Gabriel Roeder Smith & Company
Consultants & Actuaries

LAW ENFORCEMENT AND CUSTODIAL OFFICER SUPPLEMENTAL RETIREMENT FUND OF THE EMPLOYEES RETIREMENT SYSTEM OF TEXAS

ANNUAL ACTUARIAL VALUATION – FUNDING

AS OF AUGUST 31, 2013

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November 21, 2013

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, 2013

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, 2013. 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.

It is important for the Board of Trustees to understand that the currently scheduled member, employer and State contributions are not expected to accumulate sufficient assets in order to pay all of the currently scheduled benefits when due.

Plan Provisions

Our actuarial valuation as of August 31, 2013 reflects the benefit and contribution provisions set forth in Chapters 811 through 815 of the Texas Government Code. The impact of Senate Bill 1459 passed by the 83rd Legislature of the State of Texas was reflected in the actuarial valuation. The current plan provisions, including the provisions of this bill, are outlined in Appendix I of this report.

Actuarial Assumptions and Methods

The assumptions and methods applied in these actuarial valuations were adopted by the Board of Trustees on February 26, 2013 based on the experience investigation completed by Buck Consultants that covered the five-year period from September 1, 2006 through August 31, 2011. Additionally, the actuarial valuation as of August 31, 2013 also incorporates all known across-the-board pay increases budgeted by the State Legislature for the upcoming biennium. The current actuarial assumptions and methods are outlined in Appendix II of this report.

Data

In order to prepare the valuations as of August 31, 2013, we relied on information 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 otherwise audit the data and we are not responsible for its accuracy.

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. They are all Enrolled Actuaries, Fellows of the Society of Actuaries, and 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

Joseph P. Newton, FSA, EA, MAAA
Senior Consultant

Dana Woolfrey, FSA, EA, MAAA
Consultant

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SECTION A

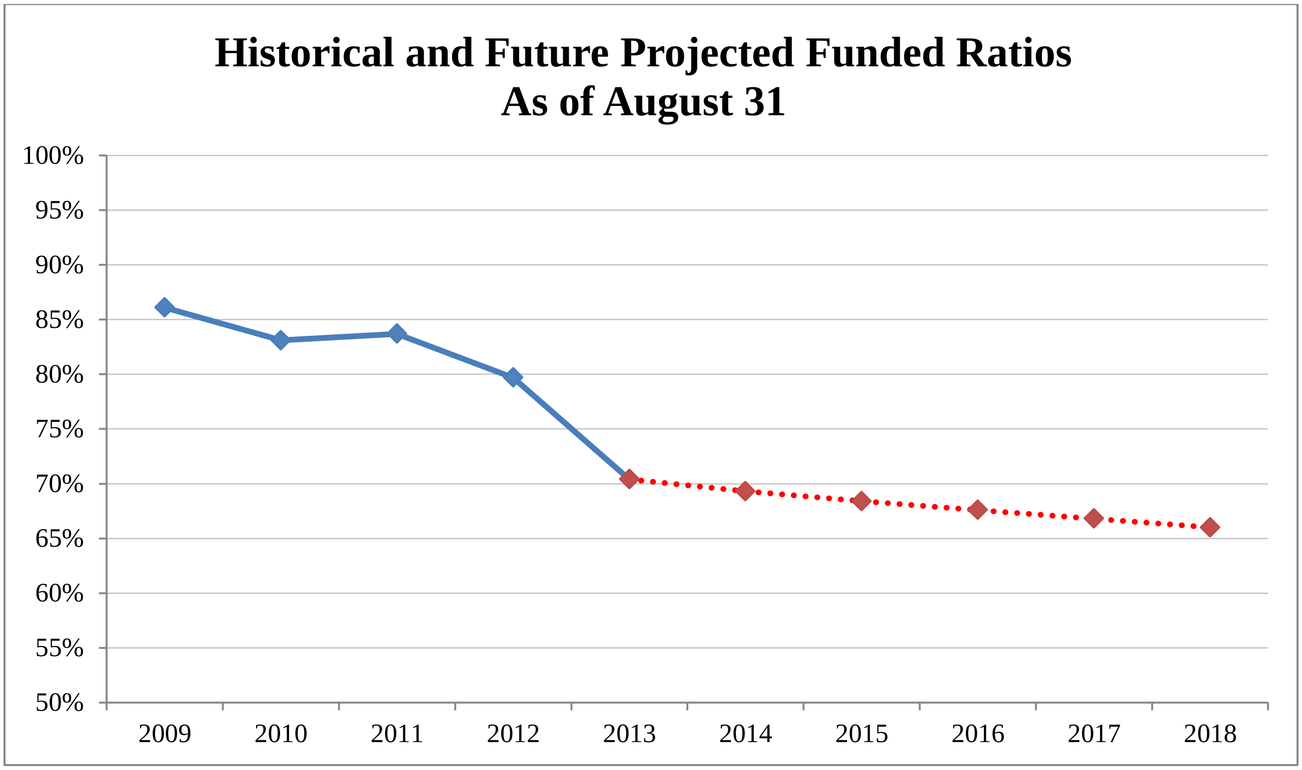
EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Item	2013	2012
Membership		
• Number of		
- Active members	37,415	37,404
- Retirees and beneficiaries	9,089	8,477
- Inactive, vested	65	109
- Inactive, nonvested	10,122	7,020
- Total	56,691	53,010
• Valuation Payroll	$ 1,627,699,122	$ 1,498,979,076
Statutory contribution rates	FY 2014	FY 2013
• Members	0.50%	0.50%
• State	0.50%	0.50%
• Additional Contribution from Court Costs (approximate)	1.20%	0.00%
Actuarially Sound Rate (funds normal cost and amortizes unfunded accrued liability over 31 years, per Section 811.006 of the Texas Government Code)	3.09%	2.86%
Assets		
• Market value	$ 780,669,686	$ 747,673,100
• Actuarial value	$ 843,016,798	$ 832,451,079
• Return on market value*	10.1%	8.2%
• Return on actuarial value	6.1%	5.4%
Actuarial Information		
• Normal cost %	1.80%	2.02%
• Total normal cost	$ 29,298,584	$ 30,279,377
• Actuarial accrued liability	$ 1,197,163,837	$ 1,044,255,456
• Unfunded actuarial accrued liability (UAAL)	$ 354,147,039	$ 211,804,377
• Funded ratio	70.4%	79.7%
• Funding period (years)	Never	Never

