrecognized gains and losses are immediately recognized, with the shortest remaining bases recognized first and the net remaining bases continue to be recognized on their original timeframe. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of investment-related expenses.

IV. Actuarial Assumptions

Investment Return: 7.00% per year, net of investment-related expenses (composed of an assumed 2.30% inflation rate and a 4.70% real rate of return)

Administrative Expenses: 0.33% of valuation payroll per year

Salary Increases: Inflationary pay increases are assumed to occur at the beginning of the year and the remaining pay increases associated with merit, promotion and longevity are assumed to occur at the middle of the valuation year and vary by employee group. The components of the annual increases are:

Employee Group	Inflation	Real Wage Growth (Productivity)	Merit, Promotion and Longevity
Elected Class: Legislators	0%	0%	0%
Elected Class: District Attorneys	2.30%	0%	See salary structure below
Elected Class: Other than Legislators and District Attorneys	2.30%	0%	0%
Employee Class	2.30%	included in Merit, Promotion and Longevity Increases	See sample rates
State Base Salary of a District Judge*	2.30%	0%	0%
Inactive members who transfer to TRS**	2.30%	0%	2.50%

* Retirees from the Elected Class are assumed to receive post-retirement increases in accordance with changes in the State base salary of a district judge.

** Assumed in estimating benefits of former members who transfer to the Teacher Retirement System of Texas (TRS).

Sample Rates:

Annual Salary Increases for Merit, Promotion and Longevity Male and Female Regular State Employees							
	Years of Eligibility Service						
Age	0	1	2 - 4	5 - 9	10 - 14	15 - 19	20+
20	6.50 %	4.95 %	4.45 %	4.00 %			
25	6.10	4.95	4.45	3.20	2.20 %		
30	5.60	4.95	4.45	2.70	2.20	1.70 %	
35	5.10	4.45	3.70	2.70	2.20	1.70	1.60 %
40	4.60	4.45	3.70	2.70	2.20	1.60	1.50
45	4.10	3.95	3.45	2.70	2.10	1.60	1.40
50	3.60	3.40	2.90	2.40	1.90	1.40	1.30
55	3.10	2.90	2.50	2.10	1.60	1.30	1.20
60+	2.60	2.40	2.00	1.70	1.30	1.10	1.00

Annual Salary Increases for Merit, Promotion and Longevity Male and Female LECO Members						
	Years of Eligibility Service					
Age	0	1	2 -4	5 - 8	9 - 17	18+
All	6.45 %	4.45 %	2.95 %	1.95 %	1.70 %	1.45 %

District attorneys in the Elected Class are assumed to follow the judicial salary schedule of a district judge as prescribed in Section 659.012 of the Texas Government Code. The salary structure is illustrated below:

Annual Salary Increases for Merit, Promotion and Longevity Male and Female District Attorneys in the Elected Class			
	Years of Eligibility Service as a District Attorney		
Age	Less than 4	4 or more, but less than 8	8 or more
All	State base salary of a district judge	110% of base salary	120% of base salary

Payroll Growth: 2.70% per year, compounded annually.

New Entrant Wage Growth: 2.70% per year, compounded annually (for increasing new hire salary in open group projection).

New Entrant Profile: The average new hire is determined based on a new entrant profile, which is created from the valuation data by determining the entry age and entry pay for anyone with greater than or equal to three but less than eight years of service as of the valuation date. Each group of new hires' salaries is assumed to grow at the New Entrant Wage Growth of 2.70% over the salaries of the previous year's group.

Post-Retirement Increases for Elected Class Members: If benefits are based on the State base salary of a district judge, the benefits are assumed to increase 2.30% per year during retirement (each September 1), compounded annually, consistent with the assumed salary increase for a district judge. Increases are assumed to also occur during deferral periods (if any). Otherwise, no increases are assumed.

Post-Retirement Increase in Accordance with Section 814.604: Section 814.604 of the Texas Government Code provides for a one-time limited group of retirees to receive a permanent monthly annuity increase once the funding period will remain under the 31-year requirement after the increase is reflected. This timing of this COLA is assumed to be in January, 2025.

Age and Service Assumptions and Methods:

Eligibility Service:

Eligibility Service is considered to be all service eligible for vesting purposes, which includes service earned as a regular State employee, a LECO member, a member of the Elected Class, as State Judge, and service earned in the Teacher Retirement System of Texas ("TRS").

Benefit Service:

Current Benefit Service in years and months as of the valuation date was provided by ERS. This service plus Future Earned Service, Service Credit at Retirement, and Eligibility Service at Retirement were used to project benefit amounts.

Future Earned Service:

Active members were assumed to earn one additional year of service credit in each future year employed based on their current class of membership (but not beyond the amount of credit needed to provide a 100% of average monthly compensation standard service retirement annuity).

Service Credit at Retirement:

For regular State employees, Benefit Service when eligible for service retirement is assumed to be increased by:

- 1.0 years if age plus service, prior to adjustment, is greater than or equal to 80; and
- 0.5 years if age plus service, prior to adjustment, is less than 80.

(but not beyond the amount of credit needed to provide a 100% of average monthly compensation standard service retirement annuity).

For LECO members, Benefit Service when eligible for service retirement is assumed to be increased by:

- 1.0 years if CPO/CO service, prior to adjustment, is at least 20 years; and
- 0.5 years if CPO/CO service, prior to adjustment, is less than 20 years.

(but not beyond the amount of credit needed to provide a 100% of average monthly compensation standard service retirement annuity).

For the Elected Class members, there is no assumed increase in service credit when eligible for service retirement.

Entry Age:

Entry age is calculated as the age at the valuation date minus Eligibility Service (excluding TRS service).

Decrement Timing: All decrements – mortality, service retirement, disability retirement, and termination of employment for reasons other than death or retirement – are assumed to occur at the middle of the valuation year.

Mortality Decrements:

Service Retirees, Beneficiaries, and Inactive Members

2020 State Retirees of Texas (SRT) mortality table. Generational mortality improvements in accordance with the ultimate rates from the scales published through 2019 by Retirement Plans Experience Committee of the Society of Actuaries ("Ultimate MP") and projected from the year 2020. Rates for male LECO members are set forward one year. Sample rates for the base mortality table included below.

Annual Mortality Rates per 100 Individuals		
Age	Males	Females
40	0.0585	0.0369
45	0.1028	0.0667
50	0.1771	0.1179
55	0.3052	0.2086
60	0.5260	0.3691
65	0.9066	0.6530
70	1.5627	1.1554
75	2.6933	2.0443
80	4.6421	3.6170
85	8.0010	6.3997
90	13.8587	11.3793

Active Members

Pub-2010 General Employees Active Member Mortality table for non-LECO members. Pub-2010 Public Safety Active Member Mortality table for LECO members. Generational mortality improvements in accordance with the Ultimate MP scales are projected from the year 2010.

Disability Retirees

2020 State Retirees of Texas (SRT) mortality table, set forward three years for males and females. Minimum rates at all ages of 3.0% and 2.5% for males and females, respectively. Generational mortality improvements in accordance with the Ultimate MP scales are projected from the year 2020.

Occupational Death

1.0% of male and female active member deaths are assumed to be occupational.

Service Retirement Decrements: Graded Tables Based on ERS Experience

Active Regular State Employees

Service retirement rates are determined by the first set of eligibility requirements satisfied:

- Eligibility A: Age plus eligibility service is greater than or equal to 80 (“Rule of 80”)
- Eligibility B: Retirement eligibility other than Rule of 80

Adjustments to the base rates are made to account for age at first eligibility or reduced retirement benefits, based on date of hire (described below sample table).

Base rates for eligible members:

Annual Service Retirement Rates Regular State Employees (Males & Females)		
	Eligibility A	Eligibility B
Age	Rule of 80	Other Age/Service
<50	0.50	
50	0.40	
51	0.35	
52	0.30	
53	0.28	
54	0.27	
55	0.26	
56	0.25	
57	0.24	
58	0.23	
59	0.22	
60	0.21	0.18
61	0.20	0.12
62	0.33	0.20
63	0.27	0.18
64	0.27	0.18
65 -74	0.27	0.27
75	1.00	1.00

Adjustments for members hired before September 1, 2009:

- Eligibility A: Add 0.30 at age of 1st eligibility

Adjustments for members hired on or after September 1, 2009, but prior to September 1, 2013:

- Eligibility A: Add 0.30 at age 60

Adjustments for members hired on or after September 1, 2013, but prior to September 1, 2022:

- Eligibility A: If age of 1st eligibility is before age 62, then
  - rates prior to age 62 are multiplied by 75% for each year prior to age 62
  - the rate at age 62 is the base table rate plus 0.20 plus 0.06 times the number of years the age at 1st eligibility was before age 62

Adjustments for members hired on or after September 1, 2022:

- Eligibility A: rates prior to age 62 are multiplied by 75% for each year prior to age 62

<u>Active LECO Members</u>

Service retirement rates are determined by the first set of eligibility requirements satisfied:

- Eligibility A: 20 years of CPO/CO service
- Eligibility B: Age 55 and 10 years of CPO/CO service
- Eligibility C: Any eligibility pertaining to regular State employees (see rates and adjustments for regular State employees)

Adjustments to the base rates are made to account for age at first eligibility or reduced retirement benefits, based on date of hire (described below sample table).

Base rates for eligible members:

Annual Service Retirement Rates LECO Members (Males & Females)				
Eligibility A			Eligibility B	
Age	20 yrs CPO/CO		Age	Age 55 & 10 yrs CPO/CO
<48	0.03			
48	0.04		55	0.20
49	0.05		56	0.18
50	0.60		57	0.16
51 - 61	0.33		58 - 61	0.14
62 - 74	0.50		62 - 74	0.27
75	1.00		75	1.00

Adjustments for members hired before September 1, 2013:

- Eligibility A and B: Rate set to zero if member has 18 or 19 years of CPO/CO service. Rate is doubled if member has 20 years of CPO/CO service. Adjustments only apply to members that attain 20 years of CPO/CO service prior to age 65.

Adjustments for members hired on or after September 1, 2013 but prior to September 1, 2022:

- Eligibility A: If age of 1st eligibility is before age 57, then
  - rates prior to age 57 are multiplied by 75% for each year prior to age 57
  - the rate at age 57 is 100%
- Eligibility B: If member will attain 20 years of CPO/CO service at or before age 62, rates are zero prior to age 62 and 80% when member attains 20 years of CPO/CO service.
- Eligibility B: If member will attain 20 years of CPO/CO service after age 62, then
  - rates prior to age 62 are multiplied by 75% for each year prior to age 62
  - the rate at age 62 is the base table rate plus 0.06 times the number of years the age at 1st eligibility was before age 62

Adjustments for members hired on or after September 1, 2022:

- Eligibility A: If age of 1st eligibility is before age 57, then
  - rates prior to age 57 are multiplied by 75% for each year prior to age 57
  - the rate at age 57 is 100%

- Eligibility B: If member will attain 20 years of CPO/CO service at or before age 62, rates are zero prior to age 62 and 80% when member attains 20 years of CPO/CO service.
- Eligibility B: If member will attain 20 years of CPO/CO service after age 62, then rates prior to age 62 are multiplied by 75% for each year prior to age 62

Active Elected Class Members

Annual Service Retirement Rates Elected Class Members	
Age	Male and Female
50 - 61	0.10
62 - 74	0.20
75+	1.00

Disability Retirement Decrements: Graded Tables Based on ERS Experience

Active Regular State Employees

- The rates do not apply before someone is eligible for the benefit.
- 10 years of service is required for non-occupational disability retirement.
- Non-occupational disability rates are assumed to be zero once the sum of the member's age and eligibility service is greater than or equal to 80.

Active Elected Class Members

- The rates do not apply before someone is eligible for the benefit.
- No occupational disabilities are assumed for the elected class or judges.
- Eight years of service is required for non-occupational disability retirement.
- Non-occupational disability rates are assumed to be zero once the member has attained service retirement eligibility.

Sample rates for eligible regular State employees and elected class members:

Annual Disability Rates per 100 Participants		
	Regular State Employees and Elected Class	
Age	Males	Females
30	0.0275	0.0135
35	0.0650	0.0442
40	0.0749	0.0896
45	0.1027	0.1455
50	0.1484	0.2072
55	0.2477	0.3488
60	0.3740	0.5583

99% of the disability rates stated above are assumed to be attributable to non-occupational disabilities and 1% are assumed to be attributable to occupational disabilities. No occupational disabilities are assumed for the elected class.

Active LECO Members

- The rates do not apply before a member is eligible for the benefit.
- Service greater than zero is required for occupational disability retirement.
- 10 years of service is required for non-occupational disability retirement.
- Non-occupational disability rates are assumed to be zero once the sum of the member's age and eligibility service is greater than or equal to 80, or the member has attained age 55 with 10 or more years of CPO/CO service.

Sample rates for members:

Annual Disability Rates per 100 Participants LECO Members	
Age	Males and Females
30	0.0092
35	0.0314
40	0.0586
45	0.0980
50	0.1774
55	0.2460
60	0.3150

95% of the disability rates stated above are assumed to be attributable to non-occupational disabilities, 4.5% are assumed to be attributable to non-total occupational disabilities, and 0.5% are assumed to be attributable to total occupational disabilities.

Termination Decrements for Reasons Other Than Death or Retirement: Graded Tables Based on ERS Experience.

Rates of termination are zero for members eligible for service retirement. To account for active regular State employees and LECO members that accumulate additional eligibility service at retirement through converting sick/annual leave or other types of service purchases, termination rates are also set to zero in the year prior to first retirement eligibility.

Rates for members not eligible for service retirement:

<u>Active Regular State Employees</u>

Annual Rates of Termination per 100 Participants Regular State Employees		
	Male and Female	
Eligibility Service	Entry age 35 or younger	Entry age over 35
0	25.25	19.63
1	21.24	16.07
2	17.88	13.26
3	15.07	11.08
4	12.76	9.42
5	10.86	8.16
6	9.33	7.21
7	8.09	6.49
8	7.10	5.94
9	6.31	5.50
10	5.67	5.11
11	5.15	4.75
12	4.71	4.39
13	4.32	4.03
14	3.97	3.66
15	3.64	3.29
16	3.30	2.95
17	2.97	2.69
18	2.62	2.53
19	2.27	1.00
20	1.92	1.00
21	1.59	1.00
22	1.29	1.00
23	1.05	1.00
24	0.89	1.00
25+	0.85	1.00

Active LECO Members

Annual Rates of Termination per 100 Participants LECO Members	
Eligibility Service	Male and Female
0	26.45
1	22.10
2	17.66
3	14.35
4	11.91
5	10.13
6	8.82
7	7.83
8	7.03
9	6.35
10	5.70
11	5.08
12	4.49
13	3.94
14	3.53
15	3.34
16	2.88
17	1.15
18	1.15
19+	0.00

Elected Class Members: 4 per 100 participants for members not eligible for service retirement

Withdrawal of Employee Contributions: Members that terminate with a vested benefit are assumed to choose the most valuable option available to them at the time of termination: withdrawal of contributions or deferred annuity.

Percentage of Members Electing Various Benefit Options:

Sex / Benefit	Standard Life Annuity	Option 1	Option 4
Male Member			
Disability	50%	50%	0%
Service Retirement			
Non-LECO	100%	0%	0%
LECO	60%	40%	0%
Death Benefit Plan	0%	85%	15%
Female Member			
Disability	75%	25%	0%
Service Retirement	100%	0%	0%
Death Benefit Plan	0%	70%	30%

The value of the Standard Service Retirement Life Annuity reflects the return of excess contributions payable as a lump sum death benefit in cases the annuity benefits paid are less than the member account balance at the time of retirement.

Beneficiary Characteristics: Males are assumed to be two years older than females.

Transfers from ERS to TRS:

Contributing ERS members:

It is assumed that 10% of regular State employees and LECO members who cease contributing to ERS and do not withdraw employee contributions will transfer ERS service credit to TRS at retirement.

Noncontributing ERS Members:

Records of ERS and TRS are matched by ERS staff to determine former ERS members who are currently contributing under TRS.

TRS Retirement Age:

Former ERS members who are, or are assumed to become, contributing TRS members are assumed to continue to earn service credit under TRS until first eligible for unreduced service retirement benefits, retire at that time, and transfer ERS service credit to TRS.

Cash Balance Assumptions for New Entrants:

Interest Crediting

Members account balances are assumed to earn 5.50% per year through the 4.00% Annual Interest Adjustments plus 1.50% from the Gain Sharing Interest Adjustments.

Annuity Factors for Annuitizing Cash Balance Benefits

Members account balances are annuitized using factors with a 4% discount rate and valuation mortality, including generational projections.

Post-retirement Annuity Increase

Cash balance annuity benefits increase 1.50% from the Gain Sharing Interest Adjustments.

Benefits

The actuarial valuation anticipates clarifications to the cash balance benefits that are currently described in State statute. Specifically, these include:

- Standard Non-Occupational Disability Annuity incorporates a minimum benefit equal to 25% of the members salary,
- Standard Occupational Disability Annuity incorporates a minimum benefit equal to 35% of the members salary, and
- Elected Class members are assumed to maintain a benefit structure more consistent with the benefits payable to Elected Class members hired prior to September 1, 2022.

Census Data and Assets

- The valuation was based on members of ERS as of August 31, 2023 and does not take into account future members, with the exception of determining the funding period.
- All census data was supplied by ERS and was subject to reasonable consistency checks.
- There were data elements that were modified for some members as part of the valuation in order to make the data complete. However, the number of missing data items was immaterial.
- Asset data was supplied by ERS.

Other Actuarial Valuation Procedures

- No provision was made in this actuarial valuation for the limitations of Internal Revenue Code Sections 415 or 401(a)17.
- Valuation payroll (earnings applied to the current valuation year) is the expected payroll for the fiscal year following the valuation date. It is based on reported payroll determined from August member contributions increased to reflect the across-the-board salary increases appropriated by the State legislature, effective on or after September 1, and projected according to the actuarial assumptions for the upcoming fiscal year.
- No liability was included for benefits which are funded by special State appropriations.
- State appropriations for membership fees are currently immaterial in relation to the overall payroll contributions and have been ignored.

