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OLERS

OKLAHOMA LAW ENFORCEMENT RETIREMENT SYSTEM

State of Oklahoma Law Enforcement Retirement System

Actuarial Valuation Report as of July 1, 2020





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

October 7, 2020

Board of Trustees
Oklahoma Law Enforcement Retirement System
421 NW 13th Street, Suite 100
Oklahoma City, OK 73103

Members of the Board:

In this report are submitted the results of the annual valuation of the assets and liabilities of the Oklahoma Law Enforcement Retirement System (OLERS), prepared as of July 1, 2020.

The purpose of this report is to provide a summary of the funded status of the System as of July 1, 2020 and to calculate the Required State Contribution Rate. While not verifying the data at the source, the actuary performed tests for consistency and reasonability. There have been no changes in the actuarial assumptions and methods since the last valuation.

The promised benefits of the System are included in the actuarially calculated contribution rates which are developed using the Entry Age Normal cost method. A five-year market related value of assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded actuarial accrued liability (UAAL) that is being amortized by regular annual contributions as a level dollar amount over a closed period ending in 2029.

We have included some historical information, similar to past financial reporting requirements. Information for reporting under GASB 67, GASB 68, GASB 74, and GASB 75 will be prepared separately. All historical information that references a valuation date prior to July 1, 2013 was prepared by the previous actuarial firm.

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

This is to certify that the independent consulting actuaries are members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with Actuarial Standards of Practice issued by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

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Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Because the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Alisa Bennett', with a stylized, cursive script.

Alisa Bennett, FSA, EA, FCA, MAAA
President

A handwritten signature in blue ink, appearing to read 'Brent A. Banister', with a stylized, cursive script.

Brent Banister, PhD, FSA, EA, FCA, MAAA
Chief Actuary



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EXECUTIVE SUMMARY

OVERVIEW

The Oklahoma Law Enforcement Retirement System (OLERS) provides retirement benefits for several law enforcement agencies of the State of Oklahoma. OLERS is administered by its own Board of Trustees.

This report presents the results of the July 1, 2020 actuarial valuation for the System. The primary purposes of performing an actuarial valuation are to:

- Determine the employer contribution rate required to fund the System on an actuarial basis;
- Evaluate the sufficiency of the statutory contribution rate;
- Disclose asset and liability measures as of the valuation date;
- Determine the experience of the System since the last valuation date; and
- Analyze and report on trends in System contributions, assets, and liabilities.

During the 2020 Oklahoma Legislative Session, state lawmakers passed House Bill No. 3350 which grants certain retirees a one-time cost-of-living adjustment (COLA) effective July 1, 2020. In accordance with this bill, most members who retired prior to or on July 1, 2015 received a 4.0% increase to their benefit amounts, members who retired between July 1, 2015 and July 1, 2018 received a 2.0% increase, and members who retired after July 1, 2018 did not receive an increase. As a result, the actuarial accrued liability increased by \$5.4 million and the actuarial required contribution rate increased by 0.9%.

The valuation results provide a snapshot view of the System's financial condition on July 1, 2020. The unfunded actuarial accrued liability for the System increased by \$21.8 million due to various factors. A detailed analysis of the change in the unfunded actuarial accrued liability from July 1, 2019 to July 1, 2020 is shown on page 4.

The highlights of the valuation are shown below:

Funded Status \$(millions)	Actuarial Valuation Date	
	July 1, 2020	July 1 2019
Actuarial Accrued Liability	\$ 1,232.4	\$ 1,174.7
Actuarial Value of Assets	\$ 1,088.1	\$ 1,052.2
Unfunded Actuarial Accrued Liability	\$ 144.2	\$ 122.5
Funded Ratio (Actuarial Value)	88.3%	89.6%
Market Value of Assets	\$ 1,005.0	\$ 1,017.5
Funded Ratio (Market Value)	81.5%	86.6%

Note that the funded ratios and funded status numbers shown in this report do not indicate whether or not the System has sufficient assets to settle all obligations earned to date, nor do they provide sufficient information to determine what future contribution requirements might be.

There was a liability loss of \$9.9 million, from demographic experience, which resulted in an actuarial accrued liability that was higher than expected (0.8% of expected liability). This loss does not reflect any gain from salary experience, since the salary experience reserve deferred recognition of that gain.



EXECUTIVE SUMMARY

The estimated net return on the market value of assets was 1.2% for the year ended June 30, 2020. The actuarial value of assets is determined using a method to smooth investment gains and losses in order to develop more stable contribution rates. The return on the actuarial value of assets was approximately 5.9% which resulted in an actuarial loss of \$17.0 million.

The actuarial contribution rate for the employer increased from 2019 to 2020:

Contribution Rate	Actuarial Valuation Date	
	July 1, 2020	July 1, 2019
Normal Cost	25.71%	26.28%
Amortization of UAAL	24.88%	20.15%
Budgeted Expenses	<u>1.73%</u>	<u>1.36%</u>
Actuarial Contribution Rate	52.32%	47.79%
Less Estimated Member Contribution Rate	<u>8.00%</u>	<u>8.00%</u>
Employer Actuarial Contribution Rate	44.32%	39.79%
Less Employer Statutory Contribution Rate	11.26%	11.20%
Required State Rate	33.06%	28.59%

The required State contribution rate in the 2020 valuation is 33.06%, which is up from last year's required State contribution rate of 28.59%. The State contributions come from various sources not related to payroll and the actual contributions fell short of the required rates for many years, but in the last several years the actual contributions were in the range of the actuarial rates. The rate determined this year is in the about 5% of pay more than actual contributions received in recent years. We also note that HB 2742 and HB 3864, both passed in the 2020 Legislative Session, the contributions from the State are anticipated to be lower, especially for the next two fiscal years.

EXPERIENCE: July 1, 2019 to July 1, 2020

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is July 1, 2020. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the System, which are generally in excess of the assets. The actuarial process leads to a method of determining the contributions needed by members and employers in the future to balance the System assets and liabilities.

Changes in the System's assets and liabilities impacted the change in the actuarial contribution rates between July 1, 2019 and July 1, 2020. Each component is examined in the following discussion.

ASSETS

As of July 1, 2020, the System had total funds when measured on a market value basis of \$1,005.0 million. This was a decrease of around \$12.5 million from the July 1, 2019 figure of \$1,017.5 million. The market value of assets is not used directly in the calculation of the actuarial contribution rate. An asset valuation method, which smooths the effect of market fluctuations, is used to determine the value of assets used in the valuation, called the "actuarial value of assets". Differences between the actual return on the market value of assets and the assumed return on the actuarial value of assets are phased in over a five-year period. The resulting value must be no less than 80% of the market value and no more than 120% of market value,



EXECUTIVE SUMMARY

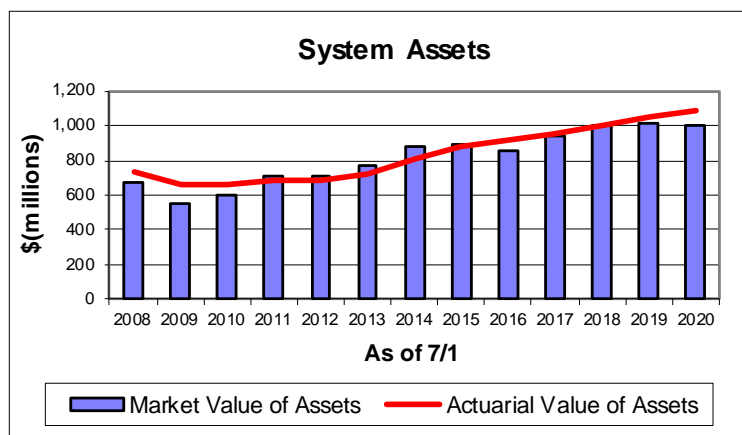
referred to as “the corridor”. See Table 3 for the detailed development of the actuarial value of assets as of July 1, 2020.

The actuarial value of assets as of July 1, 2020 was \$1,088.1 million. The annualized dollar-weighted rate of return for FY2019, measured on the actuarial value of assets, was approximately 5.9%, which resulted in an actuarial loss of \$17.0 million. Measured on the market value basis, the estimated rate of return was 1.2%.

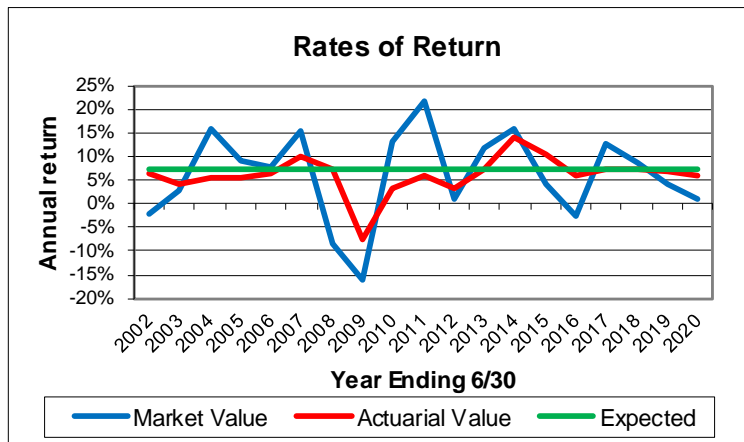
The components of the change in the market and actuarial value of assets for the System are set forth below:

	Market Value \$(millions)	Actuarial Value \$(millions)
Net Assets, July 1, 2019	\$1,018	\$1,052
• Employer and Member Contributions	42	42
• Benefit Payments and Expenses	(67)	(67)
• Investment Income/(Loss)	<u>12</u>	<u>61</u>
Preliminary Value July 1, 2020	\$1,005	\$1,088
Application of Corridor	N/A	N/A
Final Net Assets, July 1, 2020	\$1,005	\$1,088
Estimated Rate of Return	1.2%	5.9%

Due to the use of an asset smoothing method, there is about \$83 million of deferred investment loss that has not yet been recognized. This deferred investment experience will be reflected in the actuarial value of assets over the next few years.