* Provided by ERS Master Trust Custodian

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



August 31,	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Funded Ratio	86.1%	83.1%	83.7%	79.7%	70.4%	69.3%	68.4%	67.6%	66.8%	66.0%
UAAL (in millions)	$126	$164	$162	$212	$354	$386	$418	$451	$484	$519
ASC	2.58%	2.72%	2.72%	2.86%	3.09%	3.10%	3.16%	3.24%	3.30%	3.36%

The projections beyond 2013 are based on the same assumptions, methods and provisions used for the August 31, 2013 valuation, which include the impact of SB 1459, known across-the-board pay increases budgeted by the State Legislature, and the assumptions adopted by the Board in February 2013. Additionally, the market value of assets is expected to earn 8% per year.

The two primary sources of increases in the projected Unfunded Actuarial Accrued Liability (UAAL) and the Actuarially Sound Contribution rate per Section 811.006 of the Texas Government Code (ASC) are: (1) the scheduled contribution rates are not sufficient to cover the cost of accruing benefits (the Normal Cost) and the interest on the UAAL, and (2) the continued recognition of previously unrecognized losses on the market value of assets in the calculation of the actuarial value of assets.

It is important for the Board of Trustees to understand that the currently scheduled member, employer and State 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, after which the funding would revert to a pay-as-you-go status. Therefore, for the current benefit structure to be sustainable, the contribution levels will need to be increased further.

Given this outlook, we recommend the Legislature continue to make further increases in the contribution rates (State, employer, and/or member) to LECOSRF to improve the overall financial health of the retirement system.

SECTION B

DISCUSSION

DISCUSSION

Introduction

The results of the August 31, 2013 actuarial valuation of the Law Enforcement and Custodial Officer Supplemental Retirement Fund (LECOSRF) of the Employees Retirement System of Texas are presented in this report.

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 exceeds the normal cost by 0.40% of payroll, but it is not sufficient to amortize the UAAL 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 projected to remain solvent until the year 2050, after which the funding would revert to a pay-as-you-go status. Therefore, for the current benefit structure to be sustainable, the contribution levels will need to be increased further.

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

Plan Provisions

Senate Bill 1459 passed by the 83rd Legislature of the State of Texas (SB1459) made the following changes to the plan provisions of LECOSRF.

1. Changes to benefits for most LECOSRF members hired on or after September 1, 2013:
    a. Minimum unreduced retirement age of 57. Members retiring before age 57 receive a 5% per year permanent early retirement reduction factor,
    b. Eliminates use of annual leave to increase annuity if the member opts to receive the unused annual leave as a lump-sum payment, and
    c. Final Average Salary based on highest 60 months.

2. Reduces interest paid on retirement account balances to 2% prospectively starting January 1, 2014.

The current plan provisions are outlined in Appendix I of this report.

