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

Annual Actuarial Valuation - Funding

As of August 31, 2021

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November 29, 2021

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, 2021

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, 2021. 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.

Senate Bill 321 in the 2021 Legislative Session made significant changes to the benefit structure for new hires on or after September 1, 2022. However, the net employer cost of the new benefits is similar to the prior provisions and no additional funding was provided for, therefore the funding trajectory of the plan was largely unchanged by the legislation. The current financial outlook for LECOSRF continues to be very poor. It is important to understand that the currently scheduled contributions are not expected to accumulate sufficient assets in order to pay all of the currently scheduled benefits when due. Based on current expectations and assumptions, LECOSRF is projected to remain solvent until the year 2050.

Plan Provisions

Our actuarial valuation as of August 31, 2021 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 benefit provisions for new members hired on or after September 1, 2022 are described in more detail later in the report. 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 notable 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, 2021, 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. Falls, 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

R. Ryan Falls, FSA, EA, MAAA
Senior Consultant & Actuary

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

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

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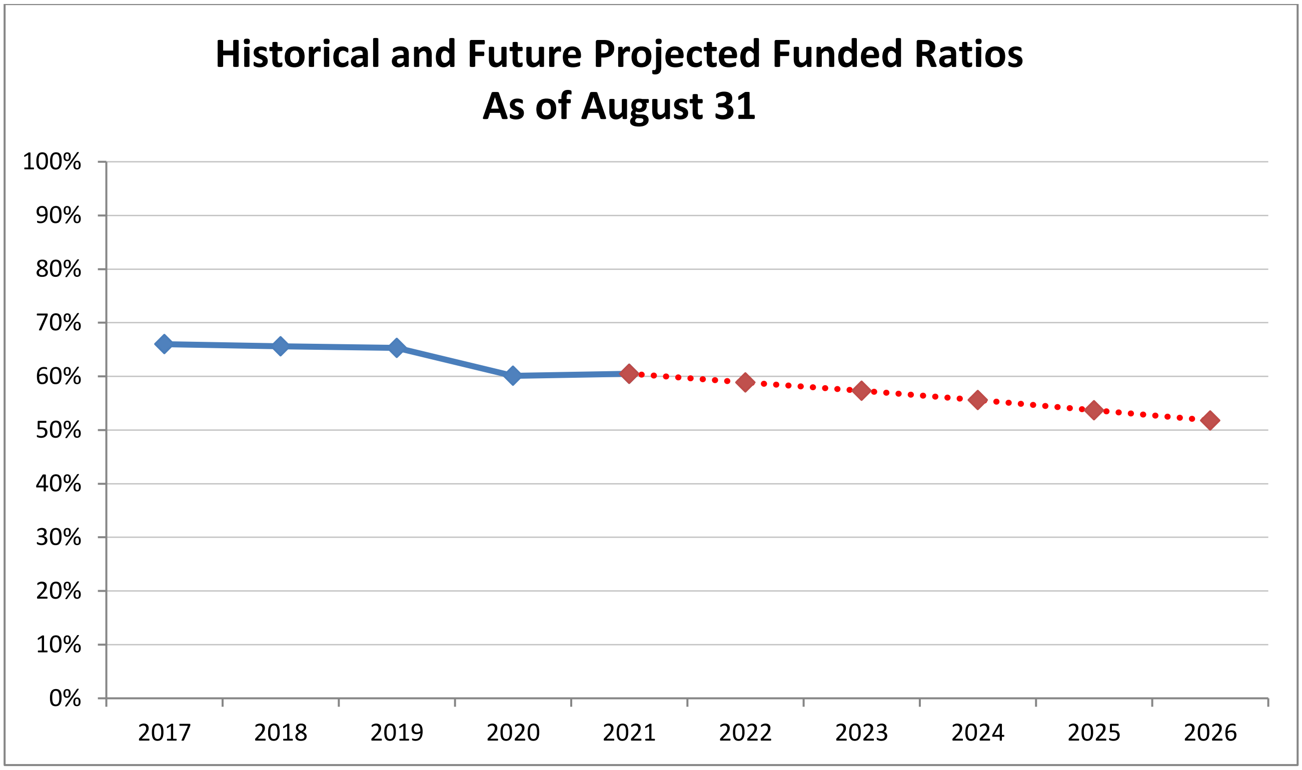
SECTION A

