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Approach every action with a member-experience focus.

Strive to exceed member expectations.

Foster lifelong relationships and support our members' during retirement decisions.

Provide education and resources to empower members to achieve their retirement goals.

"I love my job. I get some of the most positive people going through the worst situations and gives me hope and inspiration. Sometimes I am able to pass that hope on to the next person to uplift them. It's just a good feeling when you know you have made someone's day better." - Kari

## ACTUARIAL

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November 9, 2022

Board of Trustees  
Oklahoma Public Employees Retirement System  
5400 N Grand Boulevard, Suite 400  
P.O. Box 53007  
Oklahoma City, OK 73112-5625

Members of the Board:

In this report are submitted the results of the annual valuation of the assets and liabilities of the State of Oklahoma Public Employees Retirement System ("OPERS" or "System"), prepared as of July 1, 2022.

The purpose of this report is to provide a summary of the funded status of the System as of July 1, 2022 and to provide the actuarially determined rate. While not verifying the data at the source, the actuary performed tests for consistency and reasonability. There have been no changes to the actuarial assumptions or methods since the last valuation. However, the Board adopted a new amortization policy that is first reflected in the July 1, 2022 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 percentage of payroll, on the assumption that payroll will increase by 3.25% annually.

As in recent valuations, liabilities have been calculated without considering future cost of living adjustments (COLAs) and/or stipends in keeping with House Bill 2132 (2011). Should funding of future COLAs and/or stipends be provided by the System, the COLAs and/or stipends should be included in the actuarial valuation. In addition, House Bill 2630 (2014) closes the plan to most new employees hired after November 1, 2015.

We have prepared the Schedule of Funding Progress and Trend Information shown in the financial section of the Annual Comprehensive Financial Report.

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 for funding purposes with assumptions and methods that meet the parameters of the Actuarial Standards of Practice, 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.

In order to prepare the results in this report, we have utilized actuarial models that were developed to measure liabilities and develop actuarial costs. These models include tools that we have produced and tested, along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results. Future actuarial results may differ significantly from the current results presented in this report due to factors such 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 Annual Comprehensive Financial Report (ACFR) contains several exhibits that disclose the actuarial position of the System. We have also reviewed the supplemental medical benefits provided by the System under Section 401(h) of the Internal Revenue Code and have determined that these benefits are subordinate to the retirement benefits as required. This annual report, prepared as of July 1, 2022, provides data and tables that we prepared for use in the following sections of the ACFR:

Actuarial Section:

- Analysis of Financial Experience
- Solvency Test
- Schedule of Active Member Valuation Data
- Schedule of Retirants, Disabled Retirants, and Beneficiaries Added to and Removed from Rolls

Statistical Section:

- Member Statistics
- Distribution of Retirees and Beneficiaries
- Summary of Active Members

In our opinion, in order for the System to meet all the benefit obligations of the plan for current active and retired members, contributions equal to at least the actuarially determined rate are necessary for future fiscal years. Assuming these contributions are made to the System, from year to year in the future at the rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the retirement fund to provide the benefits called for under the System may be safely anticipated. Because the statutory contribution exceeds the actuarially determined rate in this valuation, we recommend the statutory contribution be used to pay the UAAL down faster than under the current schedule and to protect against future investment and experience losses.

Respectfully submitted,



Alisa Bennett, FSA, EA, FCA, MAAA  
President



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

# Summary of Results

	7/1/2022 Valuation	7/1/2021 Valuation	% Change
<b>1. PARTICIPANT DATA</b>			
Number of:			
Active Members	29,912	31,711	(5.7)
Retired and Disabled Members and Beneficiaries	36,649	36,351	0.8
Inactive Members	6,454	6,133	5.2
Total Members	73,015	74,195	(1.6)
Projected Annual Salaries of Active Members	\$ 1,527,059,370	\$ 1,556,561,344	(1.9)
Annual Retirement Payments for Retired Members and Beneficiaries	\$ 675,895,605	\$ 661,011,030	2.3
<b>2. ASSETS AND LIABILITIES</b>			
Total Actuarial Accrued Liability	\$ 11,139,885,081	\$ 11,046,240,166	0.8
Market Value of Assets	\$ 10,392,907,883	\$ 12,525,883,234	(17.0)
Actuarial Value of Assets	\$ 11,311,760,330	\$ 10,991,205,271	2.9
Unfunded Actuarial Accrued Liability	\$ (171,875,249)	\$ 55,034,895	(412.3)
Funded Ratio	101.54%	99.50%	2.1
<b>3. EMPLOYER CONTRIBUTION RATES AS A PERCENT OF PAYROLL</b>			
Normal Cost Rate	10.81%	10.83%	
Amortization of Unfunded Actuarial Accrued Liability	(0.41%)	0.52%	
Budgeted Expenses	0.56%	0.48%	
Total Actuarially Determined Contribution Rate	10.96%	11.83%	
Less Estimated Member Contribution Rate	4.28%	4.25%	
Employer Actuarially Determined Contribution Rate	6.68%	7.58%	
Less Statutory State Employer Contribution Rate	16.50%	16.50%	
Contribution Shortfall/(Surplus)	(9.82%)	(8.92%)	