While the market value of assets was notably lower than actuarial value following the market downturn of 2008 and 2009, a combination of strong returns and gradual recognition of the loss has brought the actuarial and market values generally closer together.



Rates of return on the market value of assets are very volatile. The more stable return on the actuarial value of assets illustrates the advantage of using an asset smoothing method.

SYSTEM LIABILITIES

The actuarial accrued liability is that portion of the present value of future benefits that will not be paid by future normal costs. The difference between this liability and the asset value at the same date is referred to as the unfunded actuarial accrued liability (UAAL). The UAAL will be reduced if the employer’s contributions exceed the employer’s normal cost for the year, after allowing for interest on the previous years’ unfunded actuarial accrued liability. Benefit improvements, experience gains/losses, and changes in the actuarial assumptions and methods will also impact the total actuarial accrued liability and the unfunded portion thereof.

The unfunded actuarial accrued liability as of July 1, 2020 is:

Actuarial Accrued Liability	\$1,232,365,354
Actuarial Value of Assets	<u>1,088,124,000</u>
Unfunded Actuarial Accrued Liability	\$144,241,354

See Table 5 for the detailed development of the Actuarial Accrued Liability and Table 8 for the calculation of the Unfunded Actuarial Accrued Liability.

Other factors influencing the UAAL from year to year include actual experience versus that expected based on the actuarial assumptions (both asset and liability), changes in the actuarial assumptions, procedures or methods and changes in benefit provisions. The actual experience measured in this valuation is that which occurred during the plan year ending June 30, 2020. There was an experience loss on the actuarial value of assets and an experience loss on the liabilities. The net result was a \$26.9 million increase in the UAAL. Absent the salary experience gain transferred to salary experience reserve, the loss on liabilities would have been about less than \$1 million. The *ad hoc* COLA granted effective July 1, 2020 added \$5.4 million in liabilities, although this resulted in a corresponding release from the salary experience reserve because future expected COLAs will be reduced by the amount granted in this COLA.



EXECUTIVE SUMMARY

Between July 1, 2019 and July 1, 2020 the change in the unfunded actuarial accrued liability for the System was as follows:

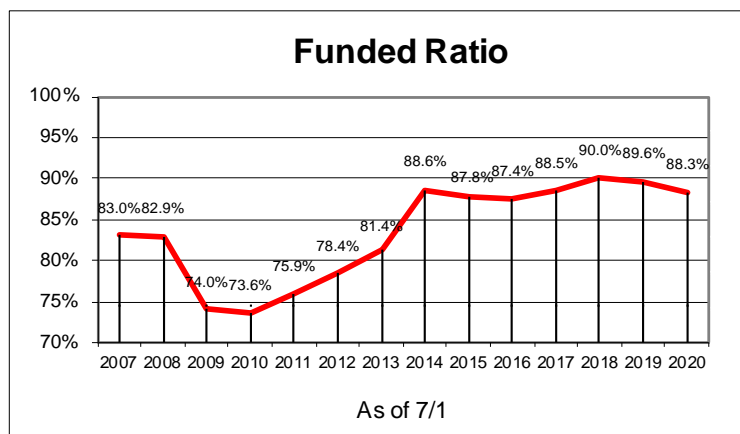
	\$(millions)
Unfunded Actuarial Accrued Liability, July 1, 2019	\$122.5
· effect of contributions above the actuarial rate	(0.3)
· expected decrease due to amortization method	(8.7)
· investment experience	17.0
· liability experience ¹	9.9
· 2020 <i>ad hoc</i> COLA	5.4
· other experience	<u>(1.6)</u>
Unfunded Actuarial Accrued Liability, July 1, 2020	\$144.2

¹ Liability loss is about 0.8% of total expected actuarial accrued liability

A detailed summary of the change in the UAAL is shown in Table 8.

An evaluation of the unfunded actuarial accrued liability on a pure dollar basis may not provide a complete analysis because only the difference between the assets and liabilities (which are both very large numbers) is reflected. Another way to evaluate the unfunded actuarial accrued liability and the progress made in its funding is to track the funded status, which is the ratio of the actuarial value of assets to the actuarial accrued liability. The funded status information, on both an actuarial and market value basis, is shown in the following table in \$(millions).

	7/1/15	7/1/16	7/1/2017	7/1/2018	7/1/2019	7/1/2020
Using Actuarial Value of Assets:						
Funded Ratio	87.8%	87.4%	88.5%	90.0%	89.6%	88.3%
Unfunded Actuarial Accrued Liability (UAAL)	\$122	\$131	\$125	\$112	\$122	\$144
Using Market Value of Assets:						
Funded Ratio	89.6%	81.9%	86.8%	89.3%	86.6%	81.5%
Unfunded Actuarial Accrued Liability (UAAL)	\$104	\$189	\$143	\$120	\$157	\$227



With the market downturn in 2008 and 2009, the funded ratio declined significantly. Since 2010, the funded ratio has improved before recently leveling off.



CONTRIBUTION RATES

The funding objective of the System is to pay the normal cost rate plus an amount that will pay off the unfunded actuarial accrued liability over a closed 15-year period commencing July 1, 2014.

Under the Entry Age Normal cost method, the actuarial contribution rate consists of:

- A “normal cost” for the portion of projected liabilities allocated by the actuarial cost method to service of members during the year following the valuation date;
- An “unfunded actuarial accrued liability contribution” for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets.

Contributions to the System are made by the members and their employers. Members pay 8.00% of compensation. The employer rate is currently 11.00% of pay for actives members and for members in the Deferred Option Plan (DOP). For the DOP members, 5.50% is credited to the member accounts and 5.50% is used for general funding. The remainder of the Total Contribution rate is the required State contribution rate. State contributions, which consist of a portion of revenues from driver’s license fees and insurance premium tax, have fallen short of the required rates in the past. However, with the favorable experience of the past few years, these contributions have been close to the required amounts for the past five fiscal years. Whether or not this will continue is as of yet unknown. We also note that HB 2742 and HB 3864, both passed in the 2020 Legislative Session, the contributions from the State are anticipated to be lower, especially for the next two fiscal years.

MEMBER INFORMATION

The number of active members increased slightly from 1,234 in the 2019 valuation to 1,250 in the 2020 valuation. There were 1,525 retirees and beneficiaries in the 2020 valuation, including DOP members. These individuals have an average benefit of \$3,325 (not including the medical supplement) per month, compared to \$3,157 the previous year.

COMMENTS

Poor investment returns for the year increased the deferred losses. Volatility in investment returns is a major source of variability for the System, but the use of asset smoothing helps with stability.

The required State contribution rate (above the member and employer contributions) in the 2020 valuation is 33.06%, up from the 2019 valuation contribution rate of 28.59%. This contribution requirement is anticipated to be substantially met by the various dedicated revenue sources that flow into OLERS.

The funded ratio of the System decreased from 89.6% to 88.3% when using the actuarial value of assets. This decrease was due to an experience loss on both assets and liabilities. In the absence of any significant changes or adverse experience, the funded ratio is expected to increase over the coming years, although external factors such as asset returns and the sources of State funding could affect how steadily and quickly the funding improves.

We note that as we are preparing this report, the world is in the midst of a pandemic. We have considered available information, but do not believe that there is yet sufficient data to warrant the modification of any of our assumptions. We will continue to monitor the situation and advise the Board in the future of any adjustments that we believe would be appropriate.



SECTION 1 – SUMMARY OF RESULTS

For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below.

COMPARISON OF PRINCIPAL VALUATION RESULTS

	7/1/2020 Valuation	7/1/2019 Valuation	% Change
1. PARTICIPANT DATA			
Number of:			
Active Members - Not vested	532	462	15.2
Active Members - Vested	718	772	(7.0)
Active Members Total	<u>1,250</u>	<u>1,234</u>	1.3
Retired and Disabled Members and Beneficiaries	1,475	1,435	2.8
Deferred Option Plan (DOP) Members	50	39	28.2
Inactive Members	<u>36</u>	<u>32</u>	12.5
Total members	2,811	2,740	2.6
Projected Annual Salaries of Active Members	\$ 87,673,889	\$ 85,407,024	2.7
Annual Retirement Payments for Retired Members, Disabled Members, and Beneficiaries	\$ 57,763,796	\$ 53,545,022	7.9
2. ASSETS AND LIABILITIES			
Total Actuarial Accrued Liability	\$ 1,232,365,354	\$ 1,174,656,889	4.9
Market Value of Assets	\$ 1,004,978,482	\$ 1,017,522,520	(1.2)
Actuarial Value of Assets	\$ 1,088,124,000	\$ 1,052,192,000	3.4
Unfunded Actuarial Accrued Liability	\$ 144,241,354	\$ 122,464,889	17.8
Funded Ratio	88.3%	89.6%	(1.4)
3. EMPLOYER CONTRIBUTION RATES AS A PERCENT OF PAYROLL			
Normal Cost Rate	25.71%	26.28%	(2.2)
Amortization of Unfunded Actuarial Accrued Liability	24.88%	20.15%	23.5
Budgeted Expenses	1.73%	1.36%	27.2
Total Actuarial Required Contribution Rate	<u>52.32%</u>	<u>47.79%</u>	9.5
Less Member Contribution Rate	8.00%	8.00%	0.0
Less Estimated Employer Contribution Rate	<u>11.26%</u>	<u>11.20%</u>	0.5
Required State Contribution Rate	33.06%	28.59%	15.6
Required State Contribution Amount	\$ 28,985,669	\$ 24,416,042	18.7



Oklahoma Law Enforcement Retirement System

Market Value of Assets

The current market value represents the "snapshot" or "cash-out" value of System assets as of the valuation date. In addition, market values of assets provide a basis for measuring investment performance from time to time. At July 1, 2020, the market value of assets for the System was \$1,005 million. Table 1 is a comparison, at market values, of System assets as of June 30, 2020 and June 30, 2019 in total and by investment category. Table 2 summarizes the change in the market value of assets from July 1, 2019 to June 30, 2020.