Actuarial Assumptions and Methods

The assumptions and methods applied in these actuarial valuations were adopted by the Board of Trustees on February 26, 2013 based on the experience investigation completed by Buck Consultants that covered the five-year period from September 1, 2006 through August 31, 2011. We believe the assumptions are internally consistent and are reasonable, based on the actual experience of LECOSRF.

The results of the actuarial valuations 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 are outlined in Appendix II of this report.

Funding Adequacy

The funding objective of LECOSRF 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. Contribution rates should be established which, over time, will remain level as a percent of payroll.

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, 2013, members contribute 0.50% of payroll and the State contributes 0.50% of payroll. LECOSRF also receives a portion of the court costs collected under Section 133.102 of the Local Government Code. Based on historical information, the contribution from this source is expected to be approximately $20 million for fiscal year 2014 (approximately 1.20% of payroll).

The August 31, 2013 actuarial valuation of LECOSRF incorporates the new assumptions adopted by the Board of Trustees on February 26, 2013 and the changes implemented by SB1459. The UAAL of LECOSRF increased from $212 million as of August 31, 2012 to $354 million as of August 31, 2013. Additionally, the funded ratio of LECOSRF decreased from 79.7% to 70.4% as of August 31, 2013.

The valuation shows that the total normal cost for funding purposes is 1.80% of payroll. The approximate total contribution rate is 2.20% of payroll for the current fiscal year. The total contribution rate for the current fiscal year exceeds the normal cost by 0.40% of payroll, but it is not sufficient to amortize the UAAL 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.

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 considered actuarially sound. Section 811.006 defines actuarially sound as a retirement system that is receiving a total contribution rate sufficient to cover the normal cost, administrative expenses, and amortize the UAAL over a period of 31 years, or less. Based on the actuarial valuation as of August 31, 2013, the actuarially sound contribution rate for LECOSRF is 3.09% of payroll.

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 $748 million to $781 million as of August 31, 2013. Table 5 reconciles the changes in the fund during the year. Total contributions increased significantly from $7.3 million to $14.3 million, due to an increase in the total contribution rate from 0.50% to 1.00%. Contributions for fiscal year 2014 are anticipated to increase significantly due to a total contribution rate of approximately 2.20% as of August 31, 2013 and legislated pay increases that went into effect September 1, 2013.

Table 6 shows the development of the actuarial value of assets. Rather than use the LECOSRF market value of assets, the valuation reflects a smoothed asset value. This actuarial value is calculated by immediately reflecting 20% of the difference between the expected actuarial value and the current market value. The actuarial value is 8.0% more than the market value.

The approximate investment return for the fiscal year ending August 31, 2013 was 10.1% when measured on market value and 6.1% when measured on actuarial value. Table 7 shows a history of return rates for the past ten years. The LECOSRF ten-year average market return, net of investment expenses, is 7.1%.

Table 8 provides a history of the contributions paid into LECOSRF and the administrative expenses and benefit payments that have been paid out of LECOSRF. This table shows that LECOSRF paid administrative expenses and benefit payments, in excess of contributions received, of $6.5 million (or 1.0% of assets) in fiscal year 2010 and that amount jumped to $38.9 million (or 5.0% of assets) in fiscal year 2013. The increase in the deficit is primarily attributable to the lower State contribution rate over the past biennium. ERS should continue to monitor this deficit as it could impact the future liquidity needs of LECOSRF.

Data

The valuation was based upon information as of August 31, 2013, 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 otherwise audit the data. We are not responsible for the accuracy or completeness of the information provided by ERS staff.

All of the actuarial valuation results stated as of August 31, 2012 are based on the prior actuary's actuarial valuation report. Any values not explicitly stated in the prior actuarial valuation report are denoted with an "N/A".

The tables in Appendix III show key census statistics for the various groups included in the valuation.