Actuarial Model

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

SECTION G

DETAILED SUMMARIES OF MEMBERSHIP DATA

Detailed Summaries of Membership Data

Table A

Summary of Membership Data

Active Members

Item	Male	Female	Regular State Employees	Elected Class	LECO Members	Total
Number of Members	56,225	77,526	107,882	332	31,744	139,958
Average Annual Salaries	$ 60,034	$ 52,826	$ 62,356	$ 76,813	$ 56,607	$ 61,086
Average Age	44.2	44.1	44.5	54.7	42.1	44.0
Average Entry Age	35.5	35.8	36.2	45.3	34.2	35.8
Average Service	8.7	8.3	8.3	9.4	7.9	8.2

Annuitants

Item	Number	Annual Annuities	Average Annuities	Average Age
Service Retirees*	112,892	$ 2,568,403,332	$ 22,751	70.3
Beneficiaries	9,694	$ 150,720,372	$ 15,548	75.0
Disability Retirees	1,918	$ 18,061,260	$ 9,417	69.1
Total	124,504	$ 2,737,184,964	$ 21,985	70.6

* Average Age and Service at Retirement for Service Retirees are 58.4 and 22.1, respectively

Inactive Members Assumed Eligible for Deferred Annuities

Item	Number	Annual Annuities	Average Annuities	Average Age
Vested Members who are not Active at TRS	11,753	$ 153,076,656	$ 13,024	51.5
Vested Members who are Active at TRS	2,857	$ 60,352,212	$ 21,124	52.1
Total	14,610	$ 213,428,868	$ 14,608	51.6
Non-vested Members who are Active at TRS	16,191	$ 57,598,848	$ 3,557	45.0

Non-vested Inactive Members

Item	Number	Account Balances	Average Account Balance	Average Age
Non-vested Members who are not Active at TRS	133,311	$ 536,636,358	$ 4,025	41.4
Non-vested Members who are Active at TRS	16,191	$ 95,836,773	$ 5,919	45.0
(this group assumed eligible for deferred annuities)				
Total	149,502	$ 632,473,131	$ 4,231	41.8

Table B

Active Members – All Members

Distribution by Age and Service

Age	Years of Service 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
Under 25	8,932	57								8,989
	$ 39,703	$ 50,100								$ 39,769
25 - 29	11,102	1,808	39							12,949
	$ 49,142	$ 60,868	$ 55,818							$ 50,799
30 - 34	9,590	5,073	972	20						15,655
	$ 52,040	$ 65,391	$ 66,815	$ 63,469						$ 57,298
35 - 39	8,036	5,048	3,155	1,147	42					17,428
	$ 53,930	$ 66,305	$ 72,675	$ 71,542	$ 74,217					$ 62,116
40 - 44	7,025	4,342	3,145	2,777	1,019	74				18,382
	$ 54,685	$ 65,409	$ 71,212	$ 79,089	$ 79,278	$ 81,110				$ 65,202
45 - 49	6,057	3,679	2,607	2,415	2,307	1,099	41			18,205
	$ 54,169	$ 64,901	$ 68,549	$ 75,625	$ 81,484	$ 82,748	$ 97,719			$ 66,528
50 - 54	5,630	3,651	2,653	2,288	2,152	1,638	362	16		18,390
	$ 54,310	$ 63,671	$ 66,795	$ 72,148	$ 79,479	$ 85,296	$ 99,825	$109,103		$ 66,838
55 - 59	4,380	3,035	2,350	2,049	1,387	876	522	119	5	14,723
	$ 53,597	$ 61,858	$ 64,773	$ 67,382	$ 74,400	$ 83,855	$ 89,361	$ 96,898	$ 65,592	$ 64,385
60 - 64	2,681	2,491	1,913	1,367	695	455	314	164	35	10,115
	$ 52,398	$ 61,209	$ 63,727	$ 67,706	$ 74,996	$ 80,045	$ 87,793	$ 93,235	$ 85,931	$ 63,453
Over 64	1,178	1,398	1,000	629	387	224	166	101	39	5,122
	$ 52,183	$ 61,399	$ 63,773	$ 69,586	$ 71,980	$ 78,883	$ 81,156	$ 88,155	$ 85,980	$ 63,668
Total	64,611	30,582	17,834	12,692	7,989	4,366	1,405	400	79	139,958
	$ 50,880	$ 64,110	$ 68,083	$ 72,885	$ 78,370	$ 83,418	$ 90,981	$ 93,676	$ 84,668	$ 61,086

Table C

Active Members – Regular State Employees

Distribution by Age and Service

Age	Years of Service 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
Under 25	5,992 $ 38,592	35 $ 51,304								6,027 $ 38,666
25 - 29	8,415 $ 49,870	1,086 $ 60,898	25 $ 53,514							9,526 $ 51,137
30 - 34	7,622 $ 53,222	3,629 $ 64,826	589 $ 67,318	14 $ 58,896						11,854 $ 57,481
35 - 39	6,372 $ 55,634	4,018 $ 67,388	2,305 $ 73,256	711 $ 72,103	18 $ 73,173					13,424 $ 63,074
40 - 44	5,583 $ 56,476	3,440 $ 67,302	2,466 $ 73,052	2,026 $ 80,207	612 $ 78,322	48 $ 82,329				14,175 $ 66,410
45 - 49	4,741 $ 55,951	2,915 $ 67,093	2,056 $ 70,096	1,814 $ 77,406	1,639 $ 81,827	638 $ 84,118	31 $ 94,381			13,834 $ 67,665
50 - 54	4,478 $ 55,838	2,872 $ 65,984	2,055 $ 68,862	1,769 $ 74,298	1,817 $ 78,785	1,296 $ 82,741	286 $ 94,365	13 $ 96,816		14,586 $ 67,950
55 - 59	3,421 $ 55,214	2,381 $ 64,014	1,857 $ 66,681	1,682 $ 68,720	1,246 $ 74,139	768 $ 83,257	460 $ 86,887	101 $ 91,970	5 $ 65,592	11,921 $ 65,986
60 - 64	2,079 $ 53,800	2,017 $ 63,380	1,552 $ 65,133	1,147 $ 69,170	614 $ 75,762	423 $ 80,527	298 $ 87,059	159 $ 93,302	35 $ 85,931	8,324 $ 65,411
Over 64	884 $ 54,455	1,107 $ 63,951	813 $ 65,761	549 $ 70,773	353 $ 73,256	213 $ 80,291	157 $ 81,531	97 $ 91,012	38 $ 88,053	4,211 $ 66,299
Total	49,587 $ 52,242	23,500 $ 65,600	13,718 $ 69,543	9,712 $ 74,157	6,299 $ 77,992	3,386 $ 82,681	1,232 $ 88,171	370 $ 92,461	78 $ 85,661	107,882 $ 62,356

Table D

Active Members – LECO Members

Distribution by Age and Service

	Years of Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
Under 25	2,940 $ 41,967	22 $ 48,185								2,962 $ 42,013
25 - 29	2,687 $ 46,859	721 $ 60,896	14 $ 59,933							3,422 $ 49,870
30 - 34	1,964 $ 47,409	1,443 $ 66,854	383 $ 66,041	6 $ 74,141						3,796 $ 56,723
35 - 39	1,647 $ 47,330	1,024 $ 61,980	849 $ 71,175	435 $ 70,774	24 $ 74,999					3,979 $ 58,918
40 - 44	1,422 $ 47,172	891 $ 57,818	670 $ 64,580	750 $ 75,949	407 $ 80,715	26 $ 78,862				4,166 $ 60,904
45 - 49	1,305 $ 47,355	752 $ 56,332	537 $ 61,829	597 $ 70,133	667 $ 80,752	461 $ 80,853	10 $108,065			4,329 $ 62,704
50 - 54	1,134 $ 47,524	769 $ 54,775	581 $ 59,148	512 $ 64,664	330 $ 83,949	341 $ 95,235	76 $120,372	3 $162,345		3,746 $ 62,280
55 - 59	931 $ 47,273	645 $ 53,155	479 $ 56,581	361 $ 60,830	137 $ 75,222	107 $ 87,365	62 $107,714	18 $124,548		2,740 $ 56,909
60 - 64	586 $ 47,048	467 $ 51,987	350 $ 56,187	218 $ 59,256	79 $ 66,684	31 $ 75,823	16 $101,473	5 $ 91,111		1,752 $ 53,727
Over 64	285 $ 45,158	281 $ 51,296	174 $ 54,148	67 $ 57,996	27 $ 62,187	10 $ 56,077	7 $ 93,886	1 $ 53,854		852 $ 51,107
Total	14,901 $ 46,143	7,015 $ 58,999	4,037 $ 62,815	2,946 $ 68,545	1,671 $ 79,873	976 $ 86,125	171 $112,210	27 $119,937		31,744 $ 56,607

Table E

Active Members – Elected Class Members

Distribution by Age and Service

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 25										
25 - 29		1 $ 7,200								1 $ 7,200
30 - 34	4 $ 73,600	1 $ 7,200								5 $ 60,320
35 - 39	17 $ 54,894	6 $ 78,735	1 $ 7,200	1 $ 7,200						25 $ 56,800
40 - 44	20 $ 88,880	11 $ 88,186	9 $ 60,800	1 $ 168,000						41 $ 84,460
45 - 49	11 $ 94,436	12 $ 69,533	14 $ 99,017	4 $ 87,600	1 $ 7,200					42 $ 86,120
50 - 54	18 $101,725	10 $ 83,400	17 $ 78,152	7 $ 76,114	5 $ 36,510	1 $ 7,200				58 $ 81,314
55 - 59	28 $ 66,372	9 $115,148	14 $ 91,987	6 $ 86,663	4 $127,800	1 $168,000				62 $ 86,802
60 - 64	16 $ 66,234	7 $ 51,143	11 $105,280	2 $ 149,506	2 $168,000	1 $ 7,200				39 $ 82,514
Over 64	9 $ 51,467	10 $ 62,840	13 $ 68,265	13 $ 79,230	7 $ 45,411	1 $ 7,200	2 $ 7,200	3 $ 7,200	1 $ 7,200	59 $ 57,243
Total	123 $ 75,255	67 $ 76,836	79 $ 83,577	34 $ 85,511	19 $ 71,307	4 $ 47,400	2 $ 7,200	3 $ 7,200	1 $ 7,200	332 $ 76,813

Table F

Retired and Beneficiary Members – Excluding ERS Reimbursing TRS Annuitants

Distribution by Age and Category

Age Last Birthday	Number	Annual Benefit	Average Annual Benefit
Service Retirees			
Under 60	13,676	458,102,628	33,497
60 - 64	17,334	496,680,720	28,654
65 - 69	22,430	541,570,152	24,145
70 - 74	22,600	476,936,844	21,103
75 - 79	16,222	312,293,988	19,251
Over 79	14,518	251,920,896	17,352
Total	106,780	2,537,505,228	23,764
Beneficiaries			
Under 60	1,006	13,715,556	13,634
60 - 64	626	10,903,512	17,418
65 - 69	1,045	15,972,564	15,285
70 - 74	1,556	23,791,776	15,290
75 - 79	1,794	27,207,756	15,166
Over 79	3,550	58,485,324	16,475
Total	9,577	150,076,488	15,671
Disabled Retirees			
Under 60	299	2,651,904	8,869
60 - 64	292	2,691,144	9,216
65 - 69	310	3,170,016	10,226
70 - 74	349	3,665,364	10,502
75 - 79	261	2,870,328	10,997
Over 79	244	2,490,684	10,208
Total	1,755	17,539,440	9,994
Grand Total	118,112	2,705,121,156	22,903

Table G

Retired and Beneficiary Members – Annuitants where ERS is Reimbursing TRS

Distribution by Age and Category

Age Last Birthday	Number	Annual Benefit	Average Annual Benefit
Service Retirees and Beneficiaries			
Under 60	412	2,973,504	7,217
60 - 64	722	4,730,952	6,553
65 - 69	1,362	7,744,056	5,686
70 - 74	1,658	8,321,028	5,019
75 - 79	1,195	4,892,652	4,094
Over 79	880	2,879,796	3,272
Total	6,229	31,541,988	5,064
Disabled Retirees			
Under 60	35	156,540	4,473
60 - 64	32	141,300	4,416
65 - 69	31	81,672	2,635
70 - 74	33	72,792	2,206
75 - 79	23	56,964	2,477
Over 79	9	12,552	1,395
Total	163	521,820	3,201
Grand Total	6,392	32,063,808	5,016

SECTION H

GLOSSARY

Glossary

Actuarial Accrued Liability (AAL): That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Plan Benefits which is not provided for by future Normal Costs. It is equal to the Actuarial Present Value of Future Plan Benefits minus the actuarial present value of future Normal Costs.

Actuarial Assumptions: Assumptions as to future experience under the Fund. These include assumptions about the occurrence of future events affecting costs or liabilities, such as:

- mortality, withdrawal, disablement, and retirement;
- future increases in salary;
- future rates of investment earnings and future investment and administrative expenses;
- characteristics of members not specified in the data, such as marital status;
- characteristics of future members;
- future elections made by members; and
- other relevant items.

Actuarial Cost Method or ***Funding Method:*** A procedure for allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability. These items are used to determine the ADC.

Actuarial Gain or ***Actuarial 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. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the Fund's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

Actuarially Equivalent: Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.

Actuarial Present Value (APV): The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.),
b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and
c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits: The Actuarial Present Value of those benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members either entitled to a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would be provide sufficient assets to pay all projected benefits and expenses when due.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB.

Actuarial Value of Assets or ***Valuation Assets:*** The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly actuaries use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.

Actuarially Determined: Values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

Amortization Method: A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.

Amortization Payment: That portion of the pension plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Actuarially Determined Contribution (ADC) or ***Annual Required Contribution (ARC):*** A calculated contribution for a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the calculated contribution has a normal cost payment and an amortization payment.

Closed Amortization Period: A specific number of years that is counted down by one each year and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Funding Period and Open Amortization Period.

Decrements: Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.

Defined Benefit Plan: An employer-sponsored retirement benefit that provides workers, upon attainment of designated age and service thresholds, with a monthly benefit based on the employee's salary and length of service. The value of a benefit from a defined benefit plan is generally not affected by the return on the assets that are invested to fund the benefit.

Defined Contribution Plan: A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, and the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.

Employer Normal Cost: The portion of the Normal Cost to be paid by the employers. This is equal to the Normal Cost less expected member contributions.

Experience Study: A periodic review and analysis of the actual experience of the Fund which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

Funded Ratio: The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.

Funding Period or ***Amortization Period:*** The term "Funding Period" is used it two ways. In the first sense, it is the period used in calculating the Amortization Payment as a component of the ADC. This funding period is chosen by the Board of Trustees. In the second sense, it is a calculated item: the number of years in the future that will theoretically be required to amortize (i.e., pay off or eliminate) the Unfunded Actuarial Accrued Liability, based on the statutory employer contribution rate, and assuming no future actuarial gains or losses.

GASB: The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.

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. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits which are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated. Under the entry age normal cost method, the Normal Cost is intended to be the level cost (when expressed as a percentage of pay) needed to fund the benefits of a member from hire until ultimate termination, death, disability or retirement.

Open Amortization Period: An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.

Unfunded Actuarial Accrued Liability: The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.

Valuation Date or ***Actuarial Valuation Date:*** The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date

Law Enforcement and Custodial Officer Supplemental Retirement Fund of the Employees Retirement System of Texas

Annual Actuarial Valuation - Funding

As of August 31, 2023

P: 469.524.0000 | www.grsconsulting.com

November 27, 2023

Board of Trustees
Employees Retirement System of Texas
200 East 18th Street
Austin, TX 78701

Re: Actuarial Valuation for Funding Purposes as of August 31, 2023

Members of the Board:

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the Law Enforcement and Custodial Officer Supplemental Retirement Fund (LECOSRF) of the Employees Retirement System of Texas as of August 31, 2023. This report was prepared at the request of the Board and is intended for use by ERS staff and those designated or approved by the Board. This report may be provided to parties other than ERS only in its entirety and only with the permission of the Board.

Actuarial Valuation

The primary purposes of the actuarial valuation report are to determine the adequacy of the current State and employer contribution rates, describe the current financial condition of LECOSRF, analyze changes in the condition of LECOSRF, and provide various summaries of the data.

2023 Legislative Session and New Funding Dynamic

Prior to the 2023 legislative session, LECOSRF was significantly underfunded and contributions were insufficient to pay the ongoing costs of the plan. The plan assets were expected to be depleted in 2045.

House Bill 1 appropriated a one-time special contingency contribution of $772 million to LECOSRF to eliminate the unfunded liability and increased the State contribution from 0.5% to 1.75% of payroll. **As a result of these changes, LECOSRF is fully funded as of the valuation date and, barring adverse experience, is expected to remain so in the future.**

The House Bill appropriation was received in the fund *after the valuation date* on September 8, 2023. The appropriation created a profound shift in the plan's funding needs. For purposes of determining the funding valuation results, we have determined an "adjusted market value of assets" which includes this appropriation.

5605 North MacArthur Boulevard | Suite 870 | Irving, Texas 75038-2631

Plan Provisions

Our actuarial valuation as of August 31, 2023 reflects the benefit and contribution provisions set forth in Chapters 811 through 815 and Chapter 820 of the Texas Government Code with respect to the amounts payable from the Law Enforcement and Custodial Officer Supplemental Retirement Fund. The current plan provisions are outlined in Section E of this report.

Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees on May 20, 2020 based on the experience investigation that covered the five-year period from September 1, 2014 through August 31, 2019. The current actuarial assumptions and methods are outlined in Section F of this report.

Data

This valuation was based upon information as of August 31, 2023, furnished by ERS staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by ERS staff.

Certification

All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of, where applicable, the Internal Revenue Code and ERISA.

The signing actuaries are independent of the plan sponsor. Ms. Woolfrey and Mr. Newton are Enrolled Actuaries and Fellows of the Society of Actuaries, and all of the undersigned are Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries. Finally, each of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

Dana Woolfrey, FSA, EA, MAAA
Senior Consultant & Actuary

Joseph P. Newton, FSA, EA, MAAA
Pension Market Leader & Actuary

Thomas J. Bevins, ASA, MAAA
Consultant & Actuary

Table of Contents

SECTION A

EXECUTIVE SUMMARY

Executive Summary

Item	2023	2022
Membership		
• Number of		
- Active members	31,744	31,075
- Retirees and beneficiaries	16,368	15,923
- Inactive, vested	99	104
- Inactive, nonvested	34,983	32,267
- Total	83,194	79,369
• Valuation Payroll	$ 1,796,933,176	$ 1,668,172,418
Statutory contribution rates	FY 2024	FY 2023
• Members*	0.68%	0.50%
• State	1.75%	0.50%
• Expected contributions from court fees	0.83%	0.78%
Total	3.26%	1.78%
Ongoing plan costs / normal cost rate	2.11%	1.94%
Contributions sufficient to pay ongoing plan costs?	Yes	No
Assets		
• Market value (MVA)	$ 1,046,670,314	$ 1,042,295,797
• Adjusted MVA	$ 1,818,670,314	N/A
• Actuarial value (AVA)	$ 1,799,822,260	$ 1,014,061,586
• Return on market value (gross)	6.75%	-1.55%
Return on market value (net)	6.72%	-1.59%
• Return on actuarial value	8.2%	8.8%
Actuarial Information on AVA - smoothed		
• Actuarial accrued liability	$ 1,799,711,133	$ 1,729,354,968
• Unfunded actuarial accrued liability (UAAL)	$ (111,127)	$ 715,293,382
• Funded ratio	100.0%	58.6%
Actuarial Information on MVA		
• Unfunded actuarial accrued liability (UAAL)	$ (18,959,181)	$ 687,059,171
• Funded ratio	101.1%	60.3%

* Member contributions are 0.50% of compensation for all members hired before September 1, 2022 and 2.00% for members hired on or after September 1, 2022. The rate shown reflects a blend of these categories of contributing members.