Actuarial Value of Assets

Neither the market value of assets, representing a "cash-out" value of System assets, nor the book value of assets, representing the cost of investments, may be the best measure of the System's ongoing ability to meet its obligations.

To arrive at a suitable value for the actuarial valuation, a technique for determining the actuarial value of assets is used, which dampens swings in the market value while still indirectly recognizing market values.

The actuarial value of assets is based on a five-year moving average of expected and actual market values determined as follows:

- at the beginning of each fiscal year, a preliminary expected actuarial asset value is calculated as the sum of the previous year's actuarial value increased with a year's interest at the System's valuation rate plus net cash flow adjusted for interest (at the same rate) to the end of the previous fiscal year;
- the expected actuarial asset value is set equal to the preliminary expected actuarial value plus the unrecognized investment gains and losses as of the beginning of the previous fiscal year;
- the difference between the expected actuarial asset value and the market value is the investment gain or loss for the previous fiscal year;
- the (final) actuarial asset value is the preliminary value plus 20% of the investment gains and losses for each of the five previous fiscal years, but in no case more than 120% of the market value or less than 80% of the market value.

Table 3 shows the development of the actuarial value of assets (AVA) as of the valuation date.



Oklahoma Law Enforcement Retirement System

Table 1

Analysis of Net Assets at Market Value

	June 30, 2020		June 30, 2019	
	Amount \$(millions)	% of Total	Amount \$(millions)	% of Total
Cash & Short-term Investments	\$ 43.9	4.3%	\$ 16.8	1.6%
Domestic Corporate Bonds	146.9	14.5%	129.9	12.3%
U.S. Government Bonds	61.8	6.1%	62.3	6.2%
Domestic Stock	366.1	36.2%	343.3	34.9%
International Stock	183.1	18.1%	245.1	24.2%
International Fixed-Income Funds	63.9	6.3%	82.5	7.7%
Real Estate	105.9	10.5%	86.5	8.3%
Other	41.0	4.0%	50.1	4.8%
Subtotal	\$ 1,012.6	100.0%	\$ 1,016.5	100.0%
Net Receivables/(Payables)	(7.6)		1.0	
Net Assets (including DOP)	\$ 1,005.0		\$ 1,017.5	
DOP Assets	\$ 9.5		\$ 4.6	



Oklahoma Law Enforcement Retirement System

Table 2

Statement of Changes in Net Assets

	Fiscal Year Ended June 30	
	2020	2019
1. Market Value of Net Assets at End of Prior Year	\$ 1,017,522,520	\$ 999,062,622
2. Adjustment for Deferred Option Benefits Payable	0	0
3. Market Value of Net Assets at Beginning of Year (1) - (2)	\$ 1,017,522,520	\$ 999,062,622
4. Contributions		
a. Members	\$ 6,770,157	\$ 6,691,115
b. Participating agencies	10,782,963	10,207,066
c. Other State Sources	24,382,470	24,040,441
d. Total contributions	\$ 41,935,590	\$ 40,938,622
5. Net Investment Income	\$ 12,491,146	\$ 40,154,995
6. Total additions/(subtractions) (4d) + (5)	\$ 54,426,736	\$ 81,093,617
7. Deductions		
a. Retirement and health benefits	\$ 64,651,617	\$ 60,521,478
b. Refunds of contributions	839,132	981,343
c. Other contributions paid out	0	0
d. Administrative expenses	1,480,025	1,130,898
e. Total deductions	\$ 66,970,774	\$ 62,633,719
8. Net Change in Assets (6) - (7e)	(12,544,038)	18,459,898
9. Market Value of Net Assets at End of Year (3) + (8)	\$ 1,004,978,482	\$ 1,017,522,520
10. DOP Assets (included in above numbers)		
a. Beginning of Year	\$ 4,573,548	\$ 2,477,960
b. End of Year	9,547,241	4,573,548



Oklahoma Law Enforcement Retirement System

Table 3

Determination of Actuarial Value of Assets

1. Market Value as of July 1, 2019	\$	1,017,522,520
2. Contributions	\$	41,935,590
3. Decreases during year		
a. Retirement and health benefits	\$	(64,651,617)
b. Refunds of contributions		(839,132)
c. Other contributions paid out		0
d. Administrative expenses		(1,480,025)
e. Total deductions	\$	(66,970,774)
4. Expected return on assets at 7.5%	\$	94,493,205
5. Expected Market Value as of June 30, 2020 (1) + (2) + (3e) + (4)	\$	1,086,980,541
6. Actual Market Value as of June 30, 2020	\$	1,004,978,482
7. Year end 2020 asset gain/(loss) (6) - (5)	\$	(82,002,059)

Schedule of Asset Gains/(Losses)

Year End	Original Amount	Recognized in Prior Years	Recognized in This Year	Recognized in Future Years
2016	\$ (88,668,552)	\$ (70,934,840)	\$ (17,733,712)	\$ 0
2017	43,264,417	25,958,649	8,652,883	8,652,885
2018	10,301,246	4,120,498	2,060,249	4,120,499
2019	(50,528,352)	(10,105,670)	(10,105,670)	(30,317,012)
2020	(82,002,059)	0	(16,400,412)	(65,601,647)
Total			\$ (33,526,662)	\$ (83,145,275)

8. Asset gain/(loss) to be recognized in the future	\$	(83,145,275)
9. Initial Actuarial Value as of June 30, 2019 (6) - (8)	\$	1,088,123,757
10. Constraining values:		
a. 80% of market value (6) x 0.8	\$	803,982,786
b. 120% of market value (6) x 1.2	\$	1,205,974,178
11. Actuarial Value as of June 30, 2020	\$	1,088,124,000
(9), but not less than (10a), nor greater than (10b), rounded		



Oklahoma Law Enforcement Retirement System

In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of assets of the System as of the valuation date, July 1, 2020. In this section, the discussion will focus on the commitments of the System, which are referred to as its liabilities.

Table 4 contains the actuarial present value of all future benefits (PVFB) for contributing members, inactive members, retirees and their beneficiaries.

The liabilities summarized in Table 4 include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measures of both benefits already earned and future benefits expected to be earned. For all members, active and retired, the value includes benefits earnable and payable for the rest of their lives and, if an optional benefit is chosen, for the lives of the surviving beneficiaries.

The actuarial assumptions used to determine liabilities are shown in Appendix B. The liabilities reflect the benefit structure in place as of July 1, 2020.

Actuarial Liabilities

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to the period in which benefits are earned, rather than to the period of benefit distribution. An actuarial cost method is a mathematical technique that allocates the present value of future benefits into annual costs. In order to do this allocation, it is necessary for the funding method to “break down” the present value of future benefits into two components:

- (1) that which is attributable to the past; and
- (2) that which is attributable to the future.

Actuarial terminology calls the part attributable to the past the “past service liability” or the “actuarial accrued liability”. The portion allocated to the future is known as the “present value of future normal costs”, with the specific piece of it allocated to the current year being called the “normal cost”. Table 5 contains the calculation of actuarial liabilities for all groups.



Oklahoma Law Enforcement Retirement System

Table 4

**Present Value of Future Benefits
As of July 1, 2020**

	<u>Total</u>
1. Active Employees	
a. Retirement Benefit	\$ 563,614,391
b. Withdrawal Benefit	22,299,746
c. Pre-Retirement Death Benefit	14,002,414
d. Disability Benefit	10,138,214
e. Supplemental Medical Benefit	<u>8,078,512</u>
f. Subtotal	\$ 618,133,277
2. Inactive Nonvested Members	\$ 1,335
3. Inactive Vested Members	5,430,603
4. Disabled Members	29,747,325
5. Retirees	514,129,550
6. Beneficiaries	111,319,881
7. DOP Members, Including DOP Balances	62,593,063
8. Supplemental Medical Benefit for Retirees and Inactive Vested Members	7,294,449
9. Salary Experience Reserve Balance	<u>74,997,257</u>
10. Total PVFB	\$ 1,423,646,740



Oklahoma Law Enforcement Retirement System

Table 5

**Actuarial Accrued Liability
As of July 1, 2020**

	<u>Total</u>
1. Present Value of Future Benefits for Active Members	
a. Retirement Benefit	\$ 563,614,391
b. Withdrawal Benefit	22,299,746
c. Pre-Retirement Death Benefit	14,002,414
d. Disability Benefit	10,138,214
e. Supplemental Medical Benefit	8,078,512
f. Subtotal	<u>\$ 618,133,277</u>
2. Present Value of Future Normal Costs for Active Members	
a. Retirement Benefit	\$ 152,661,659
b. Withdrawal Benefit	19,714,891
c. Pre-Retirement Death Benefit	8,028,156
d. Disability Benefit	8,161,640
e. Supplemental Medical Benefit	2,715,040
f. Subtotal	<u>\$ 191,281,386</u>
3. Present Value of Future Benefits for Inactive Members	730,516,206
4. Salary Experience Reserve Balance	<u>74,997,257</u>
5. Total Actuarial Accrued Liability (1f) - (2f) + (3) + (4)	\$ 1,232,365,354



Oklahoma Law Enforcement Retirement System

Table 6

Calculation of Actuarial Gain/(Loss)