EXECUTIVE SUMMARY

Executive Summary

Item	2021	2020
Membership		
• Number of		
- Active members	32,498	35,230
- Retirees and beneficiaries	15,343	14,697
- Inactive, vested	112	124
- Inactive, nonvested	29,514	25,387
- Total	77,467	75,438
• Valuation Payroll	$ 1,585,643,659	$ 1,629,386,809
Statutory contribution rates	FY 2022	FY 2021
• Members	0.50%	0.50%
• State	0.50%	0.50%
• Expected annual contributions from court fees	$15.0 million	$17.1 million
Actuarially Sound Rate (funds normal cost and amortizes unfunded accrued liability over 31 years, per Section 811.006 of the Texas Government Code)		
- Total Employer Rate	3.97%	3.72%
- Net of Court Fees	3.25%	2.93%
Assets		
• Market value (MVA)	$ 1,116,041,411	$ 947,324,194
• Actuarial value (AVA)	$ 997,651,850	$ 968,062,761
• Return on market value (gross)	25.51%	6.85%
Return on market value (net)	25.46%	6.82%
• Return on actuarial value	10.0%	6.1%
Actuarial Information on AVA - smoothed		
• Normal cost %	1.97%	1.96%
• Total normal cost	$ 31,237,180	$ 31,935,981
• Actuarial accrued liability	$ 1,650,353,001	$ 1,609,587,060
• Unfunded actuarial accrued liability (UAAL)	$ 652,701,151	$ 641,524,299
• Funded ratio	60.5%	60.1%
• Funding period (years)	Never	Never
Actuarial Information on MVA		
• Unfunded actuarial accrued liability (UAAL)	$ 534,311,590	$ 662,262,866
• Funded ratio	67.6%	58.9%

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



August 31,	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Funded Ratio	66.0%	65.6%	65.3%	60.1%	60.5%	58.9%	57.3%	55.6%	53.7%	51.8%
UAAL (in millions)	$476	$500	$515	$642	$653	$699	$748	$801	$859	$921
ASC*	2.37%	2.49%	2.64%	2.93%	3.25%	3.55%	3.82%	4.07%	4.31%	4.55%

* Net employer rate

The projections beyond 2021 are based on the same assumptions, methods and provisions used for the August 31, 2021 valuation, which include the notable across-the-board pay increases budgeted by the State Legislature when they are granted and the assumptions adopted by the Board in May 2020. Additionally, the actuarial value of assets is expected to earn 7.0% per year.

It is important to understand that the currently scheduled contributions are not expected to accumulate sufficient assets in order to pay all of the currently scheduled benefits when due. Based on current expectations and assumptions, LECOSRF is projected to have money in the trust fund until the year 2050. After which, the funding would revert to a pay-as-you-go status. **When LECOSRF reverts to a pay-as-you-go status, the required Legislative appropriation for LECOSRF will immediately increase to 10 times the current State contribution rate, not including contributions from court fees, in order to ensure all retirees continue to receive their promised benefit.**

Given this outlook, we recommend the Legislature increase the contribution rates to LECOSRF.

SECTION B

DISCUSSION

Discussion

Introduction

This report presents the results of the August 31, 2021 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 total contribution rate for the current fiscal year is less than the normal cost by 0.02% of payroll, which, on both an actuarial and market value of assets basis, is not sufficient to amortize the unfunded liability over a finite period of time. As a result, the UAAL is expected to grow indefinitely and the funding objective is not currently being realized. Based on current expectations and assumptions, LECOSRF is expected to remain solvent until the year 2050, after which the funding would revert to a pay-as-you-go status.

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

Plan Provisions

SB 321 created a new defined benefit structure for state employees who began work on or after September 1, 2022. The new structure is a cash balance retirement benefit with meaningful cost and risk sharing mechanisms. The overall average value provided by the State is not meaningfully different from the previous benefit structure. As no current members are in the new benefit structure and the value is similar, the change to the benefit structure had minimal impact to this valuation and forward-looking projections. However, the new structure is designed to mitigate unexpected future increases in the UAAL. The impact will be realized in the future if experience deviates from the assumptions. 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.