SECTION C

TABLES

Development of Employer Cost

	August 31, 2013	August 31, 2012
1. Payroll		
a. Reported Payroll (August Payroll of Active Members)	$ 1,476,722,086	$ 1,475,375,978
b. Valuation Payroll (Expected Covered Payroll for Following Plan Year)	1,627,699,122	1,498,979,076
2. Present Value of Future Pay	$ 10,999,819,606	N/A
3. Total Normal Cost Rate		
a. Gross normal cost rate	1.70%	1.92%
b. Administrative expenses	0.10%	0.10%
c. Total (Item 3a + Item 3b)	1.80%	2.02%
4. Actuarial Accrued Liability for Active Members		
a. Present value of future benefits for active members	$ 896,017,138	$ 775,371,921
b. Less: present value of future normal costs (Item 3a * Item 2)	(186,996,933)	(182,959,612)
c. Actuarial accrued liability	$ 709,020,205	$ 592,412,309
5. Total Actuarial Accrued Liability for:		
a. Retirees and beneficiaries	$ 482,687,108	$ 447,451,269
b. Inactive members	5,456,524	4,391,878
c. Active members (Item 4c)	709,020,205	592,412,309
d. Total	$ 1,197,163,837	$ 1,044,255,456
6. Actuarial Value of Assets	$ 843,016,798	$ 832,451,079
7. Unfunded Actuarial Accrued Liability (UAAL) (Item 5d - Item 6)	$ 354,147,039	$ 211,804,377
8. Amortization of UAAL Over 31 Years as a Level Percentage of Payroll	1.29%	0.84%
9. Contribution Rate Needed to Fund Normal Cost Plus Amortize the UAAL Over 31 Years (Item 3c + Item 8)	3.09%	2.86%
10. Allocation of Contribution Rate		
a. Aggregate employer rate	1.70%	0.50%
b. Member rate	0.50%	0.50%
c. Total contribution rate	2.20%	1.00%
d. Total normal cost rate	1.80%	2.02%
e. Available contribution rate to amortize UAAL	0.40%	(1.02)%
f. Total contribution rate	2.20%	1.00%
11. Funding period based on statutory contribution rates (years)	Never	Never

Prior year information from prior actuary. "N/A" indicates information not disclosed in prior reports.

Actuarial Present Value of Future Benefits

		August 31, 2013	August 31, 2012
1.	Active Members		
	a. Service Retirement	$ 870,283,540	$ 745,417,880
	b. Disability Benefits	8,856,619	13,749,308
	c. Death Before Retirement	7,503,579	7,420,761
	d. Termination	9,373,400	8,783,972
	e. Total	$ 896,017,138	$ 775,371,921
2.	Inactive Members	$ 5,456,524	$ 4,391,878
3.	Annuitants	$ 482,687,108	$ 447,451,269
4.	Total Actuarial Present Value of Future Benefits	$ 1,384,160,770	$ 1,227,215,068

Analysis of Normal Cost

		August 31, 2013	August 31, 2012
1.	Gross Normal Cost Rate		
	a. Service Retirement	1.52%	N/A
	b. Disability Benefits	0.03%	N/A
	c. Death Before Retirement	0.02%	N/A
	d. Termination	0.13%	N/A
	e. Total	1.70%	1.92%
2.	Administrative Expenses	0.10%	0.10%
3.	Total Normal Cost	1.80%	2.02%
4.	Less: Member Rate	0.50%	0.50%
5.	Employer Normal Cost Rate	1.30%	1.52%

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	-7.6%	1,245	-2.4%	37,021	5.6%	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

Reconciliation of Plan Net Assets

		Year Ending	
		August 31, 2013	August 31, 2012
		(1)	(2)
1.	Market value of assets at beginning of year	$ 747,673,100	$ 737,416,639
2.	Revenue for the year		
	a. Contributions for the year		
	i. State (including membership fees)	$ 7,116,706	$ (3,160)
	ii. Member (including penalty interest)	7,185,398	7,287,462
	iii. Total	$ 14,302,104	$ 7,284,302
	b. Net investment income	$ 71,884,653	$ 51,908,963
	c. Total revenue	$ 86,186,757	$ 59,193,265
3.	Disbursements for the year		
	a. Benefit payments and refunds	52,384,925	$ 48,093,209
	b. Net transfers from TRS	0	0
	c. Administrative expenses	805,246	843,595
	d. Total expenditures	53,190,171	48,936,804
4.	Increase in net assets (Item 2c - Item 3d)	$ 32,996,586	$ 10,256,461
5.	Market value of assets at end of year (Item 1 + Item 4)	$ 780,669,686	$ 747,673,100

Development of Actuarial Value of Assets

		Year Ending August 31, 2013
1.	Actuarial value of assets at beginning of year	$ 832,451,079
2.	Net new investments	
	a. Contributions for the year (Table 5)	$ 14,302,104
	b. Disbursements for the year (Table 5)	(53,190,171)
	c. Subtotal	(38,888,067)
3.	Assumed investment return rate	8.00%
4.	Expected return	$ 65,040,564
5.	Expected actuarial value of assets at end of year (Item 1 + Item 2c + Item 4)	$ 858,603,576
6.	Market value of assets at end of year	$ 780,669,686
7.	Excess earnings/(shortfall) (Item 6 - Item 5)	$ (77,933,890)
8.	Excess earnings/(shortfall) recognized (20% x Item 7)	$ (15,586,778)
9.	Actuarial value of assets (Item 5 + Item 8)	$ 843,016,798
10.	Estimated rate of return	6.1%
11.	Actuarial value as percentage of market value	108.0%

History of Investment Return Rates

Year Ending August 31 of	Market*	Actuarial
(1)	(2)	(3)
2003	9.2%	5.2%
2004	11.7%	6.3%
2005	12.7%	7.4%
2006	8.8%	7.6%
2007	13.9%	8.5%
2008	-4.6%	5.7%
2009	-6.6%	3.2%
2010	6.7%	3.7%
2011	12.6%	5.1%
2012	8.2%	5.4%
2013	10.1%	6.1%
Average Returns		
Last Five Years:	6.0%	4.7%
Last Ten Years:	7.1%	5.9%

* Market Value Rates of Return provided by the ERS Master Trust Custodian.