Executive Summary

As a result of House Bill 1, the plan is now fully funded and contributions are expected to exceed the ongoing costs of the plan. Thus, it is expected that the plan will remain fully funded in the future if all assumptions are met. Total contributions during fiscal year 2024 are expected to be 3.26% of pay, while the ongoing or normal cost rate of the plan is 2.11%, indicating that contributions are sufficient to cover ongoing plan costs.

It should be noted that the contribution amount attributable to court fees is not anticipated to keep up with expected payroll growth and is expected to decrease as a percent of pay over time. However, the statutory rates are sufficient to pay the normal cost rate without any contributions from court fees. Thus, the funding approach is expected to be sustainable regardless of the trajectory of court fees.

SECTION B

DISCUSSION

Discussion

Introduction

This report presents the results of the August 31, 2023 actuarial valuation of the Law Enforcement and Custodial Officer Supplemental Retirement Fund (LECOSRF) of the Employees Retirement System (ERS) of Texas.

The primary purposes of this actuarial valuation report are to determine the adequacy of the current State and employer contribution rates, describe the current financial condition of LECOSRF, analyze the changes in the condition of LECOSRF, and provide various summaries of the data.

The $772 million appropriation to LECOSRF and increased State contribution rate as a percentage of payroll that resulted from House Bill 1 significantly changed the outlook for LECOSRF from being on a path to insolvency to being fully funded as of the valuation date. The total expected contribution for the current fiscal year exceeds the total normal cost and is expected to maintain the plan's fully funded status, barring adverse experience.

All of the tables referenced in the following discussion appear in Section C of this report.

Plan Provisions

There were no changes to the plan provisions during the past year. However, this is the first actuarial valuation to include active and inactive members under the cash balance provisions defined by Chapter 820 of the Texas Government Code for employees hired on or after September 1, 2022. The new structure is a cash balance retirement benefit with meaningful cost and risk sharing mechanisms. As of August 31, 2023, there are 5,451 active members covered under the new structure. The current plan provisions are outlined in Section E of this report.

There were no material changes to the plan provisions during the past year. The current plan provisions are outlined in Section E of this report.

Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees on May 20, 2020 based on the experience investigation that covered the five-year period from September 1, 2014 through August 31, 2019. We believe the assumptions are internally consistent and are reasonable, based on the actual experience of LECOSRF. There were no changes to the assumptions.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates, and funding periods. A review of the impact of a different set of assumptions on the funded status of LECOSRF is outside the scope of this actuarial valuation.

The current actuarial assumptions and methods are outlined in Section F of this report.

Funding Adequacy

The ERS Board of Trustees approved the Pension Funding Priorities and Guidelines on May 23, 2018 and adopted updates in August 2020. For the Board, adoption of this policy is intended to:

- enhance communications and provide transparency to the Legislature and plan members and retirees regarding Board of Trustees' positions on plan funding strategy;
- provide policy guidance to current and future Boards;
- ensure that legislators, elected officials and other stakeholders have clear and accurate information about the Trust's funding goals and the needs of the Board in supporting sound fiduciary investment decisions in accordance with Texas Government Code Section 815.106; and
- identify a recommended plan for the state of Texas, as the plan sponsor, to achieve a 100% funded ratio while following funding best practices and sound actuarial principles, in accordance with Texas Government Code Section 802.2011.

The policy states that the main objective of ERS' retirement programs is to fully fund the long-term cost of benefits provided by statute, through disciplined and timely accumulation of contributions and prudent investment of assets to deliver earned benefits on a continuing basis. In support of this objective, the policy laid out a multi-level funding period goal to gradually achieve funding on sound actuarial principles:

1. Fund normal costs;
2. Avoid trust fund depletion of the pre-funded plans;
3. Meet current statutory standard of a 31-year funding period for unfunded liabilities, per Texas Government Code Sections 811.006 and 840.106; and
4. Match funding period to the average years of service at retirement once a 31-year funding period is achieved, and closed.

After reflecting the House Bill 1 changes, there is no unfunded liability and all Board objectives are currently being met. GRS will continue to monitor the funding situation of the plan against these objectives.

The unfunded actuarial accrued liability (UAAL) of LECOSRF decreased from $715 million as of August 31, 2022 to a surplus of $0.1 million as of August 31, 2023. Additionally, the LECOSRF funded ratio—actuarial value of assets divided by the actuarial accrued liability—increased from 58.6% to 100.0%, as of August 31, 2023. This drastic increase in the funded ratio was due to the $772 million allocated to the fund by House Bill 1.

The funded status is one of many metrics used to show trends and develop future expectations about the health of a retirement system. The funded status measure itself is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

The total contribution rate for the current fiscal exceeds the normal cost, and is sufficient to fund the ongoing costs of the plan.

The actuarial standards of practice require that the actuary disclose a “Reasonable Actuarially Determined Contribution”. The primary objective of this metric is to give the user an amount that will be sufficient to pay off the unfunded liabilities in a reasonable period of time. Given that the plan is already in a surplus position, with no unfunded liabilities, the normal cost rate of 2.11% can be deemed a Reasonable Actuarially Determined Contribution. Although a disclosure requirement, this should not be viewed as a recommendation. Should the plan develop an unfunded liability in future years, GRS will use a 20-year, closed, level percent of pay amortization to develop this metric until the plan returns to a surplus position.

System Assets

This report contains several tables that summarize key information with respect to the LECOSRF assets.

The total market value of assets increased from $1,042 million to $1,047 million as of August 31, 2023. For purposes of this funding valuation, we have determined an adjusted market value of assets of $1,819 million, which includes the $772 million appropriation from House Bill 1. Table 5 reconciles the changes in the fund during the year. Total contributions (not including the $772 million appropriation) increased from $30.2 million to $35.7 million. Employer contributions for fiscal year 2024 are anticipated to be approximately 2.58% of pay including expected court fees. Employee contributions are anticipated to be approximately 0.68% of pay, a blend of the 0.50% and 2.00% rates of pay.

Table 6 shows the development of the Actuarial Value of Assets (AVA). The current AVA method recognizes each year’s gain or loss over a closed five-year period and allows for direct offsetting of gains and losses. The AVA increased from $1,014 million to $1,800 million as of August 31, 2023 (including the $772 million House Bill 1 appropriation).

When measured on a market value, the gross investment return for the fiscal year ending August 31, 2023 was 6.75% and the return net of investment expenses was 6.72% as reported by the ERS Master Trust Custodian. When measured on an actuarial value, the net investment return was 8.2%. Table 7 shows a history of return rates. The LECOSRF ten-year average gross market return, as reported by the ERS Master Trust Custodian, is 8.04%. The ten-year average return net of investment expenses is 7.99%.

Table 8 provides a history of the contributions paid into LECOSRF and the administrative expenses and benefit payments paid out of LECOSRF. LECOSRF paid administrative expenses and benefit payments, in excess of contributions received, of $68.7 million (or 6.6% of assets) in fiscal year 2022 and $66.3 million (or 6.3% of assets) in fiscal year 2023. Table 11 provides a history of contribution rates, as a percent of payroll, paid into the trust by the state, agencies, and members. This table also shows a history of the total normal cost and the Actuarially Sound Contribution rate (ASC).

Data

This valuation was based upon information as of August 31, 2023, furnished by ERS staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by ERS staff.

The tables in Section G show key census statistics for the various groups included in the valuation.

SECTION C

TABLES

Table 1
Development of Employer Cost

	August 31, 2023	August 31, 2022
1. Payroll		
a. Reported Payroll (August Payroll of Active Members)	$ 1,796,933,176	$ 1,668,172,418
b. Valuation Payroll (Expected Covered Payroll for Following Plan Year)	1,796,933,176	1,668,172,418
2. Actuarial Accrued Liability for Active Members		
a. Present value of future benefits for active members	$ 984,792,110	$ 912,960,078
b. Less: present value of future normal costs	(254,082,951)	(216,271,962)
c. Actuarial accrued liability	$ 730,709,159	$ 696,688,116
3. Total Actuarial Accrued Liability for:		
a. Retirees and beneficiaries	$ 1,052,070,258	$ 1,016,336,633
b. Inactive members	16,931,716	16,330,219
c. Active members (Item 2c)	730,709,159	696,688,116
d. Total	$ 1,799,711,133	$ 1,729,354,968
4. Actuarial Value of Assets	$ 1,799,822,260	$ 1,014,061,586
5. Unfunded Actuarial Accrued Liability / (Surplus) (UAAL) (Item 3d - Item 4)	$ (111,127)	$ 715,293,382
6. Total Normal Cost Rate		
a. Gross normal cost rate	2.03%	1.86%
b. Administrative expenses	0.08%	0.08%
c. Total (Item 6a + Item 6b)	2.11%	1.94%
7. Expected Contribution from Court Fees		
a. Expected future contributions	$ 15,000,000	$ 13,000,000
b. Equivalent contribution rate for fiscal year	0.83%	0.78%
8. Employer Payroll Contribution	1.75%	0.50%
9. Blended Member Contribution	0.68%	0.50%
10. Total Contribution Rate (Item 7b + Item 8 + Item 9)	3.26%	1.78%
11. Contributions sufficient to pay ongoing plan costs?	Yes	No

* The annual court fees contributed to LECOSRF are expected to remain level in the future. As a result, the equivalent contribution rate is expected to decrease over time as the payroll increases.

Table 2
Actuarial Present Value of Future Benefits

		August 31, 2023	August 31, 2022
1.	Active Members		
	a. Service Retirement	$ 951,747,974	$ 889,928,621
	b. Disability Benefits	4,971,920	4,691,409
	c. Death Before Retirement	4,843,259	4,276,464
	d. Termination	23,228,957	14,063,584
	e. Total	$ 984,792,110	$ 912,960,078
2.	Inactive Members	$ 16,931,716	$ 16,330,219
3.	Annuitants	$ 1,052,070,258	$ 1,016,336,633
4.	Total Actuarial Present Value of Future Benefits	$ 2,053,794,084	$ 1,945,626,930

Table 3
Analysis of Normal Cost

		August 31, 2023	August 31, 2022
1.	Gross Normal Cost Rate		
	a. Service Retirement	1.76%	1.65%
	b. Disability Benefits	0.02%	0.02%
	c. Death Before Retirement	0.01%	0.01%
	d. Termination	0.24%	0.18%
	e. Total	2.03%	1.86%
2.	Administrative Expenses	0.08%	0.08%
3.	Total Normal Cost	2.11%	1.94%
4.	Less: Member Rate*	0.68%	0.50%
5.	Employer Normal Cost Rate	1.43%	1.44%

* The rate for members hired before September 1, 2023 is 0.50%. The rate for members hired on or after September 1, 2023 is 2.00%. Beginning with the August 31, 2023 valuation, the member rate shown is the blended rate of current contributing members.

Table 4
Historical Summary of Active Member Data

Valuation as of August 31,	Active Members: Number	Active Members: Percent Increase	Covered Payroll: Amount in $ Millions	Covered Payroll: Percent Increase	Average Salary: $ Amount	Average Salary: Percent Increase	Average Age	Average Service
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2008	33,642	N/A	1,245	N/A	37,021	N/A	42.7	9.6
2009	37,819	12.4%	1,387	11.4%	36,687	-0.9%	42.0	8.6
2010	39,052	3.3%	1,483	6.9%	37,979	3.5%	41.9	8.5
2011	36,806	-5.8%	1,452	-2.1%	39,454	3.9%	42.2	8.9
2012	37,404	1.6%	1,475	1.6%	39,444	0.0%	42.5	9.1
2013	37,415	0.0%	1,477	0.1%	39,469	0.1%	42.4	9.1
2014	37,084	-0.9%	1,542	4.4%	41,584	5.4%	42.3	8.9
2015	38,526	3.9%	1,616	4.8%	41,957	0.9%	41.7	8.4
2016	39,066	1.4%	1,744	7.9%	44,634	6.4%	41.0	8.0
2017	38,206	-2.2%	1,720	-1.3%	45,029	0.9%	41.1	8.0
2018	37,167	-2.7%	1,684	-2.1%	45,321	0.7%	41.0	8.0
2019	36,296	-2.3%	1,644	-2.4%	45,305	0.0%	41.0	7.8
2020	35,230	-2.9%	1,629	-0.9%	46,250	2.1%	41.1	7.8
2021	32,498	-7.8%	1,520	-6.7%	46,768	1.1%	41.7	8.1
2022	31,075	-4.4%	1,668	9.8%	53,682	14.8%	41.9	8.1
2023	31,744	2.2%	1,797	7.7%	56,607	5.4%	42.1	7.9

Table 5
Reconciliation of Plan Net Assets

		Year Ending	
		August 31, 2023	August 31, 2022
		(1)	(2)
1.	Market value of assets at beginning of year	$ 1,042,295,797	$ 1,116,041,411
2.	Revenue for the year		
	a. Contributions for the year		
	i. State (including membership fees)	$ 24,800,350	$ 21,427,506
	ii. Member (including penalty interest)	10,902,451	8,729,103
	iii. Total	$ 35,702,801	$ 30,156,609
	b. Net investment income	$ 70,671,858	$ (5,026,226)
	c. Total revenue	$ 106,374,659	$ 25,130,383
3.	Disbursements for the year		
	a. Benefit payments and refunds	$ 99,519,427	$ 97,195,678
	b. Net transfers from TRS	0	0
	c. Administrative expenses	2,480,715	1,680,319
	d. Total expenditures	$ 102,000,142	$ 98,875,997
4.	Increase in net assets (Item 2c - Item 3d)	$ 4,374,517	$ (73,745,614)
5.	Market value of assets at end of year (Item 1 + Item 4)	$ 1,046,670,314	$ 1,042,295,797
6.	Special Contingency Funding Appropriation[1]	$ 772,000,000	$ 0
7.	Adjusted market value of assets for funding valuation purposes (Item 5 + Item 6)	$ 1,818,670,314	$ 1,042,295,797

[1] In FY23 House Bill 1 was passed in which the State provided LECOSRF with additional one-time funding to pay off the unfunded accrued actuarial pension liability. This appropriation was received in the fund on September 8, 2023.

Table 6
Development of Actuarial Value of Assets

		Year Ending August 31, 2023
1.	Market value of assets at beginning of year	$ 1,042,295,797
2.	Net new investments	
	a. Contributions for the year (Table 5)	$ 35,702,801
	b. Disbursements for the year (Table 5)	(102,000,142)
	c. Subtotal	$ (66,297,341)
3.	Market value of assets at end of year	$ 1,046,670,314
4.	Net earnings (Item 3 - Item 1 - Item 2)	$ 70,671,858
5.	Assumed investment return rate for fiscal year	7.00%
6.	Expected return	$ 70,640,299
7.	Excess return (Item 4 - Item 6)	$ 31,559

8. Development of amounts to be recognized as of August 31, 2023:

Fiscal Year End	Remaining Deferrals of Excess (Shortfall) of Investment Income	Offsetting of Gains/(Losses)	Net Deferrals Remaining	Years Remaining	Recognized for this valuation	Remaining after this valuation
	(1)	(2)	(3) = (1) + (2)	(4)	(5) = (3) / (4)	(6) = (3) - (5)
2019	$ 0	$ 0	$ 0	1	$ 0	$ 0
2020	0	0	0	2	0	0
2021	28,234,211	0	28,234,211	3	9,411,404	18,822,807
2022	0	0	0	4	0	0
2023	31,559	0	31,559	5	6,312	25,247
Total	$ 28,265,770	$ 0	$ 28,265,770		$ 9,417,716	$ 18,848,054

9.	Special Contingency Funding Appropriation[1]	$ 772,000,000
10.	Adjusted market value of assets for funding valuation purposes (Item 3 + Item 9)	$ 1,818,670,314
11.	Actuarial value of assets as of August 31, 2023 (Item 10 - Item 8, Column 6)	$ 1,799,822,260
12.	Ratio of actuarial value to adjusted market value	99.0%

[1] In FY23 House Bill 1 was passed in which the State provided LECOSRF with additional one-time funding to pay off the unfunded accrued actuarial pension liability. This appropriation was received in the fund on September 8, 2023.

Table 7
History of Investment Return Rates

Year Ending August 31 of	Market Returns (Gross)	Market Returns (Net)	Actuarial
(1)	(2)	(3)	(4)
1998	8.30%	8.23%	N/A
1999	16.26%	16.46%	N/A
2000	9.43%	9.40%	N/A
2001	-6.91%	-6.93%	N/A
2002	-7.17%	-7.21%	N/A
2003	9.20%	9.14%	5.2%
2004	11.69%	11.64%	6.3%
2005	12.71%	12.62%	7.4%
2006	8.83%	8.76%	7.6%
2007	13.88%	13.76%	8.5%
2008	-4.58%	-4.69%	5.7%
2009	-6.60%	-6.71%	3.2%
2010	6.65%	6.48%	3.7%
2011	12.58%	12.36%	5.1%
2012	8.22%	8.04%	5.4%
2013	10.07%	9.87%	6.1%
2014	14.70%	14.58%	7.6%
2015	0.49%	0.44%	6.1%
2016	5.32%	5.28%	5.9%
2017	12.15%	12.11%	2.8%
2018	9.58%	9.54%	7.9%
2019	3.04%	3.00%	7.0%
2020	6.85%	6.82%	6.1%
2021	25.51%	25.46%	10.0%
2022	-1.55%	-1.59%	8.8%
2023	6.75%	6.72%	8.2%
Average Returns			
Last Five Years:	7.75%	7.71%	8.0%
Last Ten Years:	8.04%	7.99%	7.0%
Last Fifteen Years:	7.34%	7.25%	6.2%
Last Twenty Years:	7.58%	7.49%	6.5%

Market returns provided by ERS Master Trust Custodian.
Rates in Column (2) represent the market returns gross of all expenses.
Rates in Column (3) represent the market returns net of investment expenses.
Net returns may exceed gross returns in years where adjustments are made to fee expenses.

Table 8
History of Cash Flow

		Distributions and Expenditures					
Year Ending August 31,	Contributions	Benefit Payments and Refunds	Administrative Expenses	Total	External Cash Flow for the Year	Market Value of Assets	External Cash Flow as Percent of Market Value
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2007	$ 0.0	$ (32.1)	$ (0.5)	$ (32.6)	$ (32.6)	$ 762.9	-4.3%
2008	20.2	(34.9)	(0.4)	(35.3)	(15.1)	704.9	-2.1%
2009	20.7	(38.7)	(0.4)	(39.1)	(18.4)	634.8	-2.9%
2010	35.3	(41.2)	(0.6)	(41.8)	(6.5)	668.4	-1.0%
2011	31.8	(43.7)	(0.9)	(44.6)	(12.8)	737.4	-1.7%
2012	7.3	(48.1)	(0.8)	(48.9)	(41.6)	747.7	-5.6%
2013	14.3	(52.4)	(0.8)	(53.2)	(38.9)	780.7	-5.0%
2014	35.9	(57.1)	(1.3)	(58.4)	(22.5)	869.9	-2.6%
2015	35.1	(61.3)	(1.4)	(62.7)	(27.6)	844.1	-3.3%
2016	37.0	(64.5)	(1.4)	(65.9)	(28.9)	860.0	-3.4%
2017	36.2	(69.8)	(1.8)	(71.6)	(35.4)	924.0	-3.8%
2018	35.4	(75.6)	(1.9)	(77.5)	(42.1)	966.8	-4.4%
2019	35.0	(82.3)	(2.2)	(84.5)	(49.5)	943.6	-5.2%
2020	31.2	(86.7)	(1.9)	(88.6)	(57.4)	947.3	-6.1%
2021	29.4	(91.7)	(1.8)	(93.5)	(64.1)	1,116.0	-5.7%
2022	30.2	(97.2)	(1.7)	(98.9)	(68.7)	1,042.3	-6.6%
2023	35.7	(99.5)	(2.5)	(102.0)	(66.3)	1,046.7	-6.3%

Dollar amounts in millions

Column (6) = Column (2) + Column (5).