This actuarial valuation adjusts for any notable across-the-board pay increases budgeted by the State Legislature for the current biennium. Specifically, regular State employees did not receive an across-the-board increase effective September 1, 2021 nor September 1, 2022. Additionally, commissioned law enforcement positions were assumed to receive the scheduled increases to State Salary Schedule C on September 1, 2021. There were no other 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.

The member contribution rates are established by State statute and the State contribution rate is set by State statute and legislative appropriation. For the fiscal year beginning September 1, 2021, members contribute 0.50% of payroll and the State contributes 0.50% of payroll. LECOSRF also receives a portion of the court fees collected under Section 133.102 of the Local Government Code. The contribution from this source is expected to be approximately $15.0 million for fiscal year 2022 and all subsequent years. It should be noted that level dollar contributions from court fees in future years will result in total contributions that are not expected to remain level as a percent of payroll over time. For fiscal year 2022, the contribution from court fees is expected to be approximately 0.95% of payroll.

The unfunded actuarial accrued liability (UAAL) of LECOSRF increased from $642 million as of August 31, 2020 to $653 million as of August 31, 2021. Additionally, the LECOSRF funded ratio—actuarial value of assets divided by the actuarial accrued liability—increased from 60.1% to 60.5%, as of August 31, 2021. This increase was primarily due to gains on assets. 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 year is less than the normal cost by 0.02% of payroll and no payment will be available to amortize the unfunded liability. The projected contributions are not expected to exceed the normal cost in any year and will not be sufficient to eliminate the unfunded liability over a finite period of time. Assuming the market value of assets earns 7.00% per year, LECOSRF is projected to remain solvent until the year 2050, after which the funding would revert to a pay-as-you-go status. **As a result, the first and second levels of the Board's funding period goal are not currently being realized.**

The third level of the Board's funding period goal is to fund the sum of the normal cost and the amount necessary to amortize any unfunded actuarial accrued liability over a period that does not exceed 30 years by one or more years. Further, Section 811.006 of the Texas Government Code limits the modifications to LECOSRF that would, essentially, increase benefits or lower contributions to the trust unless the current level of benefits and contributions are expected to amortize any unfunded actuarial accrued liability over a period that does not exceed 30 years by one or more years. In this context, the Actuarially Sound Contribution (ASC) rate is the contribution rate that meets this standard. Based on the actuarial valuation as of August 31, 2021, the ASC employer rate for LECOSRF is 3.25% of payroll in addition to the expected annual contributions from court fees of $15.0 million. **Based on the current employer contribution rate of 0.50% of payroll, in addition to court fees, the third level of the Board's funding period goal is not currently being realized.**

The ASC is currently calculated based on a 31-year open amortization period. This means that the ASC will always be calculated with the same 31-year period and the UAAL would never completely be eliminated. We recommend that the Board seek a plan funding strategy that meets the fourth level of the Board's funding period goal or meets an ultimate goal of eliminating the UAAL by a certain date.

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 $947 million to $1,116 million as of August 31, 2021. Table 5 reconciles the changes in the fund during the year. Total contributions decreased from $31.2 million to $29.4 million. Employer contributions for fiscal year 2022 are anticipated to be approximately 1.45% of pay including expected court fees. Total contributions in subsequent years are expected to increase due to higher member contributions under the new cash balance structure; however, the total normal costs are also higher under the new provisions and no additional money to finance the UAAL is currently appropriated. The rate available to finance the UAAL is expected to be a declining percentage of pay since contributions from court fees are expected to remain level as a dollar amount while payroll increases.

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 $968 million to $998 million as of August 31, 2021.

When measured on a market value, the gross investment return for the fiscal year ending August 31, 2021 was 25.51% and the return net of investment expenses was 25.46% as reported by the ERS Master Trust Custodian. When measured on an actuarial value, the net investment return was 10.0%. 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 9.40%. The ten-year average return net of investment expenses is 9.32%.