## Analysis of Financial Experience

Gains & Losses in Actuarial Accrued Liability During the Year Ended June 30, 2022  
Resulting from Differences Between Assumed Experience & Actual Experience

Type of Activity	(Gain) or Loss for Year End 2022
1. <b>Age &amp; Service Retirements.</b> Generally, if members retire at older ages or with smaller benefits than assumed, there is a gain. If they retire at younger ages or have higher average pays, a loss occurs.	\$ (4,600,000)
2. <b>Disability Retirements.</b> If disability claims are less than assumed, there is a gain. If more claims, a loss.	900,000
3. <b>Deaths.</b> If more deaths occur than assumed, there is a gain. If fewer, there is a loss.	(33,000,000)
4. <b>Withdrawal from Employment.</b> If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	(32,900,000)
5. <b>Pay Increases.</b> If there are smaller pay increase than assumed, there is a gain. If greater increases, a loss.	14,200,000
6. <b>New Entrants.</b> All new entrants to the System create a loss.	21,000,000
7. <b>Other.</b> Miscellaneous gains and losses resulting from data adjustments, employee transfers, valuation methods, etc.	(36,700,000)
8. <b>(Gain) or Loss During Year from Financial Experience.</b>	38,400,000
9. <b>Composite (Gain) or Loss During Year.</b>	\$ (32,700,000)

## Solvency Test

The OPERS funding objective is to be able to pay long-term benefit promises through contributions that remain approximately level from year to year as a percent of salaries earned by members. In this way, members and employers in each year pay their fair share for retirement service accrued in that year by OPERS members.

If the retirement system follows level contribution rate financing principles, the system will pay all promised benefits when due – the ultimate test of financial soundness.

A short-term solvency test is one means of monitoring OPERS funding progress. In a short-term solvency test, the retirement System's present valuation assets are compared with: 1) active member contributions on deposit, 2) the liabilities for future benefits to persons who have retired and the liabilities for terminated employees with vested benefits, and 3) the liabilities for service already rendered by active members. In a system that has been following the discipline of level contribution rate financing, the liabilities for member contributions on deposit (liability 1), the liabilities for future benefits to present retirees and the liabilities for future benefits for terminated employees (liability 2) will be fully covered by present assets, except in rare circumstances.

In addition, the liabilities for service already rendered by members (liability 3) will be partially covered by the remainder of present assets. Generally, if the system has been using level contribution rate financing, the funded portion of liability 3 will increase over time; however, a decrease generally occurs in those years when substantial benefit improvements are granted by the Legislature. It is unusual for liability 3 to be fully funded. The funded ratio of the System based on total actuarial accrued liabilities (1 + 2 + 3) provides an indication of how well the System is funded.

The schedule below illustrates the progress of funding the actuarial accrued liabilities of OPERS.

Date	Actuarial Accrued Liability and Valuation Assets (in thousands)					Portion of Actuarial Accrued Liability Covered by Reported Assets			
	Active Member Contributions (Liability 1)	Retirees, Beneficiaries and Terminated Vested Members (Liability 2)	Employer Financed Portion of Active Members (Liability 3)	Total Liability (1 + 2 + 3)	Reported Assets <sup>1</sup>	(1)	(2)	(3)	Funded Ratio of Total Accrued Actuarial Liability
July 1, 2013	517,653	5,032,769	3,005,700	8,556,122	6,978,873	100	100	47.5	81.6
July 1, 2014	534,081	5,184,818	3,034,770	8,753,669	7,759,258	100	100	67.2	88.6
July 1, 2015	537,046	5,417,604	3,041,476	8,996,126	8,420,307	100	100	81.1	93.6
July 1, 2016	545,020	5,757,019	3,125,771	9,427,810	8,790,886	100	100	79.6	93.2
July 1, 2017	549,211	6,131,997	3,100,409	9,781,617	9,241,292	100	100	82.6	94.5
July 1, 2018	550,806	6,312,792	3,020,536	9,884,134	9,658,126	100	100	92.5	97.7
July 1, 2019	549,813	6,463,941	3,033,620	10,047,374	9,909,684	100	100	95.5	98.6
July 1, 2020	561,222	7,061,087	3,320,770	10,943,079	10,212,241	100	100	78.0	93.3
July 1, 2021	566,231	7,153,298	3,326,711	11,046,240	10,991,205	100	100	84.0	99.5
July 1, 2022	562,043	7,255,971	3,321,871	11,139,885	11,311,760	100	100	100.0	101.5