1. Expected actuarial accrued liability	
a. Actuarial accrued liability at July 1, 2019	\$ 1,174,656,889
b. Normal cost for 2019	20,684,185
c. Benefit payments for fiscal year ending June 30, 2020	(65,490,749)
d. Interest on (a), (b), and (c)	87,239,076
e. 2020 ad hoc COLA	<u>5,382,346</u>
f. Expected actuarial accrued liability as of July 1, 2020	\$ 1,222,471,747
(a) + (b) + (c) + (d) + (e)	
2. Actuarial accrued liability at July 1, 2020	\$ 1,232,365,354
3. Actuarial accrued liability gain/(loss) (1e) - (2)	\$ (9,893,607)
4. Expected actuarial value of assets	
a. Actuarial value of assets at July 1, 2019	\$ 1,052,192,000
b. Contributions for fiscal year ending June 30, 2020	41,935,590
c. Benefit payments and expenses for fiscal year ending June 30, 2020	(66,970,774)
d. Interest on (a), (b), and (c)	<u>77,992,553</u>
e. Expected actuarial value of assets as of July 1, 2020	\$ 1,105,149,369
(a) + (b) + (c) + (d)	
5. Actuarial value of assets at July 1, 2020	\$ 1,088,124,000
6. Actuarial value of assets gain/(loss) (5) - (4e)	\$ (17,025,369)
7. Net actuarial gain/(loss) (3) + (6)	\$ (26,918,976)

Salary Experience Reserve Calculation

1. Reserve balance at July 1, 2019	\$ 65,377,541
2. Increase/(decrease) in reserve from gains/(losses)	
a. Active salary experience	\$ 4,150,984
b. Retiree pay-based COLA experience	<u>565,416</u>
c. Total	\$ 4,716,400
3. Interest on beginning balance	\$ 4,903,316
4. Reserve balance at July 1, 2020	\$ 74,997,257



Oklahoma Law Enforcement Retirement System

In the previous two sections, attention has been focused on the assets and the liabilities (present value of future benefits) of the System. A comparison of Tables 3 and 4 indicates that there is a shortfall in current actuarial assets needed to meet the present value of all future benefits for current members and beneficiaries.

In an active system, there will always be a difference between the assets and the present value of all future benefits. An actuarial valuation determines a schedule of future contributions that will provide for this funding in an orderly fashion.

The method used to determine the incidence of the contributions in various years is called the actuarial cost method. Under an actuarial cost method, the contributions required to meet the difference between current assets and current liabilities are allocated each year between two elements: (1) the normal cost and (2) the payment on the unfunded actuarial accrued liability.

The term “fully funded” is often applied to a system in which contributions at the normal cost rate are sufficient to pay for the benefits of existing employees as well as for those of new employees. More often than not, systems are not fully funded, either because of past benefit improvements that have not been completely funded and/or because of actuarial deficiencies that have occurred because experience has not been as favorable as anticipated under the actuarial assumptions. Under these circumstances, an unfunded actuarial accrued liability (UAAL) exists.

Description of Rate Components

The actuarial cost method used by the System is the traditional Entry Age Normal (EAN) – level percent of pay cost method. Under the EAN cost method, the actuarial present value of each member’s projected benefit is allocated on a level basis over the member’s compensation between the entry age of the member and the assumed exit ages. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The actuarial present value of benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.

Effective with the July 1, 2014 valuation, the UAAL is amortized as a level dollar amount over a closed 15-year period commencing July 1, 2014. Given a stable active workforce, the level dollar amortization method is expected to produce a payment stream that declines as a percent of covered payroll.

Contribution Rate Summary

The normal cost rate is developed in Table 7. Table 8 develops the contribution rate for amortization of the unfunded actuarial accrued liability. Table 9 develops the total actuarial contribution rate.



Oklahoma Law Enforcement Retirement System

Table 7

**Normal Cost Contribution Rates
As Percentages of Salary**

	Total	% of Pay
1. Normal Cost		
a. Retirement Benefit	\$ 16,600,436	20.57%
b. Withdrawal Benefit	2,110,812	2.62%
c. Pre-Retirement Death Benefit	882,782	1.09%
d. Disability Benefit	847,571	1.05%
e. Supplemental Medical Benefit	309,861	0.38%
f. Total	<u>\$ 20,751,462</u>	<u>25.71%</u>
2. Estimated Payroll for Current Actives	\$ 80,709,672	
3. Normal Cost Rate (1f)/(2)	25.71%	



Oklahoma Law Enforcement Retirement System

Table 8

Unfunded Actuarial Accrued Liability Contribution Rate

1. Actuarial Present Value of Future Benefits	\$ 1,423,646,740
2. Actuarial Present Value of Future Normal Costs	<u>191,281,386</u>
3. Actuarial Accrued Liability (1) - (2)	\$ 1,232,365,354
4. Actuarial Value of Assets	<u>1,088,124,000</u>
5. Unfunded Actuarial Accrued Liability (UAAL) (3) - (4)	\$ 144,241,354
6. Amortization of UAAL over 15 years from July 1, 2014 9 years remaining (assumed mid-year payment) *	\$ 21,809,246
7. Total Estimated Payroll for Year Ending June 30, 2021	\$ 87,673,889
8. Amortization as a Percent of Payroll	24.88%

*The UAAL is amortized as a level dollar amount.



Oklahoma Law Enforcement Retirement System

Table 9

Actuarial Contribution Rate

	July 1	
	2020	2019
1. Total Normal Cost Rate	25.71%	26.28%
2. Amortization of UAAL	24.88%	20.15%
3. Budgeted Expenses	1.73%	1.36%
4. Total Required Contribution Rate (1) + (2) + (3)	52.32%	47.79%
5. Member Contribution Rate	8.00%	8.00%
6. Estimated Employer Contribution Rate (see below)	11.26%	11.20%
7. Required State Contribution Rate (4) - (5) - (6)	33.06%	28.59%
8. Previous year's actual state rate	28.55%	27.91%
Determination of Employer Rate		
Active member payroll	87,673,889	85,407,024
Employer contribution rate for active members	11.00%	11.00%
Estimated employer contributions for actives	9,644,128	9,394,773
DOP member payroll	4,132,193	3,138,912
Employer contribution rate into fund	5.50%	5.50%
Estimated employer contributions for DOP members	227,271	172,640
Total contributions	9,871,399	9,567,413
As a percentage of active pay	11.26%	11.20%



Oklahoma Law Enforcement Retirement System

Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In September, 2017, Actuarial Standard of Practice Number 51, *Assessment and Disclosure of Risk in Measuring Pension Obligations*, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, was first applicable for the July 1, 2019 actuarial valuation for the State of Oklahoma Law Enforcement Retirement System (System).

A typical retirement plan faces many different risks, but the greatest risk is the inability to make benefit payments when due. If plan assets are depleted, benefits may not be paid which could create legal and litigation risk or the plan could become “pay as you go”. The term “risk” is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

The various risk factors for a given plan can have a significant impact – positive or negative – on the actuarial projection of liability and contribution rates.

There are a number of risks inherent in the funding of a defined benefit plan. These include:

- economic risks, such as investment return and price inflation;
- demographic risks such as mortality, payroll growth, aging population including impact of baby boomers, and retirement ages;
- contribution risk, i.e., the potential for contribution rates to be too high for the plan sponsor/employer to pay and
- external risks such as the regulatory and political environment.

There is a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution rate each year. The sources of funding for OLEERS do not guarantee that the full contributions will be made, but historically have been approximately sufficient. There is a risk if the funded status declines somewhat that the contribution structure would not be able to return the System to being well-funded.

Another significant risk factor for OLEERS is investment return because of the volatility of returns and the size of plan assets compared to payroll (see Table 10). A perusal of historical returns over 10-20 years reveals that the actual return each year is rarely close to the average return for the same period. This is to be expected, given the underlying capital market assumptions and the System’s asset allocation.

A key demographic risk for all retirement systems, including OLEERS, is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect small, continuous improvements in mortality experience over time and these assumptions are refined every experience study, the risk arises because there is a possibility of some sudden shift, perhaps from a significant



SECTION 5 – RISK CONSIDERATIONS

medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, which would also be significant, although more easily absorbed. While either of these events could happen, it represents a small probability and thus represents much less risk than the volatility associated with investment returns.

The employers in OLERS have tended to grant periodic, large pay increases rather than increases each year. Historically, this led to several years of actuarial gains followed by a year with a large actuarial loss when an increase was granted. Beginning with the 2017 valuation, the Board adopted a reserving method designed to partially mitigate this risk.

The following exhibits summarize some historical information that helps indicate how certain key risk metrics have changed over time. Many are due to the maturing of the retirement system.



Oklahoma Law Enforcement Retirement System

Table 10

Historical Asset Volatility Ratios

As a retirement system matures, the size of the market value of assets increases relative to the covered payroll of active members, on which the System is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the System. The higher this ratio, the more sensitive a plan's contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions.

Actuarial Valuation Date	Market Value of Assets	Estimated Plan Year Payroll	Asset Volatility Ratio	Increase in ACR with a Return 10% Lower than Assumed*
7/1/2005	\$639,076,447	\$50,901,372	12.56	18.99%
7/1/2006	668,985,734	57,115,506	11.71	17.71%
7/1/2007	753,665,555	63,764,374	11.82	17.87%
7/1/2008	673,700,891	73,507,820	9.17	13.87%
7/1/2009	549,923,481	75,320,336	7.30	11.04%
7/1/2010	603,468,287	73,399,682	8.22	12.43%
7/1/2011	713,175,855	70,967,284	10.05	15.20%
7/1/2012	705,548,054	71,598,192	9.85	14.89%
7/1/2013	773,985,846	73,423,036	10.54	15.94%
7/1/2014	879,906,496	76,838,068	11.45	17.31%
7/1/2015	895,140,717	84,879,915	10.55	15.95%
7/1/2016	853,583,637	88,682,733	9.63	14.56%
7/1/2017	939,344,616	86,495,680	10.86	16.42%
7/1/2018	999,062,622	86,121,195	11.60	17.54%
7/1/2019	1,017,522,520	85,407,024	11.91	18.01%
7/1/2020	1,004,978,482	87,673,889	11.46	17.33%

Note: Years prior to 7/1/2013 were provided by the prior actuary.