History of Cash Flow

Year Ending August 31, (1)	Contributions (2)	Distributions and Expenditures: Benefit Payments and Refunds (3)	Administrative Expenses (5)	Total (6)	External Cash Flow for the Year (7)	Market Value of Assets (8)	External Cash Flow as Percent of Market Value (9)
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%

Dollar amounts in millions

Column (7) = Column (2) + Column (6).

Total Experience Gain or Loss

Item		Year Ending August 31, 2013		Year Ending August 31, 2012
(1)		(2)		(3)
A. Calculation of total actuarial gain or loss				
1. Unfunded actuarial accrued liability (UAAL), previous year	$	211,804,377	$	162,274,461
2. Normal cost for the year (excluding administrative expenses)	$	28,780,398		N/A
3. Actual Administrative expenses	$	805,246		N/A
4. Contributions for the year (excluding service purchases)	$	(13,121,264)		N/A
5. Interest at 8%				
a. On UAAL	$	16,944,350		N/A
b. On normal cost and administrative expenses		1,183,426		N/A
c. On contributions		(524,851)		N/A
d. Total	$	17,602,925		N/A
6. Assumption Change (Gains)/Losses	$	(9,188,838)	$	(15,694,393)
7. Legislative changes				
a. Across-the-board pay increases budgeted for upcoming biennium by the State Legislature	$	65,842,872	$	0
b. Senate Bill 1459		19,639,512		0
c. Total	$	85,482,384	$	0
8. Expected UAAL (Sum of Items 1 through 7)	$	322,165,228	$	182,724,792
9. Actual UAAL	$	354,147,039	$	211,804,377
10. Total (gain)/loss for the year (Item 9 - Item 8)	$	31,981,811	$	29,079,585
B. Source of gains and losses				
11. Asset (gain)/loss for the year	$	15,586,777	$	21,194,495
12. Pay Increases (Less)/Greater than Expected		6,086,909		(5,942,232)
13. Non-Retired Demographic (Gains)/Losses		(7,041,530)		(861,721)
14. Post-Retirement Mortality (Gains)/Losses		18,945		(1,226,741)
15. Other Demographic (Gains)/Losses		17,330,710		15,915,784
16. Total (Sum of Items 11 through 15)	$	31,981,811	$	29,079,585

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%	$ 278.1	22%	$ 484.6	9%	$ 747.8	100%	100%	97%
2008	-	0%	314.6	25%	527.5	42%	774.5	100%	100%	87%
2009	-	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%

Note : Dollar amounts in millions

APPENDICES

SUMMARY OF PLAN PROVISIONS FOR LAW ENFORCEMENT AND CUSTODIAL OFFICER SUPPLEMENTAL RETIREMENT FUND OF THE 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 System; 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
      ii. Regular: Non-CPO/CO service.
   c. Membership begins after a 90-day waiting period.
   d. CPO/CO Service is required in order to have a benefit payable from this fund.

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. 0.5% to LECOSRF in addition to contributions payable to ERS. Additional member contributions may be allowable for service purchases.
2. Member contributions cease when a member's benefit accrual has reached 100% of Average Monthly Compensation.
3. 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. 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 2014 and 2015 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 costs collected under Section 133.102 of the Local Government Code. Based on historical information, the contribution from this source is expected to be approximately $20 million.

State contributions after the 2015 fiscal year are subject to future legislative appropriations.

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*: 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.

Service Retirement Supplement

1. Employee Class:
   a. *Eligibility*:
      i. Any age with 20 years of CPO/CO Service
   b. *Benefits:* 0.5% of AMC times years of CPO/CO Service
   c. *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	31.5%	43	55.5%
37	34.1%	44	60.2%
38	37.0%	45	65.5%
39	40.1%	46	71.2%
40	43.4%	47	77.4%
41	47.1%	48	84.2%
42	51.1%	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, reduced five percent for each year the member retires prior to age 57, with no maximum possible reduction.
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 (CPO/CO 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. Non-total with less than 20 years of CPO/CO Service: 15% of AMC payable from LECOSRF
      ii. Non-total with 20 years of CPO/CO Service: Benefit defined in the Service Retirement Supplement Section
      iii. 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)
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: 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.