Table 9
Total Experience Gain or Loss

Item	% of AAL	Year Ending August 31, 2023	Year Ending August 31, 2022
(1)		(2)	(3)
A. Calculation of total actuarial gain or loss			
1. Unfunded actuarial accrued liability (UAAL), previous year		$ 715,293,382	$ 652,701,151
2. Assumption/Method change (Gains)/Losses - demographic only		0	0
3. UAAL, previous year, after assumption changes (Item 1 + Item 2)		715,293,382	652,701,151
4. Normal cost for the year (excluding administrative expenses)		31,028,007	29,968,665
5. Actual administrative expenses		2,480,715	1,680,319
6. Contributions for the year (excluding service purchases)		(35,114,943)	(29,320,265)
7. Interest at 7.0%			
a. On UAAL		$ 50,070,537	$ 45,689,081
b. On normal cost and administrative expenses		1,172,805	1,107,714
c. On contributions		(1,229,023)	(1,026,209)
d. Total		$ 50,014,319	$ 45,770,586
8. House Bill 1: Special Contingency Funding Allocation		(772,000,000)	0
9. Expected UAAL (Sum of Items 3 through 8)		(8,298,520)	700,800,456
10. Actual UAAL		(111,127)	715,293,382
11. Total (gain)/loss for the year (Item 10 - Item 9)		$ 8,187,393	$ 14,492,926
B. Source of gains and losses	% of AAL		
12. Asset (Gain)/Loss for the year	0.63%	$ (11,394,111)	$ (17,698,673)
13. Pay Increases (Less)/Greater than Expected	0.89%	15,936,202	37,701,106
14. Non-Retired Demographic (Gains)/Losses	0.14%	2,554,468	(7,919,670)
15. Post-Retirement Mortality (Gains)/Losses	0.03%	(533,408)	(2,989,853)
16. Other Demographic (Gains)/Losses	0.09%	1,624,242	5,400,016
17. Total (Sum of Items 12 through 16)	0.45%	$ 8,187,393	$ 14,492,926

Table 10
Solvency Test

Actuarial Accrued Liability and Percent of Active Member Payroll for:

	Accumulated Member Contributions Including Interest		Retirees and Beneficiaries Currently Receiving Benefits		Employer Financed Portion of Vested and Nonvested Benefits			Portion of Accrued Liabilities Covered by Assets		
August 31,	(1)	% of Payroll	(2)	% of Payroll	(3)	% of Payroll	Actuarial Value of Assets	(1)	(2)	(3)
2007	$ 0.0	0%	$ 278.1	22%	$ 484.6	9%	$ 747.8	100%	100%	97%
2008	0.0	0%	314.6	25%	527.5	42%	774.5	100%	100%	87%
2009	0.0	0%	334.6	24%	572.5	41%	780.8	100%	100%	78%
2010	7.3	0%	368.0	25%	591.3	40%	802.9	100%	100%	72%
2011	13.9	1%	400.9	28%	578.0	40%	830.5	100%	100%	72%
2012	19.5	1%	447.5	30%	577.3	39%	832.5	100%	100%	63%
2013	24.4	2%	482.7	33%	690.0	47%	843.0	100%	100%	49%
2014	29.5	2%	533.3	35%	644.0	42%	883.6	100%	100%	50%
2015	34.5	2%	578.9	36%	648.9	40%	909.2	100%	100%	46%
2016	41.5	2%	619.0	35%	651.9	37%	933.5	100%	100%	42%
2017	47.0	3%	702.9	41%	649.9	38%	924.0	100%	100%	27%
2018	51.5	3%	762.7	45%	638.5	38%	953.1	100%	100%	22%
2019	54.7	3%	829.1	50%	598.8	36%	968.1	100%	100%	14%
2020	58.4	4%	920.4	56%	630.8	39%	968.1	100%	99%	0%
2021	61.9	4%	970.6	64%	617.9	41%	997.7	100%	96%	0%
2022	64.5	4%	1,016.3	61%	648.6	39%	1,014.1	100%	93%	0%
2023	64.5	4%	1,052.1	59%	683.2	38%	1,799.8	100%	100%	100%

Note: Dollar amounts in millions

Table 11
Historical Contribution Rates

Actuarial Valuation as of August 31,	Contributions from: State	Court Fees*	Members	Total	Total Normal Cost Rate	ASC**
1998	0.00%	0.00%	0.00%	0.00%	1.70%	Not calculated
1999	0.00%	0.00%	0.00%	0.00%	1.98%	Not calculated
2000	0.00%	0.00%	0.00%	0.00%	1.95%	Not calculated
2001	0.00%	0.00%	0.00%	0.00%	1.76%	Not calculated
2002	0.00%	0.00%	0.00%	0.00%	1.75%	Not calculated
2003	0.00%	0.00%	0.00%	0.00%	1.61%	Not calculated
2004	0.00%	0.00%	0.00%	0.00%	1.62%	Not calculated
2005	0.00%	0.00%	0.00%	0.00%	1.63%	1.54%
2006	0.00%	0.00%	0.00%	0.00%	1.55%	1.50%
2007	1.59%	0.00%	0.00%	1.59%	1.54%	1.61%
2008	1.59%	0.00%	0.00%	1.59%	2.18%	2.51%
2009	1.59%	0.00%	0.50%	2.09%	2.07%	2.58%
2010	1.59%	0.00%	0.50%	2.09%	2.07%	2.72%
2011	0.00%	0.00%	0.50%	0.50%	2.07%	2.72%
2012	0.50%	0.00%	0.50%	1.00%	2.02%	2.86%
2013	0.50%	1.20%	0.50%	2.20%	1.80%	3.09%
2014	0.50%	1.20%	0.50%	2.20%	1.77%	2.96%
2015	0.50%	1.20%	0.50%	2.20%	1.77%	3.01%
2016	0.50%	1.10%	0.50%	2.10%	1.81%	3.10%
2017	0.50%	1.09%	0.50%	2.09%	2.11%	3.67%
2018	0.50%	1.07%	0.50%	2.07%	2.09%	3.76%
2019	0.50%	1.04%	0.50%	2.04%	2.08%	3.91%
2020	0.50%	1.05%	0.50%	2.05%	1.96%	4.22%
2021	0.50%	0.95%	0.50%	1.95%	1.97%	4.47%
2022	0.50%	0.78%	0.50%	1.78%	1.94%	4.48%
2023	1.75%	0.83%	0.68%	3.26%	2.11%	Not calculated

* From 2013 to 2015, it was assumed that contributions from court fees would remain level as a percentage of pay. Beginning in 2016 and thereafter, the amount shown is the assumed level dollar amount as a percentage of valuation payroll which is expected to go down over time.

** The Actuarially Sound Contribution (ASC) rate is the rate determined as of the valuation date to fund the normal cost and amortize the UAAL over a 31 year period. In all cases, the ASC is calculated as the total contribution necessary to meet the objective, including member contributions and any expected contributions from court fees. Starting in 2023, there is no UAAL.

***LECOSRF did not receive any contributions for 14 years, from fiscal years 1994 through 2007.

Section D

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution, and Low-Default-Risk Obligation Measure

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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 due to changing conditions; 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. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
6. **Other demographic risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The actuarially sound contribution rate may be considered as a minimum contribution rate that complies with State statute. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that even contributions made at the actuarially sound contribution rate do not necessarily guarantee benefit security.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Ratio of the market value of assets to total payroll	0.6	0.6	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5
Ratio of actuarial accrued liability to payroll	1.0	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7
Ratio of actives to retirees and beneficiaries	1.9	2.0	2.1	2.4	2.6	2.8	3.1	3.4	3.6	3.7
Ratio of net cash flow to market value of assets	-6.3%	-6.6%	-5.7%	-6.1%	-5.2%	-4.4%	-3.8%	-3.4%	-3.3%	-2.6%
Duration of the actuarial accrued liability*	12.9	12.9	12.9	13.0	12.5	12.8				

*Duration measure not available before 2018

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the actuarial accrued liability would increase approximately 10% if the assumed rate of return were lowered 1%.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

Low-Default-Risk Obligation Measure

In Actuarial Standards of Practice No. 4 (ASOP No. 4) was revised and reissued in December 2021 by the Actuarial Standards Board (ASB). It includes a new calculation called a low-default-risk obligation measure (LDROM) to be prepared and issued annually for defined benefit pension plans. The transmittal memorandum for ASOP No. 4 includes the following explanation:

"The ASB believes that the calculation and disclosure of this measure provides appropriate, useful information for the intended user regarding the funded status of a pension plan. The calculation and disclosure of this additional measure is not intended to suggest that this is the "right" liability measure for a pension plan. However, the ASB does believe that this additional disclosure provides a more complete assessment of a plan's funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date."

The LDROM estimates the amount of money the plan would need to invest in low risk securities to provide the benefits with greater certainty. The current model expects lower costs but with higher risk, which creates less certainty and a possibility of higher costs. The LDROM model creates higher expected costs but more predictability when compared to the current model. Thus, the difference between the two measures (Valuation and LDROM) is one illustration of the possible costs the sponsor could incur if there was a reduction in the investment risk in comparison to the current diversified portfolio. However, the downside risk would be limited in the scenarios where the current portfolio would fail to achieve returns in excess of the low-default-risk discount, in this case 5.15%. The following information has been prepared in compliance with this new requirement. Unless otherwise noted, the measurement date, actuarial cost methods, and assumptions used are the same as for the funding valuation covered in this actuarial valuation report.

A. LDROM measure of benefits earned as of the measurement date:	$2,270 million
B. Valuation liability at 7% on measurement date:	$1,800 million
C. Cost to mitigate investment risk in the System's portfolio:	$470 million

Disclosures: Discount rate used to calculate LDROM: 5.15% Intermediate FTSE Pension Discount Curve as of August 31, 2023. This measure may not be appropriate for assessing the need for or amount of future contributions as the current portfolio is expected to generate significantly more investment earnings than the low-default-risk portfolio. This measure is also not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation as this measure includes projections of salary increases and the ability for current members to continue to accrue eligibility and vesting service.

SECTION E

SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions for Law Enforcement and Custodial Officer Supplemental Retirement Fund of the Employees Retirement System of Texas

Classes of Membership

1. Employee Class Membership:
   a. Membership is mandatory for all employees and appointed officers of every department, commission, board, agency, or institution of the State except for:
      i. Independent contractors;
      ii. Persons covered by the Teacher Retirement System or either of the Judicial Retirement Systems; and
      iii. Employee Class Members already receiving retirement benefits under the System.
   b. Includes two types of Employee Class service:
      i. CPO/CO: Certified Peace Officer / Custodial Officer – in general, service rendered while a law enforcement officer, custodial officer, parole officer or caseworker (collectively referred to as "LECOs"); and
      ii. Regular: Non-CPO/CO service.
   c. Prior to September 1, 2015, membership begins after a 90-day waiting period. Effective September 1, 2015, membership begins immediately.

   The benefits payable by the Law Enforcement and Custodial Officer Supplemental Retirement Fund (LECOSRF) only apply to members that have accrued CPO/CO service.

Member Contributions

1. For all members hired before September 1, 2022:
   a. 0.50% of compensation to LECOSRF in addition to contributions payable to ERS. Additional member contributions may be allowable for service purchases.
   b. Member contributions cease when a member's benefit accrual has reached 100% of Average Monthly Compensation.
   c. Member contributions accumulate interest at 2.00% per year.
2. For all members hired on or after September 1, 2022, 2.00% of compensation.

State of Texas and Employer Contributions

State contributions are set biennially by the legislature. The current sources of contributions are shown below.

1. *Payroll Contributions*: The current projected contribution rate for the State is 0.50% of compensation for the 2024 and 2025 fiscal years. State payroll contributions cease when a member's benefit accrual has reached 100% of Average Monthly Compensation.

2. *Court Fees*: LECOSRF also receives a portion of the court fees collected under Section 133.102 of the Local Government Code. Based on historical information, the contribution from this source is expected to be approximately $15.0 million for fiscal year 2024.

State contributions after the 2025 fiscal year are subject to future legislative appropriations.

Return to Work Surcharge

For members who, on or after September 1, 2009, retire from the employee class and are rehired as a retiree into a position that would otherwise include membership in the employee class, the department or agency that employs the member must remit to the retirement system an amount equal to the amount of the State contribution that the department or agency would remit for an active member employed in the person's position.

Compensation

Compensation includes base salary, longevity and hazardous duty pay and excludes overtime pay. This amount is limited by Section 401(a)(17) of the Internal Revenue Code for members hired after August 31, 1996.

Average Monthly Compensation (AMC)

1. *Members hired prior to September 1, 2009:* Average of the 36 highest months of compensation for service in the employee class of membership
2. *Members hired on or after September 1, 2009 and prior to September 1, 2013:* Average of the 48 highest months of compensation for service in the employee class of membership
3. *Members hired on or after September 1, 2013 and prior to September 1, 2022:* Average of the 60 highest months of compensation for service in the employee class of membership.

Creditable Service

The types of service creditable in LECOSRF are membership service, military service and equivalent membership service. Equivalent membership service includes: previously cancelled service, service not previously established, waiting period service, and Additional Service Credit.

Unused Sick and Annual Leave

In many cases, unused sick and annual leave can be used to establish Creditable Service. Members hired prior to September 1, 2009 can use unused sick and annual leave to satisfy service requirements for Retirement and Death Benefit Plan eligibility as well as to calculate plan benefits. Members hired on or after September 1, 2009 can only use unused sick and annual leave to calculate plan benefits. However, members hired on or after September 1, 2013 cannot use unused annual leave to calculate plan benefits if the member opts to receive the unused annual leave as a lump-sum payment.

Cash Balance Benefit for Members hired on or after September 1, 2022

Member’s hired on or after September 1, 2022 will be eligible for the cash balance benefit. Members eligible for the cash balance benefit will contribute 2% of compensation on an ongoing basis into LECOSRF for all attributable CPO/CO service. The member’s contribution balance will be accumulated each year with the member’s contributions plus an Annual Interest Adjustment and, if applicable, a Gain Sharing Interest Adjustment. The Annual Interest Adjustment is equal to 4% of the member’s accumulated account balance.

In years when the five-year average of ERS' total Trust Fund investment returns exceeds 4%, the member's accumulated account balance will also receive a Gain Sharing Interest Adjustment equal to 50% of the return in excess of 4%—up to 3% additional per year. The gain sharing amount will not be less than 0% nor greater than 3% in a given year.

At retirement, the member's accumulated account balance (contributions plus Annual Interest Adjustments plus Gain Sharing Interest Adjustments) will be matched by 300% by the State in LECOSRF. The member will receive a cash balance annuity equal to this total amount annuitized over the life expectancy of the member as of the effective date of the member's retirement. The annuity factors will be based on 4% interest and mortality tables adopted by the ERS Board.

Once retired, the member's cash balance annuity will also be eligible for the Gain Sharing Interest Adjustment in the form of an increase in their benefit equal to the same percentage of gain-sharing interest credited to non-retired member's accounts.

Standard Service Retirement Annuity

1. Employee Class:
   a. *Eligibility*:
      i. Any age with 20 years of CPO/CO service
   b. *Benefits:*
      i. For members hired before September 1, 2022: 0.50% of AMC times years of CPO/CO Service
      ii. For members hired on or after September 1, 2022: Cash balance benefit.
   d. *Applicable Reductions:*
      i. For members hired prior to September 1, 2009, retiring after attaining age 50 or after attaining Rule of 80, there is no reduction. Otherwise, the member receives the percentage of the benefit stated in the following table:

Attained Age at Retirement	Reduction Percentage	Attained Age at Retirement	Reduction Percentage
36	31.2%	43	55.3%
37	33.9%	44	60.1%
38	36.7%	45	65.3%
39	39.8%	46	71.1%
40	43.2%	47	77.3%
41	46.9%	48	84.2%
42	50.9%	49	91.7%

      ii. For members hired after on or after September 1, 2009, but prior to September 1, 2013, reduced five percent for each year the member retires prior to age 55, with a maximum possible reduction of 25 percent.
      iii. For members hired on or after September 1, 2013, but prior to September 1, 2022, reduced five percent for each year the member retires prior to age 57, with no maximum possible reduction.
      iv. For members hired on or after September 1, 2022, none.

2. Normal Form of Payment: Payable for the life of the member with any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Standard Non-Occupational Disability Annuity: None

Standard Occupational Disability Annuity

1. Employee Class (LECO Members):
    a. *Eligibility*: Disability as a direct result of some risk or hazard inherent to law enforcement or custodial duties
        i. Total: Incapable of substantial gainful activity and eligible for Social Security disability benefits
        ii. Non-total: Does not satisfy definition of Total Disability
    b. *Benefits:*
        i. For members hired before September 1, 2022:
            1. Non-total with less than 20 years of CPO/CO Service: 15% of AMC payable from LECOSRF
            2. Non-total with 20 years of CPO/CO Service: Benefit defined in the Service Retirement Supplement Section
            3. Total: 100% of AMC offset by the amount paid by ERS (ERS pays 2.3% of AMC times years of Creditable Service, but not less than 35% of AMC). The annuity shall be increased to a monthly amount computed based on the maximum salary authorized under the position classification salary schedule prescribed by the General Appropriations Act, as adjusted from time to time, applicable to the position from which the person retired.
        ii. For members hired on or after September 1, 2022: Cash balance benefit. The ERS Board may also enter into agreements to provide additional disability benefits.
2. Normal Form of Payment: Annuity payable for life or until member is no longer incapacitated for the performance of duty. Any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Death Benefit Plan (DBP) Annuity Supplement

1. Eligibility:
    a. 20 years of CPO/CO Service; and
        i. Death occurs while an active member; or
        ii. Death occurs while an inactive member, and the member either:
            1. Filed a DBP prior to September 1, 2006; or
            2. Was eligible for service retirement when the member became inactive.

2. Benefits:

   a. For members hired before September 1, 2022: Benefits are calculated as if the member had elected to receive a Service Retirement Supplement under an optional form of payment, received a Service Retirement Supplement, and died immediately thereafter.

   b. For members hired on or after September 1, 2022: Cash balance benefit.

Deferred Service Retirement Annuity

1. Employee Class:

   a. *Eligibility*:

      i. 20 years of CPO/CO service at termination of CPO/CO employment, and either;

         1. The member transfers to and retires from active regular class service; or

         2. The member terminates all employee class service, and the regular employee class account balance is not withdrawn from the ERS trust.

   b. *Benefits:*

      i. For members hired before September 1, 2022:

         1. Service Retirement Supplement, based on the member's age at benefit commencement. AMC used in calculating the benefit payable from the ERS trust and the LECOSRF will both be based on all employee class service.