*The impact of asset smoothing is not reflected in the impact on the Actuarial Contribution Rate (ACR). Current year assumptions are used for all years shown.

The assets at June 30, 2020 are 1,146% of payroll, so underperforming the investment return assumption by 1.00% (i.e., earn 6.50% for one year) is equivalent to 11.46% of payroll. While the actual impact in the first year is mitigated by the asset smoothing method and amortization of the UAAL, this illustrates the risk associated with volatile investment returns.



Oklahoma Law Enforcement Retirement System

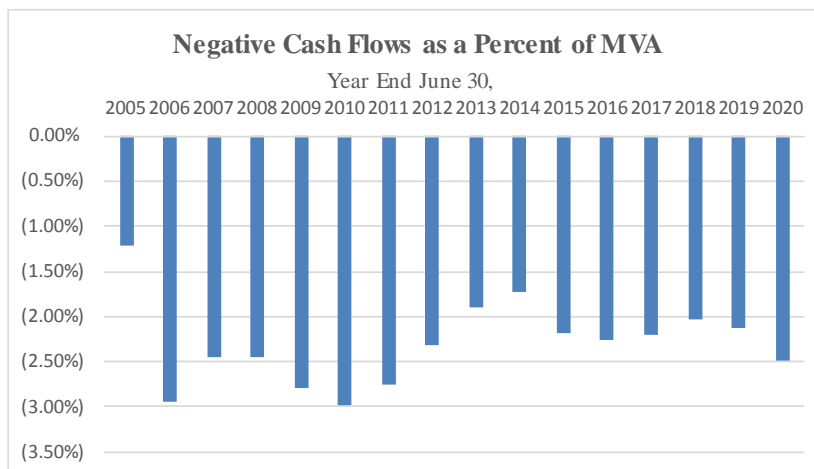
Table 11

Historical Cash Flows

Plans with negative cash flows will experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments. If the System has negative cash flows and then experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. While any negative cash flow will produce such a result, typically a negative cash flow of more than 5% of MVA may cause significant concerns. OLERS has had negative cash flows of around 2% - 3% in recent years, so there is no concern for the foreseeable future.

Year End	Market Value of Assets (MVA)	Contributions	Benefit Payments and Expenses	Net Cash Flow	Net Cash Flow as a Percent of MVA
6/30/2005	\$639,076,447	\$25,694,348	\$33,476,318	(\$7,781,970)	(1.22%)
6/30/2006	668,985,734	26,719,977	46,471,076	(19,751,099)	(2.95%)
6/30/2007	753,665,555	29,478,235	47,863,044	(18,384,809)	(2.44%)
6/30/2008	673,700,891	30,632,436	47,148,666	(16,516,230)	(2.45%)
6/30/2009	549,923,481	30,634,850	46,008,667	(15,373,817)	(2.80%)
6/30/2010	603,468,287	28,873,374	46,844,930	(17,971,556)	(2.98%)
6/30/2011	713,175,855	30,151,286	49,743,425	(19,592,139)	(2.75%)
6/30/2012	705,548,054	31,657,914	47,941,767	(16,283,853)	(2.31%)
6/30/2013	773,985,846	33,686,724	48,285,387	(14,598,663)	(1.89%)
6/30/2014	879,906,496	35,518,734	50,703,253	(15,184,519)	(1.73%)
6/30/2015	895,140,717	38,689,409	58,257,550	(19,568,141)	(2.19%)
6/30/2016	853,583,637	40,066,279	59,379,218	(19,312,939)	(2.26%)
6/30/2017	939,344,616	38,785,814	59,543,677	(20,757,863)	(2.21%)
6/30/2018	999,062,622	40,708,287	60,995,361	(20,287,074)	(2.03%)
6/30/2019	1,017,522,520	40,938,622	62,633,719	(21,695,097)	(2.13%)
6/30/2020	1,004,978,482	41,935,590	66,970,774	(25,035,184)	(2.49%)

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





Oklahoma Law Enforcement Retirement System

Table 12

Liability Maturity Measurement

Most public sector retirement systems have been in operation for many years. As a result, they have aging plan populations, and in some cases declining active populations, resulting in an increasing ratio of retirees to active members and a growing percentage of retiree liability. The retirement of the remaining baby boomers over the next decade is expected to further exacerbate the aging of the retirement system population. With more of the total liability residing with retirees, investment volatility has a greater impact on the funding of the system since it is more difficult to restore the system financially after losses occur when there is comparatively less payroll over which to spread costs.

Projections provide the most effective way of analyzing the impact of these changes on future funding measures, but studying several key metrics from the valuation can also provide some valuable insight.

Year End	Retiree Liability (a)	Total Actuarial Liability (b)	Retiree Percentage (a / b)	Covered Payroll (c)	Ratio (b) / (c)
6/30/2005	\$500,924,940	\$751,771,788	66.6%	\$50,901,372	14.77
6/30/2006	\$503,987,898	\$772,269,163	65.3%	\$57,115,506	13.52
6/30/2007	\$554,870,237	\$840,556,507	66.0%	\$63,764,374	13.18
6/30/2008	\$545,182,163	\$881,317,682	61.9%	\$73,507,820	11.99
6/30/2009	\$538,698,033	\$892,016,574	60.4%	\$75,320,336	11.84
6/30/2010	\$542,612,602	\$903,567,429	60.1%	\$73,399,682	12.31
6/30/2011	\$542,277,121	\$900,879,451	60.2%	\$70,967,284	12.69
6/30/2012	\$534,280,729	\$878,536,505	60.8%	\$71,598,192	12.27
6/30/2013	\$541,588,962	\$890,554,959	60.8%	\$73,423,036	12.13
6/30/2014	\$545,551,240	\$916,259,864	59.5%	\$76,838,068	11.92
6/30/2015	\$594,313,392	\$998,862,371	59.5%	\$84,879,915	11.77
6/30/2016	\$598,959,687	\$1,042,544,322	57.5%	\$88,682,733	11.76
6/30/2017	\$614,165,099	\$1,082,142,809	56.8%	\$86,495,680	12.51
6/30/2018	\$632,419,124	\$1,118,692,200	56.5%	\$86,121,195	12.99
6/30/2019	\$670,643,128	\$1,174,656,889	57.1%	\$85,407,024	13.75
6/30/2020	\$730,516,206	\$1,232,365,354	59.3%	\$87,673,889	14.06

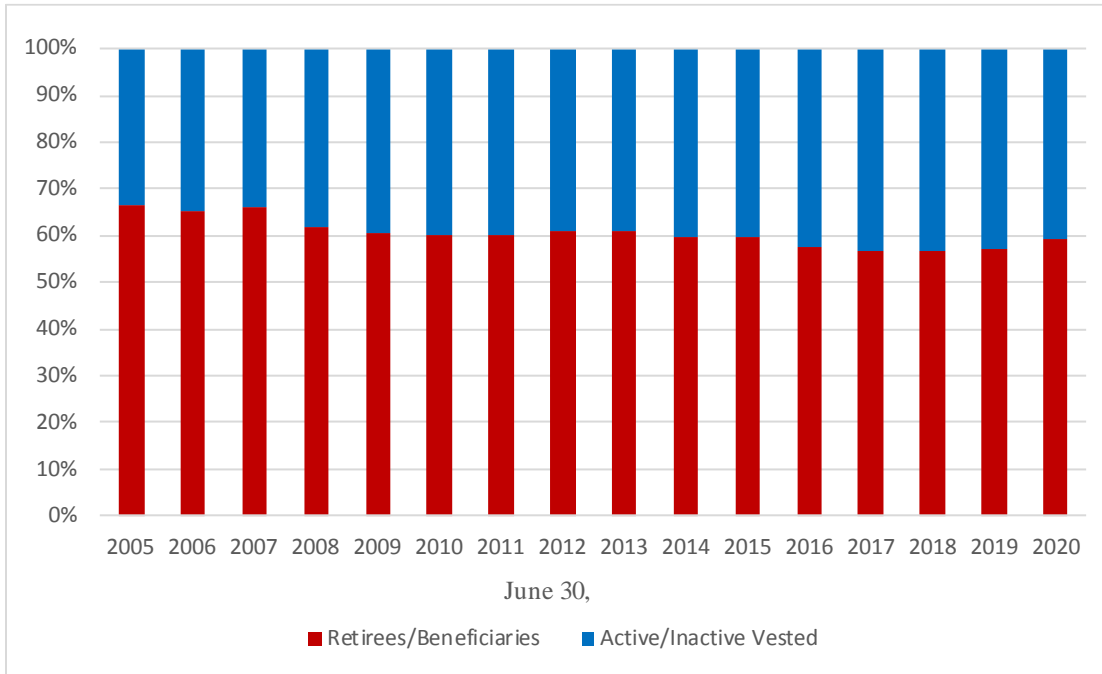
Note: Years prior to 6/30/2013 were provided by the prior actuary.