<sup>1</sup>Actuarial value of assets based on the smoothing technique adopted by Board.

## Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Increase in Average Pay
July 1, 2022	29,912	\$1,527,059,370	\$51,052	4.01
July 1, 2021	31,711	1,556,561,344	49,086	3.40
July 1, 2020	33,115	1,571,954,116	47,470	3.46
July 1, 2019	34,536	1,584,630,994	45,883	4.11
July 1, 2018	36,329	1,601,074,591	44,072	1.46
July 1, 2017	38,873	1,688,543,856	43,437	1.40
July 1, 2016	41,806	1,790,809,603	42,836	3.82
July 1, 2015	43,843	1,808,972,785	41,260	3.97
July 1, 2014	43,947	1,744,041,536	39,685	1.29
July 1, 2013	43,273	1,695,347,809	39,178	2.08

## Schedule of Retirants, Disabled Retirants, and Beneficiaries Added to and Removed from Rolls

Year Ended	Added to Rolls		Removed from Rolls		Rolls – End of Year		% Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
June 30, 2022	1,540	\$33,720,630	1,242	\$ 17,557,131	36,649	\$ 675,895,605	2.25	\$18,442
June 30, 2021	1,533	32,437,822	1,361	18,575,689	36,351	661,011,030	1.90	18,184
June 30, 2020	1,475	29,864,562	1,165	15,376,187	36,179	648,673,669	5.55	17,930
June 30, 2019	1,692	33,093,583	1,083	13,816,679	35,869	614,578,512	3.24	17,134
June 30, 2018	1,692	31,763,873	1,011	13,010,324	35,260	595,301,608	3.25	16,883
June 30, 2017	1,846	35,653,217	1,016	12,736,245	34,579	576,548,059	4.14	16,673
June 30, 2016	1,986	37,356,248	991	12,505,069	33,749	553,631,087	4.70	16,404
June 30, 2015	1,898	35,731,879	977	11,895,298	32,754	528,779,908	4.72	16,144
June 30, 2014	1,667	28,477,713	969	11,707,809	31,833	504,943,327	3.44	15,862
June 30, 2013	1,767	31,633,122	895	10,184,240	31,135	488,173,423	4.60	15,679

## Supplementary Information

The schedule of changes in the net pension and OPEB liabilities present a schedule of funding progress for each of the ten most recent years based on the actuarial methods and assumptions used for funding purposes. These schedules are intended to show a 10-year trend and additional years will be reported as they become available. 2017 was the first year to exclude the Medical Supplement.

**GASB 67 Paragraph 36.b.**  
**Schedule of Changes in the Net Pension Liability/(Asset)**

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Total Pension Liability	\$10,828,046,484	\$10,725,571,917	\$10,614,647,291	\$9,726,326,176	\$9,555,990,069	\$9,454,641,808	\$9,427,809,623	\$8,996,125,901	\$8,753,669,153	
Plan Fiduciary Net Position	<u>9,987,481,670</u>	<u>12,067,732,648</u>	<u>9,722,484,043</u>	<u>9,593,138,099</u>	<u>9,360,947,061</u>	<u>8,913,978,627</u>	<u>8,435,578,907</u>	<u>8,636,441,984</u>	<u>8,570,104,910</u>	
Net Pension Liability	\$840,564,814	(\$1,342,160,731)	\$892,163,248	\$133,188,077	\$195,043,008	\$540,663,181	\$992,230,716	\$359,683,917	\$183,564,243	
Ratio of Plan Fiduciary Net Position to Total Pension Liability	92.24%	112.51%	91.59%	98.63%	97.96%	94.28%	89.48%	96.00%	97.90%	
Covered payroll	\$1,556,561,000	\$1,571,954,000	\$1,584,631,000	\$1,601,075,000	\$1,688,544,000	\$1,790,809,603	\$1,808,972,785	\$1,744,041,536	\$1,695,347,809	
Net Pension Liability as a percentage of covered payroll	54.00%	-85.38%	56.30%	8.32%	11.55%	30.19%	54.85%	20.62%	10.83%	