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 $57.4 million (or 6.1% of assets) in fiscal year 2020 and $64.1 million (or 5.7% of assets) in fiscal year 2021. ERS should continue to monitor this deficit as it could impact future liquidity needs. 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, 2021, 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, 2021	August 31, 2020
1. Payroll		
a. Reported Payroll (August Payroll of Active Members)	$ 1,519,867,666	$ 1,629,386,809
b. Valuation Payroll (Expected Covered Payroll for Following Plan Year)	1,585,643,659	1,629,386,809
2. Total Normal Cost Rate		
a. Gross normal cost rate	1.89%	1.88%
b. Administrative expenses	0.08%	0.08%
c. Total (Item 2a + Item 2b)	1.97%	1.96%
3. Actuarial Accrued Liability for Active Members		
a. Present value of future benefits for active members	$ 866,434,870	$ 884,649,779
b. Less: present value of future normal costs	(202,420,116)	(213,558,314)
c. Actuarial accrued liability	$ 664,014,754	$ 671,091,465
4. Total Actuarial Accrued Liability for:		
a. Retirees and beneficiaries	$ 970,572,535	$ 920,353,836
b. Inactive members	15,765,712	18,141,759
c. Active members (Item 3c)	664,014,754	671,091,465
d. Total	$ 1,650,353,001	$ 1,609,587,060
5. Actuarial Value of Assets	$ 997,651,850	$ 968,062,761
6. Unfunded Actuarial Accrued Liability (UAAL) (Item 4d - Item 5)	$ 652,701,151	$ 641,524,299
7. Expected Contribution from Court Fees		
a. Expected future contributions	$ 15,000,000	$ 17,100,000
b. Equivalent contribution rate for fiscal year	0.95%	1.05%
8. <u>Employer</u> Contribution Rate Needed to Fund Normal Cost Plus Amortize the UAAL Over 31 Years	3.97%	3.72%
9. Contribution Equivalent of Court Fees over 31 years*	(0.72%)	(0.79%)
10. Initial Contribution Shortfall	3.25%	2.93%
11. Employer Payroll Contribution	(0.50%)	(0.50%)
12. Final Contribution Shortfall	2.75%	2.43%
13. Funding period based on statutory contribution rates, expected court fees, and Actuarial Value of Assets (years)	Never	Never

* 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, 2021	August 31, 2020
1.	Active Members		
	a. Service Retirement	$ 844,082,263	$ 860,946,338
	b. Disability Benefits	4,493,877	4,629,103
	c. Death Before Retirement	4,064,587	4,163,566
	d. Termination	13,794,143	14,910,772
	e. Total	$ 866,434,870	$ 884,649,779
2.	Inactive Members	$ 15,765,712	$ 18,141,759
3.	Annuitants	$ 970,572,535	$ 920,353,836
4.	Total Actuarial Present Value of Future Benefits	$ 1,852,773,117	$ 1,823,145,374

Table 3
Analysis of Normal Cost

		August 31, 2021	August 31, 2020
1.	Gross Normal Cost Rate		
	a. Service Retirement	1.68%	1.67%
	b. Disability Benefits	0.02%	0.02%
	c. Death Before Retirement	0.01%	0.01%
	d. Termination	0.18%	0.18%
	e. Total	1.89%	1.88%
2.	Administrative Expenses	0.08%	0.08%
3.	Total Normal Cost	1.97%	1.96%
4.	Less: Member Rate	0.50%	0.50%
5.	Employer Normal Cost Rate	1.47%	1.46%

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	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

Table 5
Reconciliation of Plan Net Assets

		Year Ending	
		August 31, 2021	August 31, 2020
		(1)	(2)
1.	Market value of assets at beginning of year	$ 947,324,194	$ 943,622,645
2.	Revenue for the year		
	a. Contributions for the year		
	i. State (including membership fees)	$ 20,294,220	$ 22,293,664
	ii. Member (including penalty interest)	9,077,532	8,949,911
	iii. Total	$ 29,371,752	$ 31,243,575
	b. Net investment income	$ 232,795,473	$ 61,096,949
	c. Total revenue	$ 262,167,225	$ 92,340,524
3.	Disbursements for the year		
	a. Benefit payments and refunds	$ 91,669,301	$ 86,706,382
	b. Net transfers from TRS	0	0
	c. Administrative expenses	1,780,707	1,932,593
	d. Total expenditures	$ 93,450,008	$ 88,638,975
4.	Increase in net assets (Item 2c - Item 3d)	$ 168,717,217	$ 3,701,549
5.	Market value of assets at end of year (Item 1 + Item 4)	$ 1,116,041,411	$ 947,324,194