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. 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.
      ii. Payments may commence at any age, provided that the member has terminated all employee class service. The member must retire simultaneously from the regular employee class and the CPO/CO employee class.
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 LECOSRF).

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.

Summary of Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees on February 26, 2013 based on the experience investigation that covered the five-year period from September 1, 2006 through August 31, 2011.

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 and employer contribution rates and 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 a new member and the entry age characteristics of the current active membership.

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 8.00% 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 determined as the expected value of plan assets as of the valuation date plus 20% of the difference between the market-related value and the expected value. The expected value equals the actuarial value of plan assets as of the prior valuation date, plus contributions, less benefit payments and administrative expenses, all accumulated at the assumed rate of interest to the current valuation date.

IV. Actuarial Assumptions

Investment Return: 8.00% per year, net of investment-related expenses (composed of an assumed 3.50% inflation rate and a 4.50% real rate of return)

Administrative Expenses: 0.10% of valuation payroll per year

Salary Increases: Increases are assumed to occur at the beginning of the valuation year and vary by employee group. The components of the annual increases are:

Employee Group	Inflation *	Real Wage Growth	Merit, Promotion and Longevity
Employee Class	3.5%	0%	See sample rates

* Total liabilities for this valuation reflect all known pay increases appropriated by the State legislature for the biennium.

Sample Rates:

Annual Salary Increases for Merit, Promotion and Longevity Male and Female CPO/CO Employee Class Members							
	Years of ERS Decrement Service						
Age	0	1	2	3	4	5 - 9	10+
All	8.00 %	5.00 %	4.50 %	4.00 %	3.50 %	2.00 %	1.50 %

Payroll Growth: 3.50% per year, compounded annually (for projecting valuation payroll).

Age and Service Assumptions and Methods:

Rounding of ages:

Current and projected ages rounded to the nearest year are used for all purposes – determining eligibility for benefits, present value factors, early retirement reductions, option factors, salary increase rates, and decrements.

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 members hired before September 1, 2009, service credit when eligible for service retirement is assumed to be increased by:

- 1.0 years for members retiring from CPO/CO class if service, prior to adjustment, is at least 18 years; and
- 0.5 years for members retiring from CPO/CO class if service, prior to adjustment, is less than 18 years.

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

For members hired on or after September 1, 2009, service credit when eligible for service retirement is assumed to be increased by:

- 1.0 years for members retiring from CPO/CO class if service, prior to adjustment, is at least 19 years; and
- 0.5 years for members retiring from CPO/CO class if service, prior to adjustment, is less than 19 years.

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

Service for Decrements:

The method of calculating ERS Decrement Service and CPO/CO Decrement Service on the valuation date is shown below. Decrement service is assumed to increase by one year for each future year employed based on their current class of membership.

- Valuation Age: Age rounded to the nearest year on valuation date
- ERS Benefit Service: Years and months of all creditable ERS service on the valuation date
- CPO/CO Benefit Service: Years and months of creditable CPO/CO service on the valuation date
- Date 1: (Valuation Date) minus (ERS Benefit Service)
- ERS Decrement Service: (Valuation Age) minus (age rounded to nearest year on Date 1)
- ERS Funding Entry Age (age at hire for the entry age normal cost method): (Valuation Age) minus (ERS Decrement Service)
- Date 2: (Valuation date) minus (CPO/CO Benefit Service)
- CPO/CO Decrement Service: (Valuation Age) minus (age rounded to nearest year on Date 2)

Eligibility Service at Retirement:

For members hired before September 1, 2009, eligibility service is assumed to be increased by the following to reach eligibility for service retirement:

- 2.0 years for members retiring from regular employee class service if age plus service, prior to adjustment, is greater than or equal to 78;
- 1.0 years for members retiring from regular employee class service if age plus service, prior to adjustment, is less than 78;
- 2.0 years for members retiring from CPO/CO class if service, prior to adjustment, is at least 18 years; and
- 1.0 years for members retiring from CPO/CO class if service, prior to adjustment, is less than 18 years.

For members hired on or after September 1, 2009, eligibility service is assumed to be increased by the following to reach eligibility for service retirement:

- 1.0 years for members retiring from regular employee class service ; and
- 1.0 years for members retiring from CPO/CO class 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 beginning of the valuation year.

Mortality Decrements:

<u>Active Members, Service Retirees, Beneficiaries, and Inactive Members</u>

1994 Group Annuity Mortality with no setback for males and set forward two years for females. Generational mortality improvements in accordance with Scale AA are projected from the year 2000.

<u>Disability Retirees</u>

RP-2000 Disabled Retiree Mortality set forward six years for males and setback one year for females.