Oklahoma Law Enforcement Retirement System

Table 12 (continued)

Liability Maturity Measurement





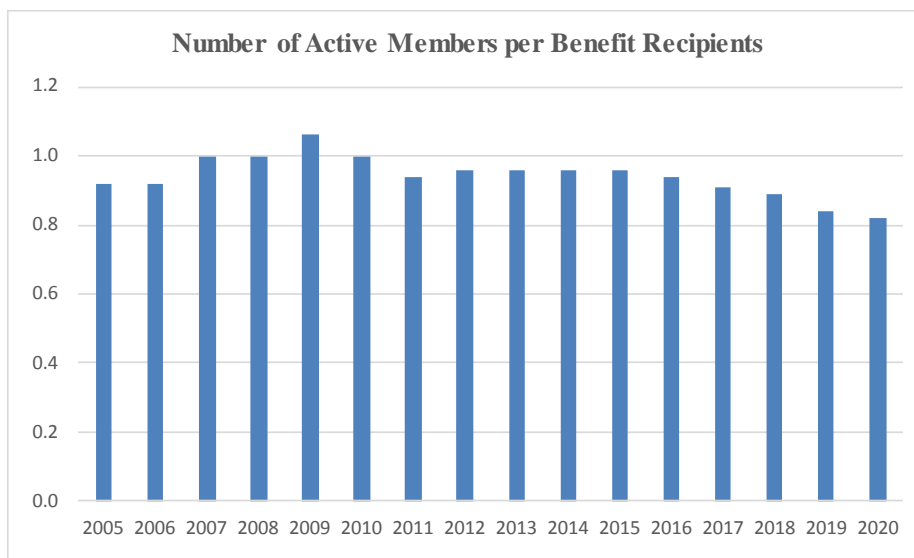
Oklahoma Law Enforcement Retirement System

Table 13

Historical Member Statistics

Valuation Date	Active	Retired	Active/Retired
July 1, 2005	1,103	1,193	0.92
2006	1,170	1,271	0.92
2007	1,223	1,229	1.00
2008	1,278	1,280	1.00
2009	1,304	1,231	1.06
2010	1,258	1,264	1.00
2011	1,209	1,283	0.94
2012	1,241	1,294	0.96
2013	1,260	1,313	0.96
2014	1,270	1,325	0.96
2015	1,310	1,359	0.96
2016	1,300	1,382	0.94
2017	1,277	1,397	0.91
2018	1,267	1,424	0.89
2019	1,234	1,474	0.84
2020	1,250	1,525	0.82

Note: Years prior to 7/1/2013 were provided by the prior actuary.





Oklahoma Law Enforcement Retirement System

Table 14

Comparison of Valuation Results under Alternate
Investment Return Assumptions

This exhibit compares the key July 1, 2020 valuation results under five different investment return assumptions to illustrate the impact of different assumptions on the funding of the System. Note that only the investment return assumption is changed, as identified in the heading below. All other assumptions are unchanged for purposes of this analysis.

Investment Return Assumption	7.00%	7.25%	7.50%	7.75%	8.00%
Contributions					
Normal Cost Rate	29.02%	27.30%	25.71%	24.23%	22.84%
Amortization of Unfunded Actuarial Accrued Liability	36.35%	30.52%	24.88%	19.41%	14.11%
Budgeted Expenses	1.73%	1.73%	1.73%	1.73%	1.73%
Total Actuarial Required Contribution Rate	67.10%	59.55%	52.32%	45.37%	38.68%
Less Member Contribution Rate	(8.00%)	(8.00%)	(8.00%)	(8.00%)	(8.00%)
Less Estimated Employer contribution Rate	(11.26%)	(11.26%)	(11.26%)	(11.26%)	(11.26%)
Required State Contribution Rate	47.84%	40.29%	33.06%	26.11%	19.42%
Required State Contribution Amount (\$ in thousands)	\$41,944	\$35,324	\$28,986	\$22,892	\$17,027
Actuarial Value of Assets	\$1,088,124	\$1,088,124	\$1,088,124	\$1,088,124	\$1,088,124
Actuarial Liability	\$1,302,896	\$1,266,751	\$1,232,365	\$1,199,630	\$1,168,443
Funded Ratio	83.5%	85.9%	88.3%	90.7%	93.1%



Oklahoma Law Enforcement Retirement System

In this section we provide some historical information regarding the funding progress of the System. These exhibits retain some of the information that used to be required for accounting purposes and are included because they help explain the System's history. Also included is an exhibit showing the expected benefit payments for the System.



Oklahoma Law Enforcement Retirement System

Table 15

Historical Information

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b)-(a)	Funded Ratio (a)/(b)	Covered Payroll (c)	UAAL as a Percent of Covered Payroll ((b) - (a))/(c)
7/1/2011	\$684,063,000	\$900,879,451	\$216,816,451	75.9%	\$70,967,284	305.5%
7/1/2012	688,411,000	878,536,505	190,125,505	78.4%	71,598,192	265.5%
7/1/2013	725,124,000	890,554,959	165,430,959	81.4%	73,423,036	225.3%
7/1/2014	811,351,000	916,259,864	104,908,864	88.6%	76,838,068	136.5%
7/1/2015	877,334,000	998,862,371	121,528,371	87.8%	84,879,915	143.2%
7/1/2016	911,095,000	1,042,544,322	131,449,322	87.4%	88,682,733	148.2%
7/1/2017	957,335,000	1,082,142,809	124,807,809	88.5%	86,495,680	144.3%
7/1/2018	1,006,424,000	1,118,692,200	112,268,200	90.0%	86,121,195	130.4%
7/1/2019	1,052,192,000	1,174,656,889	122,464,889	89.6%	85,407,024	143.4%
7/1/2020	1,088,124,000	1,232,365,354	144,241,354	88.3%	87,673,889	164.5%

Note: Results before 7/1/2013 were prepared by the prior actuary.



Oklahoma Law Enforcement Retirement System

Table 16

Historical Information

Schedule of Employer Contributions

For Fiscal Year Ended June 30

Year End	Annual Required Contribution	Percentage Contributed
2009	\$ 36,615,719	68.0%
2010	48,102,643	48.1%
2011	50,094,360	49.0%
2012	48,634,104	53.8%
2013	44,734,129	62.8%
2014	43,774,814	67.9%
2015	31,838,456	101.4%
2016	33,291,498	99.7%
2017	33,508,426	95.4%
2018	32,846,624	103.6%
2019	31,609,140	108.3%
2020	34,885,440	100.8%

Note: Results before 2013 provided by prior actuary

**Oklahoma Law Enforcement Retirement System****Table 17****Projected Benefit Payments**

The table below shows estimated benefits expected to be paid over the next ten years, based on the assumptions used in this valuation. The “Actives” column shows benefits expected to be paid to members currently active on July 1, 2020. The “Retirees” column shows benefits as of July 1, 2020 expected to be paid to all members receiving benefit payments or to members who have terminated employment and are entitled to a deferred vested benefit.

Retirement, Survivor and Withdrawal Benefits

Year Ending June 30	Actives	Retirees	Total
2021	\$ 10,500,000	\$ 60,556,000	\$ 71,056,000
2022	9,633,000	59,696,000	69,329,000
2023	11,522,000	59,446,000	70,968,000
2024	13,954,000	59,466,000	73,420,000
2025	16,061,000	59,475,000	75,536,000
2026	18,546,000	59,552,000	78,098,000
2027	21,422,000	59,525,000	80,947,000
2028	24,613,000	59,517,000	84,130,000
2029	28,615,000	59,416,000	88,031,000
2030	32,755,000	59,229,000	91,984,000

Supplemental Medical Premium Benefits

Year Ending June 30	Actives	Retirees	Total
2021	\$ 46,000	\$ 727,000	\$ 773,000
2022	105,000	713,000	818,000
2023	158,000	698,000	856,000
2024	210,000	680,000	890,000
2025	257,000	664,000	921,000
2026	305,000	709,000	1,014,000
2027	356,000	689,000	1,045,000
2028	412,000	672,000	1,084,000
2029	472,000	652,000	1,124,000
2030	534,000	632,000	1,166,000



APPENDIX A – SUMMARY OF SYSTEM PROVISIONS

Effective Date and Plan Year: The System became effective July 1, 1947. The System was originally known as the Oklahoma Public Safety Retirement System. The plan year is July 1 to June 30.

Administration: The System is administered by the Oklahoma Law Enforcement Retirement Board consisting of thirteen Members. The Board acts as the fiduciary for investment and administration of the System.

Plan Type: Defined benefit plan.

Eligibility: All law enforcement officers of the Oklahoma Highway Patrol (OHP) and Capitol Patrol of Department of Public Safety, Oklahoma State Bureau of Investigation (OSBI), Oklahoma State Bureau of Narcotics and Dangerous Drugs Control (OBND), Alcoholic Beverage Laws Enforcement Commission (ABLE), members of the DPS Communications Division (Communications), DPS Waterways Lake Patrol Tourism and Recreation Department (Rangers), Inspectors of the Oklahoma State Board of Pharmacy (Pharmacy Inspectors), and Gun Smiths of DPS are eligible upon employment.

Credited Service: Credited Service shall consist of the period during which the Member participated in the System or the predecessor Plan as an active employee in an eligible membership classification, plus any service prior to the establishment of the predecessor Plan which was credited under the predecessor Plan for officers of the OSBI and the OBND who became Members of the System on July 1, 1980, any service credited under the Oklahoma Public Employees Retirement System (OPERS) as of June 30, 1980, and for Members of Communications and Lake Patrol who became Members of the System on July 1, 1981, any service credited under the predecessor Plan or OPERS as of June 30, 1981, and for law enforcement officers of ABLE who became Members of the System on July 1, 1982 any service credited under OPERS as of June 30, 1982, and for Rangers who became Members of the System on July 1, 1985, any service credited under OPERS as of June 30, 1985, and for Pharmacy Inspectors who became Members of the System on July 1, 1986, any service credited under OPERS as of June 30, 1986 and for Capitol Patrol who became Members of the System on July 1, 1993, any service credited under OPERS as of June 30, 1993 and for Gun Smiths who became Members of the System on July 1, 1994, any service credited under OPERS as of July 1, 1994.

Members can accumulate up to one year of sick leave which counts for pension accrual and benefits eligibility purposes. Members may also buy back service with other Oklahoma State Retirement Systems.



APPENDIX A – SUMMARY OF SYSTEM PROVISIONS

Salary: The actual paid base salary received by a Member, excluding payment for any accumulated leave or uniform allowance. Lump sum bonuses based on longevity date go into considered compensation. The lump sum bonus is \$250 after 2 or 3 years, \$426 after 4 or 5 years, \$626 after 6 or 7 years, and so on. If an employee incurs a break in service in excess of 30 days, his longevity date is changed to his date of rehire and the longevity bonus amount becomes \$0. If an employee incurs a break in service of less than 30 days or is on a leave of absence without pay for more than 30 days, his length of absence is deducted from his longevity date and the longevity bonus amount remains the same.