         2. Payments may commence at any age, provided that the member has terminated all employee class service. The member must retire simultaneously from the ERS trust and the LECOSRF.

      ii. For members hired on or after September 1, 2022: Cash balance benefit.

2. Normal Form of Payment: Payable for the life of the member with any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Refund of Accumulated Contributions

A refund of accumulated contributions is payable in cases where a terminated member did not meet the eligibility requirements for an annuity, or a terminated member chooses to receive a refund of his or her account balance in lieu of an annuity.

Maximum Benefits

Annuity benefits are limited to 100% of Average Monthly Compensation. For members with CPO/CO service, this benefit limitation includes benefits from all sources (ERS and the Law Enforcement and Custodial Officer Supplemental Retirement Fund).

Limit on Plan Modifications

According to Section 811.006 of the Texas Government Code – a rate of member or State contributions to or a rate of interest required for the establishment of credit in the retirement system may not be reduced or eliminated, a type of service may not be made creditable in the retirement system, a limit on the maximum permissible amount of a type of creditable service may not be removed or raised, a new monetary benefit payable by the retirement system may not be established, and the determination of the amount of a monetary benefit from the system may not be increased, if, as a result of the particular action, the time, as determined by an actuarial valuation, required to amortize the UAAL of the retirement system would be increased to a period that exceeds 30 years by one or more years.

SECTION F

ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees on May 20, 2020 based on the experience investigation that covered the five-year period from September 1, 2014 through August 31, 2019.

I. Valuation Date

The valuation date is August 31 of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

II. Actuarial Cost Method

The actuarial valuation is used to determine the adequacy of the State contribution rate (established by Legislative appropriation) and employer contribution rate (established by statute) and to describe the current financial condition of LECOSRF.

The actuarial valuation uses the Entry Age Normal actuarial cost method. Under this method, the first step is to determine the contribution rate (level as a percentage of pay) required to provide the benefits to each member, or the normal cost rate. The normal cost rate consists of two pieces: (i) the member's contribution rate, and (ii) the remaining portion of the normal cost rate which is the employer's normal cost rate. The total normal cost rate is based on the benefits payable to each individual active member.

The Unfunded Actuarial Accrued Liability (UAAL) is the liability for future benefits which is in excess of (i) the actuarial value of assets, and (ii) the present value of future normal costs. The employer contribution provided in excess of the employer normal cost is applied to amortize the UAAL.

The funding period is calculated as the number of years required to fully amortize the UAAL, and is calculated with the use of an open group projection that takes into account: (a) future market earnings, net of investment-related expenses, will equal 7.00% per year, (b) there will be no changes in assumptions, (c) the number of active members will remain unchanged, (d) active members who leave employment will be replaced by new entrants each year, and (e) State and employer contributions will remain the same percentage of payroll as described in Section D of the valuation report.

The Entry Age actuarial cost method is an "immediate gain" method (i.e., experience gains and losses are separately identified as part of the UAAL). However, they are amortized over the same period applied to all other components of the UAAL.

III. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income. Offsetting unrecognized gains and losses are immediately recognized, with the shortest remaining bases recognized first and the net remaining bases continue to be recognized on their original timeframe. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of investment-related expenses.

IV. Actuarial Assumptions

Investment Return: 7.00% per year, net of investment-related expenses (composed of an assumed 2.30% inflation rate and a 4.70% real rate of return)

Administrative Expenses: 0.08% of valuation payroll per year

Salary Increases: Inflationary pay increases are assumed to occur at the beginning of the year and the remaining pay increases associated with merit, promotion and longevity are assumed to occur at the middle of the valuation year and vary by employee group. The components of the annual increases are:

Employee Group	Inflation *	Real Wage Growth (Productivity)	Merit, Promotion and Longevity
Employee Class	2.30%	included in Merit, Promotion and Longevity Increases	See sample rates

* Total liabilities for this valuation reflect the notable across-the-board pay increases appropriated by the State legislature for the current biennium compared to the assumed rate of inflation.

Annual Salary Increases for Merit, Promotion and Longevity Male and Female LECO Members						
	Years of Eligibility Service					
Age	0	1	2 -4	5 - 8	9 - 17	18+
All	6.45 %	4.45 %	2.95 %	1.95 %	1.70 %	1.45 %

Payroll Growth: 2.70% per year, compounded annually.

New Entrant Wage Growth: 2.70% per year, compounded annually (for increasing new hire salary in open group projection).

New Entrant Profile: The average new hire is determined based on a new entrant profile, which is created from the valuation data by determining the entry age and entry pay for anyone with greater than or equal to three but less than eight years of service as of the valuation date. Each group of new hires' salaries is assumed to grow at the New Entrant Wage Growth of 2.70% over the salaries of the previous year's group.

Age and Service Assumptions and Methods:

Eligibility Service:

Eligibility Service is considered to be all service eligible for vesting purposes, which includes service earned as a regular State employee, a LECO member, a member of the Elected Class, as State Judge, and service earned in the Teacher Retirement System of Texas ("TRS").

Benefit Service:

Current Benefit Service in years and months as of the valuation date was provided by ERS. This service plus Future Earned Service, Service Credit at Retirement, and Eligibility Service at Retirement were used to project benefit amounts.

Future Earned Service:

Active members were assumed to earn one additional year of service credit in each future year employed based on their current class of membership (but not beyond the amount of credit needed to provide a 100% of average monthly compensation standard service retirement annuity).

Service Credit at Retirement:

For LECO members, Benefit Service when eligible for service retirement is assumed to be increased by:

- 1.0 years if CPO/CO service, prior to adjustment, is at least 20 years; and
- 0.5 years if CPO/CO service, prior to adjustment, is less than 20 years.

(but not beyond the amount of credit needed to provide a 100% of average monthly compensation standard service retirement annuity).

Entry Age:

Entry age is calculated as the age at the valuation date minus Eligibility Service (excluding TRS service).

Decrement Timing: All decrements – mortality, service retirement, disability retirement, and termination of employment for reasons other than death or retirement – are assumed to occur at the middle of the valuation year.

Mortality Decrements:

Service Retirees, Beneficiaries, and Inactive Members

2020 State Retirees of Texas (SRT) mortality table. Generational mortality improvements in accordance with the ultimate rates from the scales published through 2019 by Retirement Plans Experience Committee of the Society of Actuaries ("Ultimate MP") and projected from the year 2020. Rates for male LECO members are set forward one year. Sample rates for the base mortality table included below.

Annual Mortality Rates per 100 Individuals		
Age	Males	Females
40	0.0585	0.0369
45	0.1028	0.0667
50	0.1771	0.1179
55	0.3052	0.2086
60	0.5260	0.3691
65	0.9066	0.6530
70	1.5627	1.1554
75	2.6933	2.0443
80	4.6421	3.6170
85	8.0010	6.3997
90	13.8587	11.3793

Active Members

Pub-2010 Public Safety Active Member Mortality table. Generational mortality improvements in accordance with the Ultimate MP scales are projected from the year 2010.

Disability Retirees

2020 State Retirees of Texas (SRT) mortality table, set forward three years for males and females. Minimum rates at all ages of 3.0% and 2.5% for males and females, respectively. Generational mortality improvements in accordance with the Ultimate MP scales are projected from the year 2020.

Occupational Death

1.0% of male and female active member deaths are assumed to be occupational.

Service Retirement Decrements: Graded Tables Based on ERS Experience

Active LECO Members

Service retirement rates are determined by the first set of eligibility requirements satisfied:

- Eligibility A: 20 years of CPO/CO service
- Eligibility B: Age 55 and 10 years of CPO/CO service
- Eligibility C: Any eligibility pertaining to regular State employees (see rates and adjustments for regular State employees)

Adjustments to the base rates are made to account for age at first eligibility or reduced retirement benefits, based on date of hire (described below sample table).

Base rates for eligible members:

Annual Service Retirement Rates LECO Members (Males & Females)				
Eligibility A			Eligibility B	
Age	20 yrs CPO/CO		Age	Age 55 & 10 yrs CPO/CO
<48	0.03			
48	0.04		55	0.20
49	0.05		56	0.18
50	0.60		57	0.16
51 - 61	0.33		58 - 61	0.14
62 - 74	0.50		62 - 74	0.27
75	1.00		75	1.00

Adjustments for members hired prior to September 1, 2013:

- Eligibility A and B: Rate set to zero if member has 18 or 19 years of CPO/CO service. Rate is doubled if member has 20 years of CPO/CO service. Adjustments only apply to members that attain 20 years of CPO/CO service prior to age 65.

Adjustments for members hired on or after September 1, 2013 and prior to September 1, 2022:

- Eligibility A: If age of 1st eligibility is before age 57, then
  - rates prior to age 57 are multiplied by 75% for each year prior to age 57
  - the rate at age 57 is 100%
- Eligibility B: If member will attain 20 years of CPO/CO service at or before age 62, rates are zero prior to age 62 and 80% when member attains 20 years of CPO/CO service.
- Eligibility B: If member will attain 20 years of CPO/CO service after age 62, then
  - rates prior to age 62 are multiplied by 75% for each year prior to age 62
  - the rate at age 62 is the base table rate plus 0.06 times the number of years the age at 1st eligibility was before age 62

Adjustments for members hired on or after September 1, 2022:

- Eligibility A: If age of 1st eligibility is before age 57, then
    - rates prior to age 57 are multiplied by 75% for each year prior to age 57
    - the rate at age 57 is 100%
- Eligibility B: If member will attain 20 years of CPO/CO service at or before age 62, rates are zero prior to age 62 and 80% when member attains 20 years of CPO/CO service.
- Eligibility B: If member will attain 20 years of CPO/CO service after age 62, then rates prior to age 62 are multiplied by 75% for each year prior to age 62

Disability Retirement Decrements: Graded Tables Based on ERS Experience

Active LECO Members

- The rates do not apply before a member is eligible for the benefit.
- Service greater than zero is required for occupational disability retirement.
- 10 years of service is required for non-occupational disability retirement.
- Non-occupational disability rates are assumed to be zero once the sum of the member's age and eligibility service is greater than or equal to 80, or the member has attained age 55 with 10 or more years of CPO/CO service.

Sample rates for members:

Annual Disability Rates per 100 Participants LECO Members	
Age	Males and Females
30	0.0092
35	0.0314
40	0.0586
45	0.0980
50	0.1774
55	0.2460
60	0.3150

95% of the disability rates stated above are assumed to be attributable to non-occupational disabilities, 4.5% are assumed to be attributable to non-total occupational disabilities, and 0.5% are assumed to be attributable to total occupational disabilities.

Termination Decrements for Reasons Other Than Death or Retirement: Graded Tables Based on ERS Experience

Rates of termination are zero for members eligible for service retirement. To account for active members that accumulate additional eligibility service at retirement through converting sick/annual leave or other types of service purchases, termination rates are also set to zero in the year prior to first retirement eligibility.

Rates for members not eligible for service retirement:

<u>Active LECO Members</u>

Annual Rates of Termination per 100 Participants LECO Members	
Eligibility Service	Male and Female
0	26.45
1	22.10
2	17.66
3	14.35
4	11.91
5	10.13
6	8.82
7	7.83
8	7.03
9	6.35
10	5.70
11	5.08
12	4.49
13	3.94
14	3.53
15	3.34
16	2.88
17	1.15
18	1.15
19+	0.00

Withdrawal of Employee Contributions: Every member that terminates employment and does not have a benefit payable from this plan is assumed to withdraw their employee contributions.

Percentage of Members Electing Various Benefit Options:

Sex / Benefit	Standard Life Annuity	Option 1	Option 4
Male Member			
Disability	50%	50%	0%
Service Retirement	60%	40%	0%
Death Benefit Plan	0%	85%	15%
Female Member			
Disability	75%	25%	0%
Service Retirement	100%	0%	0%
Death Benefit Plan	0%	70%	30%

The value of the Standard Service Retirement Life Annuity reflects the return of excess contributions payable as a lump sum death benefit in cases the annuity benefits paid are less than the member account balance at the time of retirement.

Beneficiary Characteristics: Males are assumed to be two years older than females.

Transfers from ERS to TRS:

Contributing ERS members:

It is assumed that 10% of regular State employees and LECO members who cease contributing to ERS and do not withdraw employee contributions will transfer ERS service credit to TRS at retirement.

Noncontributing ERS Members:

Records of ERS and TRS are matched by ERS staff to determine former ERS members who are currently contributing under TRS.

TRS Retirement Age:

Former ERS members who are, or are assumed to become, contributing TRS members are assumed to continue to earn service credit under TRS until first eligible for unreduced service retirement benefits, retire at that time, and transfer ERS service credit to TRS.

Cash Balance Assumptions for New Entrants:

Interest Crediting

Members account balances are assumed to earn 5.50% per year through the 4.00% Annual Interest Adjustments plus 1.50% from the Gain Sharing Interest Adjustments.

Annuity Factors for Annuitizing Cash Balance Benefits

Members account balances are annuitized using factors with a 4% discount rate and valuation mortality, including generational projections.

Post-retirement Annuity Increase

Cash balance annuity benefits increase 1.50% from the Gain Sharing Interest Adjustments.

Census Data and Assets

- The valuation was based on members of LECOSRF as of August 31, 2023 and does not take into account future members, with the exception of determining the funding period.
- All census data was supplied by ERS and was subject to reasonable consistency checks.
- There were data elements that were modified for some members as part of the valuation in order to make the data complete. However, the number of missing data items was immaterial.
- Asset data was supplied by ERS.

Other Actuarial Valuation Procedures

- No provision was made in this actuarial valuation for the limitations of Internal Revenue Code Sections 415 or 401(a)17.
- Valuation payroll (earnings applied to the current valuation year) is the expected payroll for the fiscal year following the valuation date. It is based on reported payroll determined from August member contributions increased to reflect the across-the-board salary increases appropriated by the State legislature, effective on or after September 1, and projected according to the actuarial assumptions for the upcoming fiscal year.
- No liability was included for benefits which are funded by special State appropriations.
- State appropriations for membership fees are currently immaterial in relation to the overall payroll contributions and have been ignored.

Actuarial Model

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

SECTION G

DETAILED SUMMARIES OF MEMBERSHIP DATA

Detailed Summaries of Membership Data

Table A

Summary of Membership Data

Active Members

Item	Male	Female	Total
Number of Members	18,878	12,866	31,744
Average Annual Salaries	$ 61,550	$ 49,355	$ 56,607
Average Age	42.5	41.7	42.1
Average Entry Age	33.9	34.9	34.2
Average Service	8.6	6.8	7.9

Annuitants

Item	Number	Annual Annuities	Average Annuities	Average Age
Service Retirees*	15,359	$ 89,401,092	$ 5,821	64.2
Beneficiaries	939	$ 3,870,144	$ 4,122	73.3
Disability Retirees	70	$ 948,204	$ 13,546	69.7
Total	16,368	$ 94,219,440	$ 5,756	64.7

* Average Age and Service at Retirement for Service Retirees are 53.9 and 23.6, respectively

Inactive Members Assumed Eligible for Deferred Annuities

Item	Number	Annual Annuities	Average Annuities	Average Age
Participants with Deferred Benefits	99	$ 640,368	$ 6,468	48.0

Non-vested Inactive Members

Item	Number	Account Balances	Average Account Balances	Average Age
Non-vested Members	34,983	$ 10,791,906	$ 308	36.9

Table B

Active Members

Distribution by Age and Service

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 25	2,940 $ 41,967	22 $ 48,185								2,962 $ 42,013
25 - 29	2,687 $ 46,859	721 $ 60,896	14 $ 59,933							3,422 $ 49,870
30 - 34	1,964 $ 47,409	1,443 $ 66,854	383 $ 66,041	6 $ 74,141						3,796 $ 56,723
35 - 39	1,647 $ 47,330	1,024 $ 61,980	849 $ 71,175	435 $ 70,774	24 $ 74,999					3,979 $ 58,918
40 - 44	1,422 $ 47,172	891 $ 57,818	670 $ 64,580	750 $ 75,949	407 $ 80,715	26 $ 78,862				4,166 $ 60,904
45 - 49	1,305 $ 47,355	752 $ 56,332	537 $ 61,829	597 $ 70,133	667 $ 80,752	461 $ 80,853	10 $108,065			4,329 $ 62,704
50 - 54	1,134 $ 47,524	769 $ 54,775	581 $ 59,148	512 $ 64,664	330 $ 83,949	341 $ 95,235	76 $120,372	3 $ 162,345		3,746 $ 62,280
55 - 59	931 $ 47,273	645 $ 53,155	479 $ 56,581	361 $ 60,830	137 $ 75,222	107 $ 87,365	62 $107,714	18 $ 124,548		2,740 $ 56,909
60 - 64	586 $ 47,048	467 $ 51,987	350 $ 56,187	218 $ 59,256	79 $ 66,684	31 $ 75,823	16 $101,473	5 $ 91,111		1,752 $ 53,727
Over 64	285 $ 45,158	281 $ 51,296	174 $ 54,148	67 $ 57,996	27 $ 62,187	10 $ 56,077	7 $ 93,886	1 $ 53,854		852 $ 51,107
Total	14,901 $ 46,143	7,015 $ 58,999	4,037 $ 62,815	2,946 $ 68,545	1,671 $ 79,873	976 $ 86,125	171 $112,210	27 $ 119,937		31,744 $ 56,607

Table C

Retired and Beneficiary Members

Distribution by Age and Category

Age Last Birthday	Number	Annual Benefit	Average Annual Benefit
Service Retirees			
Under 60	5,365	33,612,180	6,265
60 - 64	3,354	19,971,768	5,955
65 - 69	2,812	15,722,040	5,591
70 - 74	2,055	10,591,716	5,154
75 - 79	1,103	5,781,828	5,242
Over 79	670	3,721,560	5,555
Total	15,359	89,401,092	5,821
Beneficiaries			
Under 60	112	526,464	4,701
60 - 64	78	382,392	4,902
65 - 69	122	506,772	4,154
70 - 74	179	637,476	3,561
75 - 79	167	647,136	3,875
Over 79	281	1,169,904	4,163
Total	939	3,870,144	4,122
Disabled Retirees			
Under 60	10	114,660	11,466
60 - 64	16	200,220	12,514
65 - 69	11	92,220	8,384
70 - 74	7	63,276	9,039
75 - 79	13	260,460	20,035
Over 79	13	217,368	16,721
Total	70	948,204	13,546
Grand Total	16,368	94,219,440	5,756

SECTION H

GLOSSARY

Glossary

Actuarial Accrued Liability (AAL): That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Plan Benefits which is not provided for by future Normal Costs. It is equal to the Actuarial Present Value of Future Plan Benefits minus the actuarial present value of future Normal Costs.

Actuarial Assumptions: Assumptions as to future experience under the Fund. These include assumptions about the occurrence of future events affecting costs or liabilities, such as:

- mortality, withdrawal, disablement, and retirement;
- future increases in salary;
- future rates of investment earnings and future investment and administrative expenses;
- characteristics of members not specified in the data, such as marital status;
- characteristics of future members;
- future elections made by members; and
- other relevant items.