<u>Occupational Death</u>

2.0% of male and 0.3% of female active member deaths are assumed to be occupational.

Service Retirement Decrements: Graded tables based on ERS experience.

<u>Active CPO/CO Employee Class Members – hired before September 1, 2009</u>

CPO/CO Decrement Service is used to determine when the rates apply:

- Any age with 18 years of CPO/CO service
- Age 55 with nine years of CPO/CO service

Sample rates for eligible members:

Annual Service Retirement Rates per 100 Participants CPO/CO Employee Class Members - Male and Female						
	Years of CPO/CO Decrement Service					
Age	5	10	15	20	25	30
50				45	55	55
51				30	30	30
52				30	30	30
53				30	30	30
54				30	30	30
55		12	12	45	35	35
56		10	10	45	35	35
57		10	10	45	45	45
58		10	10	45	35	35
59		13	13	45	35	35
60	6	16	16	55	35	35
65	15	35	35	50	60	60
70	50	50	50	50	50	50
75	100	100	100	100	100	100

Active CPO/CO Employee Class Members – hired on or after September 1, 2009

CPO/CO Decrement Service is used to determine when the rates apply:

- Any age with 19 years of CPO/CO service
- Age 55 with nine years of CPO/CO service

Sample rates for eligible members:

Annual Service Retirement Rates per 100 Participants CPO/CO Employee Class Members - Male and Female						
	Years of CPO/CO Decrement Service					
Age	5	10	15	20	25	30
50				5	5	5
51				5	5	5
52				5	5	5
53				5	5	5
54				5	5	5
55		12	12	82.5	65	65
56		10	10	37.5	30	30
57		10	10	37.5	37.5	37.5
58		10	10	37.5	30	30
59		13	13	37.5	30	30
60		16	16	55	35	35
65		35	35	50	60	60
70		50	50	50	50	50
75	100	100	100	100	100	100

Disability Retirement Decrements: Graded Tables Based on ERS Experience

Active CPO/CO Employee Class Members

ERS Decrement Service and CPO/CO Decrement Service are used to determine when the rates apply:

- 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 member has attained age 60, if hired before September 1, 2009, or age 65, if hired on or after September 1, 2009.

Sample rates for members:

Annual Disability Rates per 100 Participants CPO/CO Employee Class Members	
Age	Males and Females
30	0.0123
35	0.0418
40	0.0781
45	0.1307
50	0.2365
55	0.3280
60	0.4200

95% of the disability rates stated above are assumed to be attributable to non-occupational disabilities, 4% are assumed to be attributable to non-total occupational disabilities, and 1% 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.

Sample rates for members not eligible for service retirement:

Active CPO/CO Employee Class Members – hired before September 1, 2009

Annual Rates of Termination per 100 Participants CPO/CO Employee Class Members								
	Male and Female - Years of ERS Decrement Service							
Age	0	1	2	3	4	5	10	15
20	23	19	17	17				
25	20	17	14	14	14	13		
30	16	13	12	11	10	10	8	
35	16	11	9	9	8	7	6	4
40	14	10	8	7	7	7	5	2
45	13	10	7	6	6	6	3	2
50	12	9	7	6	6	6	3	2
55	12	7	5	5	4	4		
60	13	7	5	5				

Active CPO/CO Employee Class Members – hired on or after September 1, 2009

Annual Rates of Termination per 100 Participants CPO/CO Employee Class Members								
	Male and Female - Years of ERS Decrement Service							
Age	0	1	2	3	4	5	10	15
20	24	20	17	17				
25	22	19	16	16	16	15		
30	17	15	14	12	12	12	8	
35	18	12	11	11	10	8	6	4
40	15	11	9	8	8	8	5	2
45	14	11	8	7	7	7	3	2
50	13	11	8	7	7	6	3	2
55	13	8	5	5	4	4		
60	15	8	5	5				

Rates of 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%	40%	10%
Service Retirement	100%	0%	0%
Death Benefit Plan	0%	75%	25%
Female Member			
Disability	75%	20%	5%
Service Retirement	100%	0%	0%
Death Benefit Plan	0%	50%	50%

Beneficiary Characteristics: Male member is assumed to be three years older than female beneficiary; and female member is assumed to be the same age as male beneficiary.

Census Data and Assets

- The valuation was based on members of LECOSRF as of August 31, 2013 and does not take into account future members.
- 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 Section 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 have been ignored.