Final average salary is the average of the highest 30 consecutive complete months of considered salary.

Effective July 1, 2002:

Members whose salary is set by statute and retire after 20 years receive a benefit based on the greater of the member's highest 30 consecutive months or the top base pay paid to active members at time of payment. This benefit has been eliminated for certain members hired on or after November 1, 2012 and all other members hired after May 13, 2013.

Members whose salary is not set by statute and who retire after 20 years receive a benefit based on the greater of the member's highest 30 consecutive months or the salary paid to the highest non-supervisory position in the participating agency at the time payment is made. This benefit has been eliminated for certain members hired on or after November 1, 2012 and all other members hired after May 13, 2013.

State Contributions: License Agency Fees equal to 1.2% of Driver's License Taxes, plus 5% of Insurance Premium Tax.

Agency Contributions: 10% of actual base salary until October 31, 2012 and 11% of actual base salary as of November 1, 2012.

Member Contributions: 8% percent of paid salary. Accumulated contributions are after-tax up to December 31, 1989 and before-tax after December 31, 1989.



APPENDIX A – SUMMARY OF SYSTEM PROVISIONS

Normal Retirement Benefit:

Normal Retirement Eligibility: 20 years of service or age 62 with 10 years of service. Maximum of age 60 with 20 years of service, unless considered physically able to continue.

Benefit Amount: 2 1/2% of the greater of final average salary or the salary paid to active employees as described under “salary considered” multiplied by the years and completed months of credited service. There is no maximum on service.

Normal Form of Benefit: 100% joint and survivor.

The benefit is paid as a Joint and 100% Survivor Annuity if the Member was married 30 months prior to death. The Joint and Survivor portion will continue to the member’s children until reaching age 22 if there is no eligible spouse or after the spouse has died.

Termination Benefit:

Less than 10 Years of Service: Refund of contributions without interest.

More than 10 Years of Service: If greater than 10 years of service, but not eligible for the normal retirement benefit, the benefit is payable at the date the Member would have had 20 years of service in an amount equal to 2 1/2% of the greater of final average salary or the salary paid to active employees as described under “salary considered” multiplied by the years and completed months of credited service.

Form of Benefit: Lifetime annuity.

Disability Benefit (Duty):

Upon determination of disability incurred in the line of duty, the normal disability benefit is the greater of:

- 1) 2 1/2% of the greater of final average salary or the salary paid to active employees as described under “salary considered” times years and completed months of credited service, or
- 2) 50% of final average salary.

For members with less than 20 years of service that incur a line of duty disability due to personal injury of a catastrophic nature, final average salary is based on the salary which the member would have received pursuant to statutory salary schedules in effect upon the date of death for a twenty (20) years of service member.



APPENDIX A – SUMMARY OF SYSTEM PROVISIONS

Disability Benefit (Non-Duty):

Upon determination of disability not in the line of duty, and after three years of service, the accrued benefit equals 2 1/2% of the greater of final average salary or the salary paid to active employees as described under “salary considered” times years and completed months of credited service.

Death Benefits Payable to Beneficiaries:

Prior to Retirement (Duty):

The greater of:

- 1) 2 1/2% of the greater of final average salary or the salary paid to active employees as described under “salary considered” times years and completed months or credited service, or
- 2) 50% of final average salary.

For members with less than 20 years of service that die in the line of duty, final average salary is based on the salary which the member would have received pursuant to statutory salary schedules in effect upon the date of death for a twenty (20) years of service member.

Prior to Retirement (Non-Duty):

After three years of service, the greater of:

- 1) 2 1/2% of the greater of final salary or the salary paid to active employees as described under “salary considered” times years and completed months of credited service, or
- 2) 50% of final average salary.

After Retirement:

In addition to the benefits provided under the 100% Joint and Survivor Annuity, \$400 per month is paid for each surviving child to age 18, or to age 22 if a full-time student.

Lump Sum:

The beneficiary shall receive a lump-sum amount of \$5,000. Effective July 1, 2002, this lump sum is considered to be life insurance proceeds for tax purposes.

If an active Member dies prior to retirement without leaving a beneficiary, a refund of the accumulated contributions will be paid to the estate.

If the beneficiary is a child, the benefits are payable to age 18, or to age 22 if a full-time student. If the beneficiary is a spouse to whom the Member was married for at least 30 months prior to death, if the death was not duty related, the benefits are payable for life.



APPENDIX A – SUMMARY OF SYSTEM PROVISIONS

Postretirement Adjustments: Occasional ad hoc increases for retirees are provided. COLAs apply to the whole benefit, not the original benefit. The most recent COLA was 4% for Members retired as of June 30, 2007, effective July 1, 2008.

Effective July 1, 2002, retirement benefits will be recalculated to increase in conjunction with increases to the top base pay for active members. Certain members hired on or after November 1, 2012 will not be eligible for this adjustment.

Postretirement Health Insurance Benefits: The System will contribute \$105 per month or the Medicare Supplement Premium, if less, toward the cost of health insurance for annuitants receiving retirement benefits. These benefits commence upon retirement. Spouses are eligible to continue this benefit after the member's death.

Deferred Option Plan: A Member with 20 or more years of service may elect to participate in the Deferred Option Plan (DOP). Participation in the DOP shall not exceed five years. The members' contributions cease upon entering the Plan, but the agency contributions are divided equally between the Retirement System and Deferred Option Plan. The monthly retirement benefits that the member is eligible to receive are paid into the Deferred Option Plan account.

Members can elect to retroactively join the DOP as of a back-drop-date which is no earlier than the member's normal retirement date or five years before his termination date. The monthly retirement benefits and employee contributions that would have been payable had the member elected to join the DOP are credited to the member's DOP account with interest.

The retirement benefits are not recalculated for service and salary past the election date to join the Deferred Option Plan. However, the benefits are increased by cost-of-living increases applicable to retired members during the DOP period.

When the Member actually terminates employment, the Deferred Option Plan account balance may be paid in a lump sum or to an annuity provider. Monthly retirement benefits are then paid directly to the retired Member.

This Plan became effective during the July 1, 1991 to June 30, 1992 Plan Year. The Deferred Option Plan account is guaranteed a minimum of the valuation interest rate for investment return, or 2% less than the fund rate of return, if greater.



Actuarial Methods

Actuarial Cost Method

Liabilities and contributions are computed using the Individual Entry Age method of funding. Under the Entry Age Actuarial Cost Method, the Normal Cost is computed as the level percentage of pay which, if paid from the earliest time each member would have been eligible to join the System if it then existed (thus entry age) until his retirement or termination, would accumulate with interest at the rate assumed in the valuation to a fund sufficient to pay all benefits under the System.

The Actuarial Accrued Liability under this method, at any point in time, is the theoretical amount of the fund that would have accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The Unfunded Actuarial Accrued Liability is the excess of the actuarial accrued liability over the actuarial value of System assets on the valuation date.

Under this method, experience gains or losses, i.e. decreases or increases in actuarial accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

Actuarial Asset Valuation Method

An expected actuarial value is determined equal to the prior year's Actuarial Value of Assets plus cash flow (excluding investment returns) for the year ended on the valuation date and assuming 7.5% interest return. The (gain)/loss is measured by the difference between the expected actuarial value and the market value at the valuation date. The (gain)/loss is amortized over five years by 20% per year. The result is constrained to a value of 80% to 120% of the market value at the valuation date.

Amortization Method

Effective July 1, 2014, the unfunded actuarial accrued liability is amortized as a level dollar amount over a 15-year closed period commencing.

Salary Experience Reserve Method

Beginning with the July 1, 2017 valuation, there will be a salary experience reserve. When base pay raises are small or non-existent, the reserve will be credited with the liability gain resulting from this experience. When pay raises are granted, the reserve will be released to offset any loss (or completely released, if less than the loss). Note that because the "half pay" benefits are linked to pay, this experience is also reflected in the gain or loss. This method will be reviewed each experience study to determine if the growth of the reserve should be slowed or capped.



Valuation Procedures

The wages used in the projection of benefits and liabilities are pay for the year ending June 30, 2017 (including longevity bonuses). These amounts were projected into the valuation year using the valuation salary scale.

In computing accrued benefits, average earnings were determined using the valuation salary scale. Historical earnings for the past five years have been retained.

Retired Members were assumed to be married with a beneficiary if a spouse date of birth was provided on the data. Members whose data did not have a spouse's date of birth were assumed to be single.

The impact from the dollar limitation required by the Internal Revenue Code Section 415 for governmental plans was considered in this valuation and was determined to be *de minimis*.

The compensation limit under IRC Section 401(a)(17) was considered in this valuation.

No additional liability is being carried for the guaranteed minimum interest rate for the Deferred Option Plan account balances.

All active, deferred vested and DOP members are assumed to elect the \$105 per month retiree medical benefit upon retirement.

The calculations for the required state contribution are determined as of mid-year. Since the agency contributions, member contributions and State insurance premium tax allocations are made on a monthly basis throughout the year, a mid-year determination date represents an average weighting of the contributions.



APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions

Economic Assumptions

1. Price Inflation 2.75%
2. Investment Return 7.50%, net of investment expenses, per annum, compound annually.
3. Wage Inflation 3.50%
4. Cost-of-Living Assumption 3.00%
5. Interest credit on DOP balance 11.00%
6. Salary Scale Sample rates are shown below:

Attained Service	Wage Inflation%	Merit %	Increase %
0	3.50	6.25	9.75
5	3.50	3.25	6.75
10	3.50	0.75	4.25
15	3.50	0.25	3.75
20	3.50	0.20	3.70
25 or more	3.50	0.00	3.50



Demographic Assumptions

1. Retirement Rates

Sample rates are shown below:

Attained Service	Annual Rates of Retirement
20	0.10
21	0.10
22	0.10
23	0.10
24	0.10
25	0.10
26	0.10
27	0.10
28	0.20
29	0.20
30	0.30
31	0.40
32	0.50
33	0.60
34	0.80
Over 34	1.00

or 100% at age 75 without regard to years of service.