Actuarial Cost Method or ***Funding Method:*** A procedure for allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability. These items are used to determine the ADC.

Actuarial Gain or ***Actuarial 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. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the Fund's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

Actuarially Equivalent: Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.

Actuarial Present Value (APV): The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.),
b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and
c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits: The Actuarial Present Value of those benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members either entitled to a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would be provide sufficient assets to pay all projected benefits and expenses when due.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB.

Actuarial Value of Assets or ***Valuation Assets:*** The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly actuaries use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.

Actuarially Determined: Values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

Amortization Method: A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.

Amortization Payment: That portion of the pension plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Actuarially Determined Contribution (ADC) or ***Annual Required Contribution (ARC):*** A calculated contribution for a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the calculated contribution has a normal cost payment and an amortization payment.

Closed Amortization Period: A specific number of years that is counted down by one each year and therefore declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Funding Period and Open Amortization Period.

Decrements: Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.

Defined Benefit Plan: An employer-sponsored retirement benefit that provides workers, upon attainment of designated age and service thresholds, with a monthly benefit based on the employee's salary and length of service. The value of a benefit from a defined benefit plan is generally not affected by the return on the assets that are invested to fund the benefit.

Defined Contribution Plan: A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, and the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.

Employer Normal Cost: The portion of the Normal Cost to be paid by the employers. This is equal to the Normal Cost less expected member contributions.

Experience Study: A periodic review and analysis of the actual experience of the Fund which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

Funded Ratio: The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.

Funding Period or ***Amortization Period:*** The term "Funding Period" is used it two ways. In the first sense, it is the period used in calculating the Amortization Payment as a component of the ADC. This funding period is chosen by the Board of Trustees. In the second sense, it is a calculated item: the number of years in the future that will theoretically be required to amortize (i.e., pay off or eliminate) the Unfunded Actuarial Accrued Liability, based on the statutory employer contribution rate, and assuming no future actuarial gains or losses.

GASB: The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.

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. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits which are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated. Under the entry age normal cost method, the Normal Cost is intended to be the level cost (when expressed as a percentage of pay) needed to fund the benefits of a member from hire until ultimate termination, death, disability or retirement.

Open Amortization Period: An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.

Unfunded Actuarial Accrued Liability: The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.

Valuation Date or ***Actuarial Valuation Date:*** The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

JRS2

Judicial Retirement System of Texas, Plan 2

Annual Actuarial Valuation - Funding
As of August 31, 2023

GRS

P: 469.524.0000 | www.grsconsulting.com

November 27, 2023

Board of Trustees
Employees Retirement System of Texas
200 East 18th Street
Austin, TX 78701

Re: Actuarial Valuation for Funding Purposes as of August 31, 2023

Members of the Board:

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the Judicial Retirement System of Texas, Plan 2 (JRS-2) as of August 31, 2023. This report was prepared at the request of the Board and is intended for use by ERS staff and those designated or approved by the Board. This report may be provided to parties other than ERS only in its entirety and only with the permission of the Board.

Actuarial Valuation

The primary purposes of the actuarial valuation report are to determine the adequacy of the current State and employer contribution rates, describe the current financial condition of JRS-2, analyze changes in the condition of JRS-2, and provide various summaries of the data.

2023 Legislative Session and New Funding Dynamic

Prior to the 2023 legislative session, JRS-2 was significantly underfunded and contributions were insufficient to pay the ongoing costs of the plan. The plan assets were expected to be depleted in 2069.

House Bill 1 appropriated a one-time special contingency contribution of $99 million to JRS-2 to eliminate the unfunded liability and increased the State contribution from 15.663% to 19.25% of payroll. **As a result of these changes, JRS-2 is fully funded as of the valuation date and, barring adverse experience, is expected to remain so in the future.**

The House Bill appropriation was received in the fund after the valuation date on September 8, 2023. The appropriation created a profound shift in the plan's funding needs. For purposes of determining the funding valuation results, we have determined an "adjusted market value of assets" which includes this appropriation.

Senate Bill 1245 in the 2023 Legislative Session created a new defined benefit structure for judges who take office on or after September 1, 2024. The new structure is a lower cost cash balance retirement benefit with meaningful cost and risk sharing mechanisms. As no current members are in the new benefit structure, the change to the benefit structure had no impact to this valuation; however, it will increase plan sustainability and the probability of maintaining full funding going forward.

Plan Provisions

Our actuarial valuation as of August 31, 2023 reflects the benefit and contribution provisions set forth in Chapters 836 through 840 of the Texas Government Code. The current plan provisions are outlined in Section E of this report.

Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees on May 20, 2020 based on the experience investigation that covered the five-year period from September 1, 2014 through August 31, 2019. Additionally, this actuarial valuation incorporates the across-the-board pay increases budgeted by the State Legislature when they are granted for the current biennium. The current actuarial assumptions and methods are outlined in Section F of this report.

Data

This valuation was based upon information as of August 31, 2023, furnished by ERS staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by ERS staff.

Certification

All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of, where applicable, the Internal Revenue Code and ERISA.

The signing actuaries are independent of the plan sponsor. Ms. Woolfrey and Mr. Newton are Enrolled Actuaries and Fellows of the Society of Actuaries, and all of the undersigned are Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries. Finally, each of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

Dana Woolfrey, FSA, EA, MAAA
Senior Consultant & Actuary

Joseph P. Newton, FSA, EA, MAAA
Pension Market Leader & Actuary

Thomas J. Bevins, ASA, MAAA
Consultant & Actuary

Table of Contents

SECTION A

EXECUTIVE SUMMARY

Executive Summary

Item		2023	2022
Membership			
•	Number of		
	- Active members	623	583
	- Retirees and beneficiaries	579	536
	- Inactive, vested	33	41
	- Inactive, nonvested	152	151
	- Total	1,387	1,311
•	Valuation Payroll	$ 94,015,277	$ 90,906,367
Statutory contribution rates		FY 2024	FY 2023
•	Members*	9.36%	9.38%
•	State	19.25%	15.663%
	Total	28.61%	25.04%
Ongoing Plan Costs / Normal Cost Rate		28.24%	26.81%
Contributions sufficient to pay ongoing plan costs?		Yes	No
Assets			
•	Market value (MVA)	$ 591,103,596	$ 566,442,429
•	Adjusted MVA	$ 690,103,596	N/A
•	Actuarial value (AVA)	$ 679,356,349	$ 553,371,109
•	Return on market value (gross)	6.75%	-1.55%
•	Return on market value (net)	6.72%	-1.59%
•	Return on actuarial value	8.1%	8.7%
Actuarial Information on AVA (smoothed)			
•	Actuarial accrued liability	$ 671,588,378	$ 642,307,218
•	Unfunded actuarial accrued liability (UAAL)	$ (7,767,971)	$ 88,936,109
•	Funded ratio	101.2%	86.2%
Actuarial Information on MVA			
•	Unfunded actuarial accrued liability (UAAL)	$ (18,515,218)	$ 75,864,789
•	Funded ratio	102.8%	88.2%

*Member rate reflects that not all members are contributory.

As a result of House Bill 1, the plan is now fully funded and contributions are expected to exceed the ongoing costs of the plan. Thus, it is expected that the plan will remain fully funded in the future if all assumptions are met. Total contributions during fiscal year 2024 are expected to be 28.61% of pay, while the ongoing or normal cost rate of the plan is 28.24%. The contribution sufficiency margin is anticipated to increase in the future due to the new benefit structure.

SECTION B

DISCUSSION

Discussion

Introduction

This report presents the results of the August 31, 2023 actuarial valuation of the Judicial Retirement System of Texas, Plan 2 (JRS-2).

The primary purposes of this actuarial valuation report are to determine the adequacy of the current State and employer contribution rates, describe the current financial condition of JRS-2, analyze the changes in the condition of JRS-2, and provide various summaries of the data.

The $99 million appropriation to JRS-2 and increased State contribution rate as a percentage of payroll that resulted from House Bill 1 significantly changed the outlook for JRS-2 from being on a path to insolvency to being fully funded as of the valuation date. The total expected contribution for the current fiscal year exceeds the total normal cost and is expected to maintain the plan's fully funded status, barring adverse experience.

All of the tables referenced in the following discussion appear in Section C of this report.

Plan Provisions

Senate Bill 1245 in the 2023 Legislative Session created a new defined benefit structure for judges who take office on or after September 1, 2024. The new structure is a cash balance retirement benefit with meaningful cost and risk sharing mechanisms. As no current members are in the new benefit structure, the change to the benefit structure had minimal impact to this valuation. However, the new structure is designed to mitigate unexpected future increases in the UAAL and the ongoing cost of the plan is expected to decrease in the future as new members become part of the new plan structure. The impact will be realized in the future if experience deviates from the assumptions. There were no other changes to the plan provisions during the past year. The current plan provisions are outlined in Section E of this report.

Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees on May 20, 2020 based on the experience investigation that covered the five-year period from September 1, 2014 through August 31, 2019. We believe the assumptions are internally consistent and are reasonable, based on the actual experience of JRS-2. There were no changes to the assumptions.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. A review of the impact of a different set of assumptions on the funded status of JRS-2 is outside the scope of this actuarial valuation.

The current actuarial assumptions and methods are outlined in Section F of this report.

Funding Adequacy

The ERS Board of Trustees approved the Pension Funding Priorities and Guidelines on May 23, 2018 and adopted updates in August, 2020. For the Board, adoption of this policy is intended to:

- Enhance communications and provide transparency to the Legislature and plan members and retirees regarding Board of Trustees' positions on plan funding strategy;
- Provide policy guidance to current and future Boards;
- Ensure that legislators, elected officials and other stakeholders have clear and accurate information about the Trust's funding goals and the needs of the Board in supporting sound fiduciary investment decisions in accordance with Texas Government Code Section 815.106; and
- Identify a recommended plan for the state of Texas, as the plan sponsor, to achieve a 100% funded ratio while following funding best practices and sound actuarial principles, in accordance with Texas Government Code Section 802.2011.

The policy states that the main objective of ERS' retirement programs is to fully fund the long-term cost of benefits provided by statute, through disciplined and timely accumulation of contributions and prudent investment of assets to deliver earned benefits on a continuing basis. In support of this objective, the policy laid out a multi-level funding period goal to gradually achieve funding on sound actuarial principles:

1. Fund normal costs;
2. Avoid trust fund depletion of the pre-funded plans;
3. Meet current statutory standard of a 31-year funding period for unfunded liabilities, per Texas Government Code Sections 811.006 and 840.106; and
4. Match funding period to the average years of service at retirement once a 31-year funding period is achieved, and closed.

After reflecting the House Bill 1 changes, there is no unfunded liability and all Board objectives are currently being met. GRS will continue to monitor the funding situation of the plan against these objectives.

The unfunded actuarial accrued liability (UAAL) of JRS-2 decreased from $88.9 million as of August 31, 2022 to a surplus of $7.8 million as of August 31, 2023. Additionally, the JRS-2 funded ratio—actuarial value of assets divided by the actuarial accrued liability—increased from 86.2% to 101.2%, as of August 31, 2023. This drastic increase in the funded ratio was due to the $99 million allocated to the fund by House Bill 1.

The funded status is one of many metrics used to show trends and develop future expectations about the health of a retirement system. The funded status measure itself is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

The total contribution rate for the current fiscal exceeds the normal cost, and is sufficient to fund the ongoing costs of the plan.

The actuarial standards of practice require that the actuary disclose a "Reasonable Actuarially Determined Contribution". The primary objective of this metric is to give the user an amount that will be sufficient to pay off the unfunded liabilities in a reasonable period of time. Given that the plan is already in a surplus position, with no unfunded liabilities, the normal cost rate of 28.61% can be deemed a Reasonable Actuarially Determined Contribution. Although a disclosure requirement, this should not be viewed as a recommendation. Should the plan develop an unfunded liability in future years, GRS will use a 20-year, closed, level percent of pay amortization to develop this metric until the plan returns to a surplus position.

System Assets

This report contains several tables that summarize key information with respect to the JRS-2 assets.

The total market value of assets increased from $566.4 million to $591.1 million as of August 31, 2023. For purposes of this funding valuation, we have determined an adjusted market value of assets of $690.1 million, which includes the $99 million appropriation from House Bill 1. Table 5 reconciles the changes in the fund during the year. Total contributions (not including the $99 million appropriation) increased from $23.0 million in fiscal year 2022 to $23.5 million in fiscal year 2023.

Table 6 shows the development of the Actuarial Value of Assets (AVA). The current AVA method recognizes each year's gain or loss over a closed five-year period and allows for direct offsetting of gains and losses. The AVA increased from $553.4 million to $679.4 million as of August 31, 2023 (including the $99 million House Bill 1 appropriation).

When measured on a market value, the gross investment return for the fiscal year ending August 31, 2023 was 6.75%, and the return net of investment expenses was 6.72% as reported by the ERS Master Trust Custodian. When measured on an actuarial value, the net investment return was 8.1%. Table 7 shows a history of return rates. The JRS-2 ten-year average gross market return, as reported by the ERS Master Trust Custodian, is 8.04%. The ten-year average return net of investment expenses is 7.99%.

Table 8 provides a history of the contributions paid into JRS-2 and the administrative expenses and benefit payments paid out of JRS-2. JRS-2 paid administrative expenses and benefit payments, in excess of contributions received, of $14.5 million (or 2.6% of assets) in fiscal year 2022 and $16.9 million (or 2.9% of assets) in fiscal year 2023. Table 11 provides a history of contribution rates, as a percent of payroll, paid into the trust by the State, agencies, and members. This table also shows a history of the total normal cost and the Actuarially Sound Contribution (ASC).

Data

This valuation was based upon information as of August 31, 2023, furnished by ERS staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by ERS staff.

The tables in Section G show key census statistics for the various groups included in the valuation.

SECTION C

TABLES

Table 1
Development of Employer Cost

	August 31, 2023	August 31, 2022
1. Payroll		
a. Reported Payroll (August Payroll of Active Members)	$ 94,015,277	$ 90,906,367
b. Valuation Payroll (Expected Covered Payroll for Following Plan Year)	$ 94,015,277	$ 90,906,367
2. Actuarial Accrued Liability for Active Members		
a. Present value of future benefits for active members	$ 405,213,579	$ 391,186,781
b. Less: present value of future normal costs	(160,715,644)	(142,813,117)
c. Actuarial accrued liability	$ 244,497,935	$ 248,373,664
3. Total Actuarial Accrued Liability for:		
a. Retirees and beneficiaries	$ 405,563,937	$ 369,345,293
b. Inactive members	21,526,506	24,588,261
c. Active members (Item 2c)	244,497,935	248,373,664
d. Total	$ 671,588,378	$ 642,307,218
4. Actuarial Value of Assets	$ 679,356,349	$ 553,371,109
5. Unfunded Actuarial Accrued Liability (UAAL) (Item 3d - Item 4)	$ (7,767,971)	$ 88,936,109
7. Total Normal Cost Rate		
a. Gross normal cost rate	27.91%	26.48%
b. Administrative expenses	0.33%	0.33%
c. Total (Item 7a + Item 7b)	28.24%	26.81%
8. Allocation of Contribution Rate		
a. Employer rate	19.25%	15.663%
b. Member rate*	9.36%	9.38%
c. Total contribution rate	28.61%	25.043%
9. Contributions sufficient to pay ongoing plan costs?	Yes	No

*Member rate reflects that not all members are contributory.

Table 2
Actuarial Present Value of Future Benefits

		August 31, 2023	August 31, 2022
1.	Active Members		
	a. Service Retirement	$ 351,676,948	$ 341,366,250
	b. Disability Benefits	15,985,074	14,817,456
	c. Death Before Retirement	5,319,800	5,207,314
	d. Termination	32,231,757	29,795,761
	e. Total	$ 405,213,579	$ 391,186,781
2.	Inactive Members	$ 21,526,506	$ 24,588,261
3.	Annuitants	$ 405,563,937	$ 369,345,293
4.	Total Actuarial Present Value of Future Benefits	$ 832,304,022	$ 785,120,335

Table 3
Analysis of Normal Cost

	August 31, 2023	August 31, 2022
1. Gross Normal Cost Rate		
a. Service Retirement	21.99%	20.75%
b. Disability Benefits	1.40%	1.32%
c. Death Before Retirement	0.42%	0.41%
d. Termination	4.10%	4.00%
e. Total	27.91%	26.48%
2. Administrative Expenses	0.33%	0.33%
3. Total Normal Cost	28.24%	26.81%
4. Less: Member Rate*	9.36%	9.38%
5. Employer Normal Cost Rate	18.88%	17.43%

*Member rate reflects that not all members are contributory.

Table 4
Historical Summary of Active Member Data

Valuation as of August 31,	Active Members		Covered Payroll		Average Salary		Average Age	Average Service
	Number	Percent Increase	Annual Payroll ($)	Percent Increase	$ Amount	Percent Increase		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2008	518	N/A	66,110,000	N/A	127,625	N/A	54.9	9.4
2009	533	2.9%	67,967,500	2.8%	127,519	-0.1%	55.2	9.0
2010	539	1.1%	68,755,000	1.2%	127,560	0.0%	55.8	9.5
2011	546	1.3%	69,655,000	1.3%	127,573	0.0%	55.7	9.2
2012	541	-0.9%	68,777,500	-1.3%	127,130	-0.3%	56.5	10.0
2013	545	0.7%	69,515,000	1.1%	127,550	0.3%	56.5	9.6
2014	554	1.7%	79,122,500	13.8%	142,820	12.0%	57.3	10.2
2015	563	1.6%	80,352,000	1.6%	142,721	-0.1%	56.9	9.3
2016	548	-2.7%	78,238,000	-2.6%	142,770	0.0%	57.4	10.1
2017	557	1.6%	79,330,000	1.4%	142,424	-0.2%	57.2	9.8
2018	561	0.7%	80,072,000	0.9%	142,731	0.2%	57.8	10.4
2019	573	2.1%	81,710,000	2.0%	142,600	-0.1%	56.4	8.5
2020	570	-0.5%	89,810,664	9.9%	157,563	10.5%	56.9	9.1
2021	584	2.5%	90,868,738	1.2%	155,597	-1.2%	56.3	8.5
2022	583	-0.2%	90,906,367	0.0%	155,929	0.2%	56.9	9.1
2023	623	6.9%	94,015,277	3.4%	150,907	-3.2%	56.8	8.4

Table 5
Reconciliation of Plan Net Assets

		Year Ending	
		August 31, 2023	August 31, 2022
		(1)	(2)
1.	Market value of assets at beginning of year	$ 566,442,429	$ 585,179,731
2.	Revenue for the year		
	a. Contributions for the year		
	i. State (including membership fees)	$ 14,685,583	$ 14,384,970
	ii. Member (including penalty interest)	8,830,106	8,575,821
	iii. Total	$ 23,515,689	$ 22,960,791
	b. Net investment income	$ 41,599,424	$ (4,268,639)
	c. Total revenue	$ 65,115,113	$ 18,692,152
3.	Disbursements for the year		
	a. Benefit payments and refunds	$ 40,209,602	$ 37,107,723
	b. Administrative expenses	244,344	321,731
	c. Total expenditures	$ 40,453,946	$ 37,429,454
4.	Increase in net assets (Item 2c - Item 3c)	$ 24,661,167	$ (18,737,302)
5.	Market value of assets at end of year (Item 1 + Item 4)	$ 591,103,596	$ 566,442,429
6.	Special Contingency Funding Appropriation[1]	$ 99,000,000	$ 0
7.	Adjusted market value of assets for funding valuation purposes (Item 5 + Item 6)	$ 690,103,596	$ 566,442,429

[1] In FY23 House Bill 1 was passed in which the State provided JRS-2 with additional one-time funding to pay off the unfunded accrued actuarial pension liability. This appropriation was received in the fund on September 8, 2023.