DETAILED SUMMARIES OF MEMBERSHIP DATA

TABLE A

SUMMARY OF MEMBERSHIP DATA

Active Members

Item	Male	Female	Total
Number of Members	22,921	14,494	37,415
Average Annual Salaries	$ 41,533	$ 36,205	$ 39,469
Average Age	42.3	42.6	42.4
Average Service	9.4	8.4	9.1

Annuitants

Item	Number	Annual Annuities	Average Annuities	Average Age
Service Retirees and Beneficiaries	8,979	$ 47,983,140	5,344	62.3
Disability Retirees	110	$ 1,051,764	9,561	64.8
Total	9,089	$ 49,034,904	$ 5,395	62.3

Inactive Members Assumed Eligible for Deferred Annuities

Item	Number	Annual Annuities	Average Annuities	Average Age
Participants with Deferred Benefits	65	$ 386,076	$ 5,940	49.1

Inactive Members Assumed Eligible for Deferred Annuities

Item	Number	Account Balances	Average Account Balances	Average Age
Non-vested Members	10,122	$ 2,003,350	$ 198	35.5

TABLE B

ACTIVE 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	2,707 $ 30,585	32 $ 36,845								2,739 $ 30,658
25 - 29	2,961 $ 34,261	940 $ 38,560	33 $ 37,962							3,934 $ 35,319
30 - 34	2,192 $ 34,439	1,436 $ 41,771	639 $ 43,906	33 $ 43,375						4,300 $ 38,363
35 - 39	1,665 $ 34,239	1,131 $ 40,623	1,028 $ 46,806	645 $ 46,220	19 $ 54,960	1 $ 38,575				4,489 $ 40,535
40 - 44	1,581 $ 34,276	1,066 $ 39,678	1,067 $ 45,200	1,518 $ 48,125	500 $ 50,773	16 $ 59,163				5,748 $ 42,467
45 - 49	1,298 $ 33,805	1,021 $ 38,317	830 $ 41,179	1,330 $ 44,837	920 $ 50,526	586 $ 55,067	20 $ 56,952			6,005 $ 42,748
50 - 54	1,121 $ 33,763	842 $ 37,839	823 $ 39,665	1,064 $ 42,328	340 $ 50,768	280 $ 61,558	62 $ 68,391	2 $ 100,165		4,534 $ 41,095
55 - 59	844 $ 34,331	666 $ 37,100	569 $ 39,275	775 $ 41,021	221 $ 47,189	81 $ 60,072	42 $ 77,925	4 $ 84,977		3,202 $ 39,579
60 - 64	433 $ 34,376	479 $ 36,235	338 $ 38,225	404 $ 41,023	99 $ 44,712	26 $ 52,101	4 $ 53,494	1 $ 68,393		1,784 $ 38,004
Over 64	154 $ 33,465	229 $ 35,728	140 $ 37,262	116 $ 41,543	31 $ 43,864	9 $ 49,255	1 $ 42,144			680 $ 37,082
Total	14,956 $ 33,543	7,842 $ 39,133	5,467 $ 42,612	5,885 $ 44,546	2,130 $ 49,949	999 $ 57,212	129 $ 69,056	7 $ 86,947		37,415 $ 39,469

TABLE C

RETIRED AND BENEFICIARY MEMBERS DISTRIBUTION BY AGE AND CATEGORY

Age Last Birthday	Number	Annual Benefit	Average Annual Benefit
Service Retirees			
Under 60	3,969	22,616,064	5,698
60 - 64	1,871	9,481,068	5,067
65 - 69	1,314	6,715,332	5,111
70 - 74	624	3,262,716	5,229
75 - 79	349	2,047,992	5,868
Over 79	294	1,703,784	5,795
Total	8,421	45,826,956	5,442
Beneficiaries			
Under 60	82	326,592	3,983
60 - 64	71	251,004	3,535
65 - 69	74	270,888	3,661
70 - 74	83	323,772	3,901
75 - 79	69	277,920	4,028
Over 79	179	706,008	3,944
Total	558	2,156,184	3,864
Disabled Retirees			
Under 60	37	272,052	7,353
60 - 64	19	179,292	9,436
65 - 69	19	248,004	13,053
70 - 74	14	133,968	9,569
75 - 79	14	140,892	10,064
Over 79	7	77,556	11,079
Total	110	1,051,764	9,561
Grand Total	9,089	49,034,904	5,395

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 ARC.

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 25, such as the funded ratio and the ARC.

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 ARC.

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 ARC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Annual Required Contribution (ARC): The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under GASB 25. The ARC consists of the Employer Normal Cost and the 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: A retirement plan that is not a Defined Contribution Plan. Typically a defined benefit plan is one in which benefits are defined by a formula applied to the member's compensation and/or years of service.

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, although GASB 25 reporting requires the use of 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 ARC. 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: Governmental Accounting Standards Board.

GASB 25 and ***GASB 27***: Governmental Accounting Standards Board Statements No. 25 and No. 27. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 27 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 25 sets the rules for the systems themselves.

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.