Table 6
Development of Actuarial Value of Assets

		Year Ending August 31, 2021
1.	Market value of assets at beginning of year	$ 947,324,194
2.	Net new investments	
	a. Contributions for the year (Table 5)	$ 29,371,752
	b. Disbursements for the year (Table 5)	(93,450,008)
	c. Subtotal	$ (64,078,256)
3.	Market value of assets at end of year	$ 1,116,041,411
4.	Net earnings (Item 3 - Item 1 - Item 2)	$ 232,795,473
5.	Assumed investment return rate for fiscal year	7.00%
6.	Expected return	$ 64,069,955
7.	Excess return (Item 4 - Item 6)	$ 168,725,518
8.	Development of amounts to be recognized as of August 31, 2021:	

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)
2017	$ 0	$ 0	$ 0	1	$ 0	$ 0
2018	0	0	0	2	0	0
2019	(18,380,329)	18,380,329	0	3	0	0
2020	(2,358,238)	2,358,238	0	4	0	0
2021	168,725,518	(20,738,567)	147,986,951	5	29,597,390	118,389,561
Total	$ 147,986,951	$ 0	$ 147,986,951		$ 29,597,390	$ 118,389,561

9.	Actuarial value of assets as of August 31, 2021 (Item 3 - Item 8, Column 6)	$ 997,651,850
10.	Ratio of actuarial value to market value	89.4%

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%
Average Returns			
Last Five Years:	11.17%	11.13%	6.7%
Last Ten Years:	9.40%	9.32%	6.5%
Last Fifteen Years:	7.58%	7.48%	6.1%
Last Twenty Years:	7.38%	7.29%	N/A

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	$ 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%

Dollar amounts in millions

Column (7) = Column (2) + Column (5).

Table 9
Total Experience Gain or Loss

Item	% of AAL	Year Ending August 31, 2021	Year Ending August 31, 2020
(1)		(2)	(3)
A. Calculation of total actuarial gain or loss			
1. Unfunded actuarial accrued liability (UAAL), previous year		$ 641,524,299	$ 514,505,451
2. Assumption/Method change (Gains)/Losses - demographic only		0	69,050,603
3. UAAL, previous year, after assumption changes (Item 1 + Item 2)		641,524,299	583,556,054
4. Normal cost for the year (excluding administrative expenses)		30,632,472	31,079,003
5. Actual administrative expenses		1,780,707	1,932,593
6. Contributions for the year (excluding service purchases)		(28,241,049)	(30,573,931)
7. Interest at 7.0%			
a. On UAAL		$ 44,906,701	$ 40,848,924
b. On normal cost and administrative expenses		1,134,461	1,155,406
c. On contributions		(988,437)	(1,070,088)
d. Total		$ 45,052,725	$ 40,934,242
8. Legislative actions*			
– Across-the-board pay increases budgeted for upcoming biennium by the State Legislature		$ 3,965,497	$ 0
9. Expected UAAL (Sum of Items 3 through 8)		694,714,651	626,927,961
10. Actual UAAL		652,701,151	641,524,299
11. Total (gain)/loss for the year (Item 10 - Item 9)		$ (42,013,500)	$ 14,596,338
B. Source of gains and losses	% of AAL		
12. Asset (Gain)/Loss for the year	1.71%	$ (28,145,691)	$ 8,431,834
13. Pay Increases (Less)/Greater than Expected	0.09%	(1,561,203)	7,219,509
14. Non-Retired Demographic (Gains)/Losses	0.58%	(9,538,025)	(6,015,570)
15. Post-Retirement Mortality (Gains)/Losses	0.15%	(2,457,086)	(1,459,622)
16. Other Demographic (Gains)/Losses	0.02%	(311,495)	6,420,188
17. Total (Sum of Items 12 through 16)	2.55%	$ (42,013,500)	$ 14,596,338

* 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	$ 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%

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%

* 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.

***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

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. 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:

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Ratio of the market value of assets to total payroll	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Ratio of actuarial accrued liability to payroll	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7
Ratio of actives to retirees and beneficiaries	2.1	2.4	2.6	2.8	3.1	3.4	3.6	3.7	4.1	4.4
Ratio of net cash flow to market value of assets	-5.7%	-6.1%	-5.2%	-4.4%	-3.8%	-3.4%	-3.3%	-2.6%	-5.0%	-5.6%
Duration of the actuarial accrued liability*	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.

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 2022 and 2023 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 2022.

State contributions after the 2023 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)
        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. No increase for the first year due to no budgeted across-the-board increases as of September 1, 2022.