Table 6
Development of Actuarial Value of Assets

		Year Ending August 31, 2023
1.	Market value of assets at beginning of year	$ 566,442,429
2.	Net new investments	
	a. Contributions for the year (Table 5)	$ 23,515,689
	b. Disbursements for the year (Table 5)	(40,453,946)
	c. Subtotal	(16,938,257)
3.	Market value of assets at end of year	$ 591,103,596
4.	Net earnings (Item 3 - Item 1 - Item 2)	$ 41,599,424
5.	Assumed investment return rate for fiscal year	7.00%
6.	Expected return	$ 39,058,131
7.	Excess return (Item 4 - Item 6)	$ 2,541,293

8. Development of amounts to be recognized as of August 31, 2023:

Fiscal Year End	Remaining Deferrals of Excess (Shortfall) of Investment Income	Offsetting of Gains/(Losses)	Net Deferrals Remaining	Years Remaining	Recognized for this valuation	Remaining after this valuation
	(1)	(2)	(3) = (1) + (2)	(4)	(5) = (3) / (4)	(6) = (3) - (5)
2019	$ 0	$ 0	$ 0	1	$ 0	$ 0
2020	0	0	0	2	0	0
2021	13,071,320	0	13,071,320	3	4,357,107	8,714,213
2022	0	0	0	4	0	0
2023	2,541,293	0	2,541,293	5	508,259	2,033,034
Total	$ 15,612,613	$ 0	$ 15,612,613		$ 4,865,366	$ 10,747,247

9.	Special Contingency Funding Appropriation[1]	$ 99,000,000
10.	Adjusted market value of assets for funding valuation purposes (Item 3 + Item 9)	$ 690,103,596
11.	Actuarial value of assets as of August 31, 2023 (Item 10 - Item 8, Column 6)	$ 679,356,349
12.	Ratio of actuarial value to adjusted market value	98.4%

[1] In FY23 House Bill 1, Appropriation 38202, was passed in which the State provided JRS-2 with additional one-time funding to pay off the unfunded accrued actuarial pension liability. This appropriation was received in the fund on September 8, 2023.

Table 7
History of Investment Return Rates

Year Ending August 31 of	Market Returns (Gross)	Market Returns (Net)	Actuarial
(1)	(2)	(3)	(4)
1998	8.30%	8.23%	N/A
1999	16.26%	16.46%	N/A
2000	9.43%	9.40%	N/A
2001	-6.91%	-6.93%	N/A
2002	-7.17%	-7.21%	N/A
2003	9.20%	9.14%	5.2%
2004	11.69%	11.64%	6.2%
2005	12.71%	12.62%	7.5%
2006	8.83%	8.76%	7.7%
2007	13.88%	13.76%	8.8%
2008	-4.58%	-4.69%	5.9%
2009	-6.60%	-6.71%	3.5%
2010	6.65%	6.48%	4.1%
2011	12.58%	12.36%	5.7%
2012	8.22%	8.04%	7.6%
2013	10.07%	9.87%	8.0%
2014	14.70%	14.58%	9.3%
2015	0.49%	0.44%	7.4%
2016	5.32%	5.28%	7.0%
2017	12.15%	12.11%	7.8%
2018	9.58%	9.54%	7.9%
2019	3.04%	3.00%	7.0%
2020	6.85%	6.82%	6.2%
2021	25.51%	25.46%	10.1%
2022	-1.55%	-1.59%	8.7%
2023	6.75%	6.72%	8.1%
Average Returns			
Last Five Years:	7.75%	7.71%	8.0%
Last Ten Years:	8.04%	7.99%	7.9%
Last Fifteen Years:	7.34%	7.25%	7.2%

Market returns provided by ERS Master Trust Custodian.
Rates in Column (2) represent the market returns gross of all expenses.
Rates in Column (3) represent the market returns net of investment expenses.
Net returns may exceed gross returns in years where adjustments are made to fee expenses.

Table 8
History of Cash Flow

Year Ending August 31, (1)	Contributions (2)	Distributions and Expenditures: Benefit Payments and Refunds (3)	Administrative Expenses (4)	Total (5)	External Cash Flow for the Year (6)	Market Value of Assets (7)	External Cash Flow as Percent of Market Value (8)
2007	$ 15,034	$ (5,805)	$ (395)	$ (6,200)	$ 8,834	$ 217,665	4.1%
2008	15,102	(6,717)	(244)	(6,962)	8,141	215,041	3.8%
2009	15,579	(8,229)	(240)	(8,469)	7,110	205,730	3.5%
2010	15,632	(9,407)	(277)	(9,684)	5,948	225,265	2.6%
2011	16,224	(11,768)	(286)	(12,054)	4,170	259,624	1.6%
2012	8,321	(12,982)	(230)	(13,212)	(4,891)	295,913	-1.7%
2013	8,817	(14,869)	(228)	(15,098)	(6,281)	318,385	-2.0%
2014	17,406	(16,420)	(267)	(16,687)	719	365,290	0.2%
2015	17,922	(19,238)	(284)	(19,522)	(1,600)	364,510	-0.4%
2016	18,129	(21,155)	(226)	(21,381)	(3,252)	381,120	-0.9%
2017	18,511	(23,361)	(295)	(23,656)	(5,145)	420,850	-1.2%
2018	18,500	(24,866)	(296)	(25,162)	(6,662)	453,380	-1.5%
2019	19,563	(29,220)	(363)	(29,583)	(10,020)	456,192	-2.2%
2020	22,820	(32,041)	(273)	(32,314)	(9,494)	477,331	-2.0%
2021	23,081	(35,142)	(235)	(35,377)	(12,296)	585,180	-2.1%
2022	22,961	(37,108)	(322)	(37,430)	(14,469)	566,442	-2.6%
2023	23,516	(40,210)	(244)	(40,454)	(16,938)	591,104	-2.9%

Dollar amounts in thousands

Column (6) = Column (2) + Column (5)

Table 9
Total Experience Gain or Loss

Item (1)	% of AAL	Year Ending August 31, 2023 (2)	Year Ending August 31, 2022 (3)
A. Calculation of total actuarial gain or loss			
1. Unfunded actuarial accrued liability (UAAL), previous year		$ 88,936,109	$ 95,021,008
2. Assumption/Method changes - Liability Only		0	0
3. UAAL, previous year, after assumption changes (Item 1 + Item 2)		88,936,109	95,021,008
4. Normal cost for the year (excluding administrative expenses)		24,072,006	23,907,565
5. Actual administrative expenses		244,344	321,731
6. Contributions for the year (excluding service purchases)		(23,305,892)	(22,937,605)
7. Interest at 7.0%			
a. On UAAL		$ 6,225,528	$ 6,651,471
b. On normal cost and administrative expenses		851,072	848,025
c. On contributions		(815,706)	(802,816)
d. Total		$ 6,260,894	$ 6,696,680
8. House Bill 1: Special Contingency Funding Allocation		$ (99,000,000)	$ -
9. Expected UAAL (Sum of Items 3 through 8)		(2,792,539)	103,009,379
10. Actual UAAL		(7,767,971)	88,936,109
11. Total (gain)/loss for the year (Item 10 - Item 9)		$ (4,975,432)	$ (14,073,270)
B. Source of gains and losses			
11. Asset (Gain)/Loss for the year	0.86%	$ (5,780,358)	$ (8,707,834)
12. Pay Increases (Less)/Greater than Expected	0.56%	(3,787,183)	(197,973)
13. Non-Retired Demographic (Gains)/Losses	0.58%	3,923,506	(5,870,287)
14. Post-Retirement Mortality (Gains)/Losses	0.22%	1,501,331	792,379
15. Other Demographic (Gains)/Losses	0.12%	(832,728)	(89,555)
16. Total (Sum of Items 12 through 16)	0.74%	$ (4,975,432)	$ (14,073,270)

* The plan experiences a (gain)/loss when across-the-board pay increases budgeted by the State Legislature are (less)/greater than assumed.

Table 10
Solvency Test

Actuarial Accrued Liability and Percent of Active Member Payroll for:

	Accumulated Member Contributions Including Interest		Retirees and Beneficiaries Currently Receiving Benefits		Employer Financed Portion of Vested and Nonvested Benefits			Portion of Accrued Liabilities Covered by Assets		
August 31,	(1)	% of Payroll	(2)	% of Payroll	(3)	% of Payroll	Actuarial Value of Assets	(1)	(2)	(3)
2007	$ 44,615	69%	$ 62,008	96%	$ 114,261	177%	$ 211,933	100%	100%	92%
2008	50,408	76%	63,792	96%	124,898	189%	232,891	100%	100%	95%
2009	51,733	76%	85,845	126%	117,991	174%	248,279	100%	100%	94%
2010	57,347	83%	92,253	134%	132,160	192%	264,515	100%	100%	87%
2011	57,769	83%	120,798	173%	121,596	175%	283,935	100%	100%	87%
2012	63,678	93%	122,571	178%	128,950	187%	300,433	100%	100%	89%
2013	64,435	93%	147,052	212%	147,571	212%	318,026	100%	100%	72%
2014	69,364	88%	153,383	194%	163,539	207%	348,431	100%	100%	77%
2015	67,428	84%	194,524	242%	142,059	177%	372,615	100%	100%	78%
2016	73,450	94%	196,779	252%	155,636	199%	395,457	100%	100%	80%
2017	72,977	92%	241,314	304%	149,313	188%	420,850	100%	100%	71%
2018	78,283	98%	246,497	308%	162,992	204%	447,078	100%	100%	75%
2019	70,243	86%	308,069	377%	156,252	191%	467,787	100%	100%	57%
2020	79,309	89%	324,705	363%	187,217	209%	486,802	100%	100%	44%
2021	82,232	91%	366,260	404%	169,556	187%	523,026	100%	100%	44%
2022	89,230	98%	369,345	406%	183,732	202%	553,371	100%	100%	52%
2023	90,460	96%	405,564	431%	175,564	187%	679,356	100%	100%	104%

Note : Dollar amounts in thousands

Table 11
Historical Contribution Rates

Actuarial Valuation as of August 31,	Contributions from: State	Members*	Total	Total Normal Cost Rate	ASC**
1998	16.830%	6.00%*	22.830%	21.43%	Not calculated
1999	16.830%	6.00%*	22.830%	21.82%	Not calculated
2000	16.830%	6.00%*	22.830%	22.01%	Not calculated
2001	16.830%	6.00%*	22.830%	22.37%	Not calculated
2002	16.830%	6.00%*	22.830%	22.88%	Not calculated
2003	16.830%	6.00%*	22.830%	19.58%	Not calculated
2004	16.830%	6.00%*	22.830%	19.58%	Not calculated
2005	16.830%	5.98%	22.810%	20.98%	22.64%
2006	16.830%	5.95%	22.780%	20.59%	21.70%
2007	16.830%	5.98%	22.810%	20.83%	21.60%
2008	16.830%	5.99%	22.820%	19.26%	19.81%
2009	16.830%	5.99%	22.820%	20.30%	20.94%
2010	16.830%	5.98%	22.810%	20.19%	21.68%
2011	6.000%	5.97%	11.970%	20.38%	21.76%
2012	6.500%	5.98%	12.480%	20.25%	21.52%
2013	15.663%	6.57%	22.233%	20.96%	24.08%
2014	15.663%	6.87%	22.533%	21.03%	23.86%
2015	15.663%	7.16%	22.823%	21.40%	23.79%
2016	15.663%	7.44%	23.103%	21.18%	23.48%
2017	15.663%	7.43%	23.093%	20.57%	23.85%
2018	15.663%	7.46%	23.123%	20.83%	23.84%
2019	15.663%	9.39%	25.053%	23.14%	27.84%
2020	15.663%	9.42%	25.083%	26.26%	33.29%
2021	15.663%	9.39%	25.053%	26.64%	33.10%
2022	15.663%	9.38%	25.043%	26.81%	32.72%
2023	19.250%	9.36%	28.610%	28.24%	Not calculated

* Effective member contribution rate due to the active JRS-2 members that have elected to cease contributing to the plan as well as cease accruing additional benefits. FY 1998-2004 shows the rate members contributed if they chose to continue contributions. FY 2005 and forward reflects the effective rate that accounts for some JRS 2 members choosing not to participate after 20 years (or 12 years, if member is an appellate court justice).

SECTION D

RISKS ASSOCIATED WITH MEASURING THE ACCRUED LIABILITY AND ACTUARIALLY DETERMINED CONTRIBUTION, AND LOW-DEFAULT-RISK OBLIGATION MEASURE

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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 due to changing conditions; 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. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
6. **Other demographic risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The actuarially sound contribution rate may be considered as a minimum contribution rate that complies with State statute. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that even contributions made at the actuarially sound contribution rate do not necessarily guarantee benefit security.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Ratio of the market value of assets to total payroll	6.3	6.2	6.4	5.3	5.0	5.7	5.3	4.9	4.5	4.6
Ratio of actuarial accrued liability to payroll	7.1	7.1	6.8	6.6	5.9	6.1	5.8	5.4	5.0	4.9
Ratio of actives to retirees and beneficiaries	1.1	1.1	1.1	1.2	1.2	1.4	1.5	1.7	1.7	2.1
Ratio of net cash flow to market value of assets	-2.9%	-2.6%	-2.1%	-2.0%	-2.2%	-1.5%	-1.2%	-0.9%	-0.4%	0.2%
Duration of the actuarial accrued liability*	9.6	9.7	9.7	9.9	9.5	9.7				

*Duration measure not available before 2018

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the actuarial accrued liability would increase approximately 10% if the assumed rate of return were lowered 1%.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

Low-Default-Risk Obligation Measure

In Actuarial Standards of Practice No. 4 (ASOP No. 4) was revised and reissued in December 2021 by the Actuarial Standards Board (ASB). It includes a new calculation called a low-default-risk obligation measure (LDROM) to be prepared and issued annually for defined benefit pension plans. The transmittal memorandum for ASOP No. 4 includes the following explanation:

"The ASB believes that the calculation and disclosure of this measure provides appropriate, useful information for the intended user regarding the funded status of a pension plan. The calculation and disclosure of this additional measure is not intended to suggest that this is the "right" liability measure for a pension plan. However, the ASB does believe that this additional disclosure provides a more complete assessment of a plan's funded status and provides additional information regarding the security of benefits that members have earned as of the measurement date."

The LDROM estimates the amount of money the plan would need to invest in low risk securities to provide the benefits with greater certainty. The current model expects lower costs but with higher risk, which creates less certainty and a possibility of higher costs. The LDROM model creates higher expected costs but more predictability when compared to the current model. Thus, the difference between the two measures (Valuation and LDROM) is one illustration of the possible costs the sponsor could incur if there was a reduction in the investment risk in comparison to the current diversified portfolio. However, the downside risk would be limited in the scenarios where the current portfolio would fail to achieve returns in excess of the low-default-risk discount, in this case 5.15%. The following information has been prepared in compliance with this new requirement. Unless otherwise noted, the measurement date, actuarial cost methods, and assumptions used are the same as for the funding valuation covered in this actuarial valuation report.

A. LDROM measure of benefits earned as of the measurement date:	$799 million
B. Valuation liability at 7% on measurement date:	$672 million
C. Cost to mitigate investment risk in the System's portfolio:	$127 million

Disclosures: Discount rate used to calculate LDROM: 5.15% Intermediate FTSE Pension Discount Curve as of August 31, 2023. This measure may not be appropriate for assessing the need for or amount of future contributions as the current portfolio is expected to generate significantly more investment earnings than the low-default-risk portfolio. This measure is also not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligation as this measure includes projections of salary increases and the ability for current members to continue to accrue eligibility and vesting service.

SECTION E

SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions for Judicial Retirement System, Plan 2

Membership

Membership is mandatory at the first day of employment for eligible persons who, after August 31, 1985, became a judge, justice, or commissioner of:

(1) The Supreme Court;

(2) The Court of Criminal Appeals;

(3) Courts of Appeals;

(4) District Courts; or

(5) Specified commissioners to a court.

Member Contributions

Judicial officers contribute a percentage of their compensation based on the following schedule:

a. Fiscal year 2014: 6.60%

b. Fiscal year 2015: 6.90%

c. Fiscal year 2016: 7.20%

d. Fiscal years 2017 through 2019: 7.50%

e. Fiscal year 2020 and beyond: 9.50%

Contributions cease after member has accrued 20 years of service credit or has served 12 years on an appellate court and attained the Rule of 70. However, these members may elect to make contributions for each subsequent year of service credit and receive the additional benefit accruals.

Member contributions accumulate interest at 5.00% per year through December 31, 2013 and 2.00% interest per year, thereafter.

State of Texas Contributions

State contributions are set biennially by the legislature. For fiscal years 2022 and 2023, the State will contribute 15.663% of payroll.

Final Compensation

The State salary being paid at the time the member retires to a judge of a court of the same classification as the last court to which the member was elected or appointed. The final judicial pay tier for benefit determination is based on service excluding service as a statutory county court judge. The Final Compensation for a visiting judge is based on the final salary received while holding judicial office.

Creditable Service

The types of service creditable in JRS-2 are membership service, military service and equivalent membership service. Equivalent membership service includes: previously cancelled service, service not previously established, waiting period service, and Additional Service Credit.

Standard Service Retirement Annuity

1. Eligibility:

    a. Age 65 and ten years of service if currently holding judicial office; or

    b. Age 65 and twelve years of service; or

    c. Twenty years of service, regardless of age; or

    d. Member's age plus service credited in the retirement system equals 70 (Rule of 70), if the member has served at least twelve years on an appellate court.

2. Benefits: Monthly annuity payable for life, equal to 50% of Final Compensation at retirement, increased by 10% of Final Compensation at retirement if the member has not been out of judicial office for one year or the member has served as a visiting judge within one year of benefit commencement.

    Members who elect to continue their contributions after 20 years of service credit, or after serving 12 years on an appellate court and attaining the Rule of 70, can earn up to a maximum total benefit of 90% of Final Compensation. For each such year, the service retirement annuity would be increased by 2.30% of the Final Compensation at retirement.

3. Normal Form of Payment: Payable for the life of the member with any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Early Commencement of Standard Service Retirement Annuity

1. Eligibility:

    a. Age 60 and ten years of service if currently holding judicial office; or

    b. Age 60 and twelve years of service.