2. Mortality Rates

(a) Active participants

RP-2014 Blue Collar Healthy Employees with Generational Projection (MP-2016)

All pre-retirement deaths are assumed to occur in the line of duty.

(b) Active participants (post-retirement) and nondisabled pensioners

RP-2014 Blue Collar Healthy Annuitants with Generational Projection (MP-2016)

(c) Disabled pensioners

RP-2014 Blue Collar Healthy Annuitants (no projection from 2006 base rates)



APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

3. Disability Rates

Sample rates are shown below:

Age	Rate
20	0.0002
30	0.0005
40	0.0016
50	0.0060
60	0.0220

50% of disabilities are assumed to be Non-Duty related and 50% are assumed to be Duty related.

4. Withdrawal Rates

Sample rates are shown below:

Service Range	Rate
0	0.1500
2	0.0600
4	0.0400
6	0.0200
8	0.0200
10	0.0175
15	0.0150
20 and over	0.0000

5. Marital Status

(a) Percentage married:

Males: 85%; Females: 85%

(b) Age difference:

Males are assumed to be three (3) years older than females.

Other Assumptions:

1. Deferred Benefits Begin at:

Age 50.

2. Provision for Expenses:

Administrative Expenses, as budgeted by the Oklahoma Law Enforcement Retirement System.

3. Retiree Medical:

All active and terminated vested members are assumed to elect the \$105 per month retiree medical benefit upon retirement, and their surviving spouses are assumed to continue the benefit.

4. Deferred Option Plan:

Deferred Option Plan (DOP) members are assumed to remain in the DOP for the maximum of five years prior to electing a lump sum.



A member is allowed to retroactively elect to join the DOP as of a back-drop-date which is no earlier than the member's normal retirement date or five years before his termination date. The monthly retirement benefits and employee contributions that would have been payable had the member elected to join the DOP are credited to the member's DOP account with interest. The retirement benefits are not recalculated for service and salary past the election date to join the DOP. However, the benefits may be increased by any applicable cost-of-living increases.

The retirement rates reflect both regular retirement and entry into the DOP. We assume that 56% of active members who retire elect to retroactively enter into the DOP for five years, 30% elect to enter the DOP, and 14% elect to begin an annuity.

5. Cost-of-Living Allowance:

Members eligible for the automatic cost-of-living increase are assumed to have their benefits increase by 3.00% per year.

Members not eligible for the automatic cost-of-living increase are assumed to receive the greater of:

- (i) their benefit calculated using their actual final average earnings.
- (ii) their benefit calculated using the top base pay for active members, assuming 3.00% annual increases in the top base pay, if eligible.



**Oklahoma Law Enforcement Retirement System
Valuation Data Distribution - Actives**

Age	Years of Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25 Avg. Pay	34 \$43,273									34 \$43,273
25 to 29 Avg. Pay	85 \$47,410	16 \$56,630								101 \$48,870
30 to 34 Avg. Pay	69 \$47,392	97 \$66,164	15 \$69,972							181 \$59,323
35 to 39 Avg. Pay	38 \$49,277	74 \$66,556	98 \$72,877	5 \$71,002						215 \$66,487
40 to 44 Avg. Pay	21 \$52,608	44 \$67,486	87 \$71,656	57 \$73,824	19 \$77,179					228 \$70,099
45 to 49 Avg. Pay	10 \$44,014	12 \$61,420	47 \$69,294	46 \$73,493	94 \$76,799	4 \$81,734				213 \$72,116
50 to 54 Avg. Pay	7 \$48,284	7 \$68,727	21 \$73,392	23 \$72,934	54 \$75,339	32 \$79,518	6 \$78,961			150 \$74,163
55 to 59 Avg. Pay	6 \$37,565	2 \$60,130	8 \$56,137	11 \$63,017	19 \$77,639	19 \$80,635	20 \$83,519	4 \$81,687		89 \$72,947
60 & up Avg. Pay	3 \$72,186	7 \$55,229	1 \$12,307	6 \$84,285	3 \$94,013	5 \$77,523	7 \$79,534	6 \$79,182	1 \$83,384	39 \$74,514
Total Avg. Pay	273 \$47,504	259 \$65,419	277 \$71,065	148 \$73,108	189 \$76,778	60 \$79,853	33 \$81,845	10 \$80,184	1 \$83,384	1,250 \$66,644

**Oklahoma Law Enforcement Retirement System****Retirees, Beneficiaries, & Disableds**

Age	Number			Annual Benefits		
	Male	Female	Total	Male	Female	Total
Under 50	49	25	74	\$ 1,626,519	\$ 690,281	\$ 2,316,800
50-55	58	14	72	2,126,705	407,437	2,534,142
55-60	96	18	114	3,798,423	500,136	4,298,559
60-65	146	52	198	5,851,971	1,567,205	7,419,176
65-70	196	71	267	7,858,269	2,427,818	10,286,087
70-75	213	70	283	8,991,152	2,559,438	11,550,590
75-80	154	70	224	6,563,374	2,691,912	9,255,286
80-85	87	49	136	3,478,335	2,079,962	5,558,297
85-90	33	35	68	1,342,334	1,362,756	2,705,090
90-95	14	15	29	593,994	750,571	1,344,565
95-100	3	6	9	157,373	287,413	444,786
Over 100	0	1	1	0	50,418	50,418
Total	1,049	426	1,475	\$ 42,388,449	\$ 15,375,347	\$ 57,763,796

Deferred Vesteds

Age	Number			Annual Benefits		
	Male	Female	Total	Male	Female	Total
Under 35	0	0	0	\$ 0	\$ 0	\$ 0
35-40	2	3	5	31,210	44,226	75,436
40-45	7	1	8	143,813	19,490	163,303
45-50	3	2	5	71,480	34,474	105,954
50-55	8	1	9	153,595	13,127	166,722
Over 55	4	0	4	68,606	0	68,606
Total	24	7	31	\$ 468,704	\$ 111,317	\$ 580,021

DOP Participants

Age	Number			Annual Benefits		
	Male	Female	Total	Male	Female	Total
Under 50	7	1	8	\$ 294,943	\$ 44,115	\$ 339,058
50-55	6	0	6	308,627	0	308,627
55-60	18	0	18	1,174,685	0	1,174,685
Over 60	17	1	18	1,219,599	38,974	1,258,573
Total	48	2	50	\$ 2,997,854	\$ 83,089	\$ 3,080,943



Oklahoma Law Enforcement Retirement System

	Actuarial Valuation as of		% Change
	7/1/2020	7/1/2019	
1. Active members			
a. Number	1,250	1,234	1.3%
b. Annual compensation	\$ 87,673,889	\$ 85,407,024	2.7%
c. Average annual compensation	\$ 70,139	\$ 69,212	1.3%
d. Average age	41.8	42.5	(1.6%)
e. Average service	12.5	13.2	(5.3%)
2. Vested terminated members			
a. Number	31	30	3.3%
b. Annual deferred benefits	\$ 580,021	\$ 536,737	8.1%
c. Average annual deferred benefit	\$ 18,710	\$ 17,891	4.6%
d. Annual supplemental medical insurance premiums	\$ 39,060	\$ 37,800	3.3%
3. Retired members			
a. Number	1,049	1,024	2.4%
b. Annual retirement benefits	\$ 42,049,415	\$ 39,115,878	7.5%
c. Average annual retirement benefit	\$ 40,085	\$ 38,199	4.9%
d. Annual supplemental medical insurance premiums	\$ 531,720	\$ 525,420	1.2%
4. Beneficiaries			
a. Number	346	330	4.8%
b. Annual retirement benefits	\$ 13,056,632	\$ 11,903,424	9.7%
c. Average annual retirement benefit	\$ 37,736	\$ 36,071	4.6%
d. Annual supplemental medical insurance premiums	\$ 146,160	\$ 138,600	5.5%
5. Disabled members			
a. Number	80	81	(1.2%)
b. Annual retirement benefits	\$ 2,657,750	\$ 2,525,723	5.2%
c. Average annual retirement benefit	\$ 33,222	\$ 31,182	6.5%
d. Annual supplemental medical insurance premiums	\$ 41,580	\$ 44,100	(5.7%)
6. DOP Participants			
a. Number	50	39	28.2%
b. Annual retirement benefits	\$ 3,080,942	\$ 2,301,145	33.9%
c. Average annual retirement benefit	\$ 61,619	\$ 59,004	4.4%
d. Annual supplemental medical insurance premiums	\$ 63,000	\$ 49,140	28.2%
7. Nonvested terminated members	5	2	150.0%
8. Total members included in valuation	2,811	2,740	2.6%



Oklahoma Law Enforcement Retirement System

Accrued Benefit

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

Actuarial Accrued Liability

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement, and retirement; changes in compensation, rates of investment earnings, and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.

Actuarial Gain (Loss)

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two (2) Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

Actuarial Present Value

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.

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 pension plan.

Actuarial Value of Assets

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

Actuarially Equivalent

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

Amortization Payment

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



Deferred Vested Participant

A vested member who has terminated employment prior to early or normal retirement age who does not withdraw his or her contributions and is, therefore, due a retirement benefit at a later date.

Entry Age Actuarial Cost Method

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.

Market Value of Assets

The fair value of cash, investments and other property belonging to a pension plan that could be acquired by exchanging them on the open market.

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 Projected Benefits

Projected Benefits

Those pension plan 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.

Unaccrued Benefit

The excess of an individual's Projected Benefits over the Accrued Benefits as of a specified date.

Unfunded Actuarial Accrued Liability

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

Withdrawal Liability

The liability due to an active member terminating employment with a deferred vested benefit.