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, 2021 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	19,652	12,846	32,498
Average Annual Salaries	$ 50,467	$ 41,109	$ 46,768
Average Age	41.8	41.4	41.7
Average Entry Age	33.1	34.1	33.6
Average Service	8.7	7.3	8.1

Annuitants

Item	Number	Annual Annuities	Average Annuities	Average Age
Service Retirees*	14,409	$ 82,070,940	$ 5,696	63.4
Beneficiaries	855	$ 3,448,872	$ 4,034	73.2
Disability Retirees	79	$ 717,912	$ 9,087	69.7
Total	15,343	$ 86,237,724	$ 5,621	64.0

* Average Age and Service at Retirement for Service Retirees are 53.9 and 23.2, respectively

Inactive Members Assumed Eligible for Deferred Annuities

Item	Number	Annual Annuities	Average Annuities	Average Age
Participants with Deferred Benefits	112	$ 712,188	$ 6,359	48.1

Non-vested Inactive Members

Item	Number	Account Balances	Average Account Balances	Average Age
Non-vested Members	29,514	$ 8,764,166	$ 297	36.2

Table B

Active 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	3,041 $ 32,900	36 $ 39,354								3,077 $ 32,975
25 - 29	2,790 $ 38,707	901 $ 50,375	7 $ 51,762							3,698 $ 41,575
30 - 34	2,012 $ 39,494	1,572 $ 53,325	428 $ 52,135	9 $ 53,550						4,021 $ 46,278
35 - 39	1,572 $ 39,035	1,128 $ 50,020	958 $ 59,594	382 $ 57,713	25 $ 66,463					4,065 $ 48,853
40 - 44	1,373 $ 38,293	956 $ 47,527	744 $ 55,178	730 $ 65,788	459 $ 63,106	23 $ 69,846				4,285 $ 50,796
45 - 49	1,205 $ 38,825	842 $ 46,148	619 $ 51,790	634 $ 60,192	806 $ 65,910	543 $ 66,375	16 $ 72,445			4,665 $ 52,773
50 - 54	1,051 $ 38,619	744 $ 45,542	626 $ 48,539	546 $ 54,650	356 $ 66,273	316 $ 79,765	63 $ 94,657	1 $ 83,571		3,703 $ 51,186
55 - 59	789 $ 38,201	669 $ 44,267	523 $ 46,908	359 $ 49,377	144 $ 59,216	96 $ 68,461	42 $ 94,155	14 $ 102,975		2,636 $ 46,476
60 - 64	435 $ 37,272	476 $ 43,455	327 $ 47,178	242 $ 49,014	71 $ 52,240	39 $ 65,083	11 $ 71,656	7 $ 101,889		1,608 $ 44,736
Over 64	218 $ 38,538	278 $ 42,780	142 $ 45,924	50 $ 49,620	29 $ 49,526	14 $ 61,413	5 $ 52,136	4 $ 75,878		740 $ 43,455
Total	14,486 $ 37,524	7,602 $ 48,332	4,374 $ 52,525	2,952 $ 57,799	1,890 $ 64,030	1,031 $ 70,634	137 $ 88,510	26 $ 97,768		32,498 $ 46,768

Table C

Retired and Beneficiary Members

Distribution by Age and Category

Age Last Birthday	Number	Annual Benefit	Average Annual Benefit
Service Retirees			
Under 60	5,572	33,881,880	6,081
60 - 64	3,126	18,341,988	5,868
65 - 69	2,574	13,320,276	5,175
70 - 74	1,776	9,218,148	5,190
75 - 79	812	4,176,924	5,144
Over 79	549	3,131,724	5,704
Total	14,409	82,070,940	5,696
Beneficiaries			
Under 60	103	453,456	4,402
60 - 64	77	366,540	4,760
65 - 69	132	507,552	3,845
70 - 74	160	548,160	3,426
75 - 79	134	526,620	3,930
Over 79	249	1,046,544	4,203
Total	855	3,448,872	4,034
Disabled Retirees			
Under 60	15	129,936	8,662
60 - 64	16	122,076	7,630
65 - 69	9	39,288	4,365
70 - 74	12	149,472	12,456
75 - 79	12	104,952	8,746
Over 79	15	172,188	11,479
Total	79	717,912	9,087
Grand Total	15,343	86,237,724	5,621

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.