2. Benefits: Standard Service Retirement Annuity with the 50% replaced by the following percentages based on age at retirement:

Attained Age	Percent of Final Compensation
60	40.0%
61	41.7
62	43.6
63	45.6
64	47.7

3. Normal Form of Payment: Payable for the life of the member with any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Standard Non-Occupational Disability Annuity

1. Eligibility: Seven years of service and the medical board must certify that the member is mentally or physically incapacitated for the further performance of regular judicial duties.
2. Benefits: Unreduced Standard Service Retirement Annuity.
3. Normal Form of Payment: Payable for the life of the member with any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Death Benefit Plan (DBP) Annuity

1. Eligibility: Death of an active member with 10 years of service.
2. Benefits: Benefits are calculated as if the member had elected an optional form of payment, received a Standard Service Retirement Annuity, and died immediately thereafter. If the member dies before becoming eligible for a Standard Service Retirement Annuity, the benefit is reduced for early retirement from age 65.

Pre-Retirement Death Refund Alternative

A refund of accumulated contributions is payable in cases of pre-retirement death where the member did not meet the eligibility requirements for a Death Benefit Plan Annuity, or the eligible beneficiary chooses to receive a refund of the member account balance in lieu of an annuity. This amount is increased by 5% of the member's account balance at death, times full years of service credit at death, to a maximum of 100%.

Deferred Service Retirement Annuity

1. Eligibility: Twelve or more years of service and Member Contributions have not been refunded.
2. Benefits: The Standard Service Retirement Annuity earned as of the date of termination; provided that the annuity may be increased under the provisions of the proportionate retirement program if the member becomes a contributing member of another system that participates in the program.
3. Payments may commence at: Age 65; or a reduced amount as early as age 60.
4. Normal Form of Payment: Payable for the life of the member with any remaining member account balance paid at time of death. Survivorship options and partial lump-sum option are available on an actuarially equivalent basis.

Refund of Accumulated Contributions

A refund of accumulated contributions is payable in cases where a terminated member did not meet the eligibility requirements for an annuity, or a terminated member chooses to receive a refund of his or her account balance in lieu of an annuity.

Limit on Plan Modifications

According to Section 840.106 of the Texas Government Code – a rate of member or State contributions to or a rate of interest required for the establishment of credit in the retirement system may not be reduced or eliminated, a type of service may not be made creditable in the retirement system, a limit on the maximum permissible amount of a type of creditable service may not be removed or raised, a new monetary benefit payable by the retirement system may not be established, and the determination of the amount of a monetary benefit from the system may not be increased, if, as a result of the particular action, the time, as determined by an actuarial valuation, required to amortize the UAAL of the retirement system would be increased to a period that exceeds 30 years by one or more years.

Cash Balance Benefit for Judges Taking Office on or After September 1, 2024

Judge's taking office on or after September 1, 2024 will be eligible for the cash balance benefit. Members eligible for the cash balance benefit will contribute 6% of compensation on an ongoing basis. The member's contribution balance will be accumulated each year with the member's contributions plus an Annual Interest Adjustment and, if applicable, a Gain Sharing Interest Adjustment. The Annual Interest Adjustment is equal to 4% of the member's accumulated account balance.

In years when the five-year average of ERS' total Trust Fund investment returns exceeds 4%, the member's accumulated account balance will also receive a Gain Sharing Interest Adjustment equal to 50% of the return in excess of 4%—up to 3% additional per year. The gain sharing amount will not be less than 0% nor greater than 3% in a given year.

At retirement, the member's accumulated account balance (contributions plus Annual Interest Adjustments plus Gain Sharing Interest Adjustments) will be matched by 150% from the State. The member will receive a cash balance annuity equal to this total amount annuitized over the life expectancy of the member as of the effective date of the member's retirement. The annuity factors will be based on 4% interest and mortality tables adopted by the ERS Board.

Members that leave active employment before retirement but leave their contributions on account with JRS-2 will continue to receive Annual Interest Adjustments and Gain Sharing Interest Adjustments each year. The member can annuitize their accumulated account balance, along with the State match, once they are eligible to commence their annuity.

A member is eligible to retire and receive a cash balance annuity if the member:
(1) is at least 60 years old and has at least eight years of service credited in the retirement system;
(2) is at least 50 years old and has at least 12 years of service credited in the retirement system.

Once retired, the member's cash balance annuity will also be eligible for the Gain Sharing Interest Adjustment in the form of an increase in their benefit equal to the same percentage of gain-sharing interest credited to non-retired member's accounts.

SECTION F

ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees on May 20, 2020 based on the experience investigation that covered the five-year period from September 1, 2014 through August 31, 2019.

I. Valuation Date

The valuation date is August 31 of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

II. Actuarial Cost Method

Because the employer contribution rate is set by statute, the actuarial valuation is used to determine the adequacy of the current State contribution rate and describe the current financial condition of JRS-2.

The actuarial valuation uses the Entry Age Normal actuarial cost method. Under this method, the first step is to determine the contribution rate (level as a percentage of pay) required to provide the benefits to each member, or the normal cost rate. The normal cost rate consists of two pieces: (i) the member's contribution rate, and (ii) the remaining portion of the normal cost rate which is the employer's normal cost rate. The total normal cost rate is based on the benefits payable to each individual active member.

The Unfunded Actuarial Accrued Liability (UAAL) is the liability for future benefits which is in excess of (i) the actuarial value of assets, and (ii) the present value of future normal costs. The employer contribution provided in excess of the employer normal cost is applied to amortize the UAAL.

The funding period is calculated as the number of years required to fully amortize the UAAL, assuming that: (a) future market earnings, net of investment-related expenses, will equal 7.00% per year, (b) there will be no liability gains/losses or changes in assumptions, (c) the number of active members will remain unchanged, (d) active members who leave employment will be replaced by new entrants each year, and (e) State contributions will remain the same percentage of payroll as the current fiscal year.

The Entry Age actuarial cost method is an "immediate gain" method (i.e., experience gains and losses are separately identified as part of the UAAL). However, they are amortized over the same period applied to all other components of the UAAL.

III. *Actuarial Value of Assets*

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income. Offsetting unrecognized gains and losses are immediately recognized, with the shortest remaining bases recognized first and the net remaining bases continue to be recognized on their original timeframe. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of investment-related expenses. The actuarial value of assets was reset to be equal to the market value of assets as of August 31, 2017 and the new method has been applied since that time.

IV. *Actuarial Assumptions*

Investment Return: 7.00% per year, net of investment-related expenses (composed of an assumed 2.30% inflation rate and a 4.70% real rate of return)

Administrative Expenses: 0.33% of valuation payroll per year

Salary Increases: Inflationary pay increases are assumed to occur at the beginning of the year and the remaining pay increases associated with merit, promotion and longevity are assumed to occur at the middle of the valuation year. The components of the annual increases are:

Inflation	Real Wage Growth (Productivity)	Merit, Promotion and Longevity
2.30%	0.00%	See table below

Judges are assumed to follow the current statutory State judicial tiered salary schedule based on years of service and the type of judicial position held, as prescribed in Section 659.012 of the Texas Government Code, in addition to the inflation assumption. Each judicial position type has a defined State base salary with service based tiers, as follows:

Annual Salary Increases for Merit, Promotion and Longevity Male and Female Judges			
Age	Years of Eligibility Service*		
	Less than 4	4 or more, but less than 8	8 or more
All	State base salary	110% of base salary	120% of base salary

*Past service as a statutory county court judge is included in eligibility service for salary purposes. However, county court service is not applicable to JRS-2 benefits or retirement eligibility.

Payroll Growth: 2.30% per year, compounded annually (for projecting valuation payroll).

Post-Retirement Increases: None

Age and Service Assumptions and Methods:

Eligibility Service:

Eligibility Service is considered to be all service eligible for vesting purposes, which includes contributory and non-contributory service.

Benefit Service:

Current Benefit Service in years and months as of the valuation date was provided by ERS. This service plus Future Earned Service, and Eligibility Service at Retirement were used to project benefit amounts.

Future Earned Service:

Active members were assumed to earn one additional year of service credit in each future year employed based on their current class of membership (but not beyond the amount of credit needed to provide a 100% of average monthly compensation standard service retirement annuity).

Entry Age:

Entry age is calculated as the age at the valuation date minus Eligibility Service.

Decrement Timing: All decrements – mortality, service retirement, disability retirement, and termination of employment for reasons other than death or retirement – are assumed to occur at the middle of the valuation year.

Mortality Decrements:

Service Retirees, Beneficiaries, and Inactive Members

2020 State Retirees of Texas (SRT) mortality table. Generational mortality improvements in accordance with the ultimate rates from the scales published through 2019 by Retirement Plans Experience Committee of the Society of Actuaries ("Ultimate MP") and projected from the year 2020. Sample rates for the base mortality table included below.

Annual Mortality Rates per 100 Individuals		
Age	Males	Females
40	0.0585	0.0369
45	0.1028	0.0667
50	0.1771	0.1179
55	0.3052	0.2086
60	0.5260	0.3691
65	0.9066	0.6530
70	1.5627	1.1554
75	2.6933	2.0443
80	4.6421	3.6170
85	8.0010	6.3997
90	13.8587	11.3793

Active Members

Pub-2010 General Employees Active Member Mortality table. Generational mortality improvements in accordance with the Ultimate MP scales are projected from the year 2010.

Disability Retirees

2020 State Retirees of Texas (SRT) mortality table, set forward three years for males and females. Minimum rates at all ages of 3.0% and 2.5% for males and females, respectively. Generational mortality improvements in accordance with the Ultimate MP scales are projected from the year 2020.

Service Retirement Decrements: Graded Tables Based on JRS-1 and JRS-2 Experience

Eligibility Service is used to determine when the rates apply:

- Age 65 with ten years of service, if member currently holding judicial office
- Age 65 with twelve years of service
- Twenty years of service
- Age plus service equal to or greater than 70, if member has at least twelve years of service on an appellate court

Annual Service Retirement Rates State Judges		
	Male and Female	
Age	Unreduced	Reduced
50 - 64	0.20	0.10
65 - 69	0.20	N/A
70 - 74	0.25	N/A
75+	1.00	N/A

Members are assumed to retire when they are projected to have accrued the maximum benefit of 90% of applicable salary, regardless of whether the member elects to continue contributing.

Disability Retirement Decrements: Graded Tables Based on ERS Experience

- The rates do not apply before someone is eligible for the benefit.
- No occupational disabilities are assumed for the elected class or judges.
- Eight years of service is required for non-occupational disability retirement.
- Non-occupational disability rates are assumed to be zero once the member has attained service retirement eligibility.

Sample rates for eligible members:

Annual Disability Rates per 100 Participants		
Age	Males	Females
30	0.0275	0.0135
35	0.0650	0.0442
40	0.0749	0.0896
45	0.1027	0.1455
50	0.1484	0.2072
55	0.2477	0.3488
60	0.3740	0.5583

99% of the disability rates stated above are assumed to be attributable to nonoccupational disabilities and 1% are assumed to be attributable to occupational disabilities. No occupational disabilities are assumed for judges.

Termination Decrements for Reasons Other Than Death or Retirement:

Four per 100 participants for members not eligible for service retirement.

Participants who terminate with at least eight, but less than 12, years of service are assumed to attain the 12 years of eligibility service required for a vested benefit by means of accruing service as a visiting judge.

Withdrawal of Employee Contributions: Members that terminate with a vested benefit are assumed to choose the most valuable option available to them at the time of termination: withdrawal of contributions or deferred annuity.

Percentage of Members Electing Various Benefit Options:

Sex / Benefit	Standard Life Annuity	Option 1	Option 4
Male Member			
Disability	50%	50%	0%
Service Retirement	100%	0%	0%
Death Benefit Plan	0%	85%	15%
Female Member			
Disability	75%	25%	0%
Service Retirement	100%	0%	0%
Death Benefit Plan	0%	70%	30%

The value of the Standard Service Retirement Life Annuity reflects the return of excess contributions payable as a lump sum death benefit in cases the annuity benefits paid are less than the member account balance at the time of retirement.

Beneficiary Characteristics: Males are assumed to be two years older than females.

Census Data and Assets

- The valuation was based on members of JRS-2 as of August 31, 2023 and does not take into account future members, with the exception of determining the funding period.
- All census data was supplied by ERS and was subject to reasonable consistency checks.
- There were data elements that were modified for some members as part of the valuation in order to make the data complete. However, the number of missing data items was immaterial.
- Asset data was supplied by ERS.

Other Actuarial Valuation Procedures

- No provision was made in this actuarial valuation for the limitations of Internal Revenue Code Sections 415 or 401(a)17.
- Valuation payroll (earnings applied to the current valuation year) is the expected payroll for the fiscal year following the valuation date. It is based on reported payroll determined from August member contributions increased to reflect the across-the-board salary increases appropriated by the State legislature, effective on or after September 1, and projected according to the actuarial assumptions for the upcoming fiscal year.

Actuarial Model

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

SECTION G

DETAILED SUMMARIES OF MEMBERSHIP DATA

Detailed Summaries of Membership Data

Table A

Summary of Membership Data

Active Members

Item	Male	Female	Total
Number of Members	335	288	623
Average Annual Salaries	$ 150,367	$ 151,536	$ 150,907
Average Age	59.1	54.2	56.8
Average Entry Age	49.7	47.0	48.4
Average Service	9.4	7.2	8.4

Inactive Members

Item	Number	Annual Annuities	Average Annuities	Average Age
Participants with Deferred Benefits*	33	$ 2,126,892	$ 64,451	61.7
Service Retirees**	523	37,589,508	71,873	72.3
Beneficiaries	53	3,043,452	57,424	74.9
Disability Retirees	3	269,880	89,960	68.3
Total	612	$ 43,029,732	$ 70,310	71.9

* Includes members with at least 8 years of service who are assumed to attain 12 years via service accrual as a visiting judge.

** Average Age and Service at Retirement for Service Retirees are 63.6 and 15.5, respectively

Non-vested Members

Item	Number	Account Balances	Average Account Balance	Average Age
Non-vested Participants	152	$ 4,441,057	$ 29,217	63.3

Table B

Active Members

Distribution by Age and Service

Age	Years of Service									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
Under 25										
25 - 29										
30 - 34	2									2
	$ 140,000									$ 140,000
35 - 39	13									13
	$ 145,385									$ 145,385
40 - 44	50	10								60
	$ 143,327	$ 161,920								$ 146,425
45 - 49	49	20	11							80
	$ 149,702	$ 157,890	$ 158,040							$ 152,896
50 - 54	58	27	21	4	1					111
	$ 148,882	$ 158,460	$ 157,954	$ 170,285	$ 168,000					$ 153,872
55 - 59	37	20	36	18	4	2				117
	$ 144,919	$ 162,944	$ 162,936	$ 172,833	$ 169,250	$ 161,000				$ 158,945
60 - 64	44	18	17	13	8	8				108
	$ 129,375	$ 158,956	$ 153,718	$ 164,571	$ 170,475	$ 171,800				$ 148,561
Over 64	39	21	27	17	17	8	2	1		132
	$ 100,428	$ 138,279	$ 165,351	$ 170,271	$ 176,435	$ 177,278	$ 170,983	$168,000		$ 144,752
Total	292	116	112	52	30	18	2	1		623
	$ 137,939	$ 155,857	$ 160,704	$ 169,734	$ 173,607	$ 173,035	$ 170,983	$168,000		$ 150,907

Table C

Retired and Beneficiary Membership Data

Distribution by Age and Category

Age Last Birthday	Number	Annual Benefit	Average Annual Benefit
Service Retirees			
Under 60	20	1,219,764	60,988
60 - 64	54	3,866,952	71,610
65 - 69	115	8,565,120	74,479
70 - 74	153	11,521,308	75,303
75 - 79	108	7,465,920	69,129
Over 79	73	4,950,444	67,814
Total	523	37,589,508	71,873
Beneficiaries			
Under 60	4	159,696	39,924
60 - 64	2	180,768	90,384
65 - 69	8	582,900	72,863
70 - 74	12	726,888	60,574
75 - 79	13	666,768	51,290
Over 79	14	726,432	51,888
Total	53	3,043,452	57,424
Disabled Retirees			
Under 60	0	0	0
60 - 64	1	110,880	110,880
65 - 69	1	75,000	75,000
70 - 74	1	84,000	84,000
75 - 79	0	0	0
Over 79	0	0	0
Total	3	269,880	89,960
Grand Total	579	40,902,840	70,644

SECTION H

GLOSSARY

Glossary

Actuarial Accrued Liability (AAL): That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Plan Benefits which is not provided for by future Normal Costs. It is equal to the Actuarial Present Value of Future Plan Benefits minus the actuarial present value of future Normal Costs.

Actuarial Assumptions: Assumptions as to future experience under the Fund. These include assumptions about the occurrence of future events affecting costs or liabilities, such as:

- mortality, withdrawal, disablement, and retirement;
- future increases in salary;
- future rates of investment earnings and future investment and administrative expenses;
- characteristics of members not specified in the data, such as marital status;
- characteristics of future members;
- future elections made by members; and
- other relevant items.

Actuarial Cost Method or ***Funding Method:*** A procedure for allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability. These items are used to determine the ADC.

Actuarial Gain or ***Actuarial 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. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the Fund's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

Actuarially Equivalent: Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.

Actuarial Present Value (APV): The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.),
b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and
c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits: The Actuarial Present Value of those benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members either entitled to a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would be provide sufficient assets to pay all projected benefits and expenses when due.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB.

Actuarial Value of Assets or ***Valuation Assets:*** The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly actuaries use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.

Actuarially Determined: Values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

Amortization Method: A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.

Amortization Payment: That portion of the pension plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Actuarially Determined Contribution (ADC) or ***Annual Required Contribution (ARC):*** A calculated contribution for a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the calculated contribution has a normal cost payment and an amortization payment.

Closed Amortization Period: A specific number of years that is counted down by one each year and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Funding Period and Open Amortization Period.

Decrements: Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.

Defined Benefit Plan: An employer-sponsored retirement benefit that provides workers, upon attainment of designated age and service thresholds, with a monthly benefit based on the employee's salary and length of service. The value of a benefit from a defined benefit plan is generally not affected by the return on the assets that are invested to fund the benefit.

Defined Contribution Plan: A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, and the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.

Employer Normal Cost: The portion of the Normal Cost to be paid by the employers. This is equal to the Normal Cost less expected member contributions.

Experience Study: A periodic review and analysis of the actual experience of the Fund which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

Funded Ratio: The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.

Funding Period or ***Amortization Period:*** The term "Funding Period" is used it two ways. In the first sense, it is the period used in calculating the Amortization Payment as a component of the ADC. This funding period is chosen by the Board of Trustees. In the second sense, it is a calculated item: the number of years in the future that will theoretically be required to amortize (i.e., pay off or eliminate) the Unfunded Actuarial Accrued Liability, based on the statutory employer contribution rate, and assuming no future actuarial gains or losses.

GASB: The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.

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. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits which are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated. Under the entry age normal cost method, the Normal Cost is intended to be the level cost (when expressed as a percentage of pay) needed to fund the benefits of a member from hire until ultimate termination, death, disability or retirement.

Open Amortization Period: An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.

Unfunded Actuarial Accrued Liability: The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.

Valuation Date or ***Actuarial Valuation Date:*** The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date.