**GASB 74 Paragraph 36.b.**  
**Schedule of Changes in the Net OPEB Liability/(Asset)**

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Total OPEB Liability		\$311,838,597	\$320,668,249	\$328,431,762	\$321,048,037	\$328,143,546	\$326,975,262			
Plan Fiduciary Net Position		<u>405,426,213</u>	<u>458,150,586</u>	<u>375,314,784</u>	<u>359,922,778</u>	<u>341,084,506</u>	<u>315,521,246</u>			
Net OPEB Liability		(\$93,587,616)	(\$137,482,337)	(\$46,883,022)	(\$38,874,741)	(\$12,940,960)	\$11,454,016			
Ratio of Plan Fiduciary Net Position to Total OPEB Liability		130.01%	142.87%	114.27%	112.11%	103.94%	96.50%			
Covered payroll		N/A	N/A	N/A	N/A	N/A	N/A			
Net OPEB Liability as a percentage of covered payroll		N/A	N/A	N/A	N/A	N/A	N/A			



## Summary of System Provisions

*Effective Date:* The System became effective January 1, 1964. The fiscal year is July 1 to June 30.

*Employees Included:* All permanent employees of the State of Oklahoma, and any other employer such as a county, county hospital, city or town, conservation districts, circuit engineering districts, and any trust in which a county, city, or town participates and is the primary beneficiary, are eligible to join if:

- the employee is not eligible for or participating in another retirement system authorized under Oklahoma law, is covered by Social Security and not participating in the U.S. Civil Service Retirement System,
- the employee is scheduled for 1,000 hours per year and salary is not less than the hourly rate of the monthly minimum wage for State employees (for employees of local government employers, not less than the hourly rate of the monthly minimum wage for such employees).

Membership is mandatory for new eligible employees on the first of the month following employment. Beginning November 1, 2015, most new state employees are excluded from participating in the defined benefit plan.

*Employee and Employer Contributions:* 3.5% of pay for most State employees and 16.5% for employers. Local employees, elected officials, members covered by the Department of Corrections Hazardous Duty provisions, and members who elect the step up provision contribute at varying rates.

*Final Average Compensation:* Generally the highest annual average of any thirty-six months within the last ten years of participating service. For members hired on or after July 1, 2013, the highest annual average of any sixty months within the last ten years of participating service.

*Retirement Date:*  
*Normal:* Age 62 (age 60 for elected officials), 80 age/service points if hired before July 1, 1992, 90 age/service points if hired on or after July 1, 1992.

For non-elected employees hired on or after November 1, 2011, the retirement age is age 65 or 90 age/service points if at least 60. For elected officials hired on or after November 1, 2011, age 65 with 8 years of service or 62 with 10 years of service.

## Summary of System Provisions (continued)

	20 years of service for certain members covered by the Department of Corrections Hazardous Duty provisions, Grand River Dam Authority Public Safety Officers Provisions, and certain Oklahoma Military Department Firefighters.
<i>Early:</i>	Age 55 with 10 years of service.
<i>Normal Retirement Benefit:</i>	General formula is 2% of final average compensation multiplied by years of credited service.
<i>Disability Benefit:</i>	After eight years of service, provided the member qualifies for disability benefits as certified either by the Social Security Administration or the Railroad Retirement Board. Benefit is determined by the normal retirement formula based on service and salary history at date of disability. The benefit is payable immediately without actuarial reduction.
<i>In-service Death Benefit:</i>	<p>If the deceased member was vested, the benefit that would have been paid the member had he retired and elected the joint and 100% survivor option (Option B).</p> <p>For elected officials, it is 50% of the benefit that would have been paid the member had he retired.</p>
<i>Postretirement Death Benefit:</i>	\$5,000 lump-sum.
<i>Forms of Payment:</i>	Life annuity, joint and 50% survivor, joint and 100% survivor annuity, life annuity with a minimum of 120 monthly payments, and Medicare Gap Benefit option.
<i>Supplemental Medical Insurance Premium:</i>	The System will contribute the lesser of \$105 per month or the Medicare Supplement Premium to the Office of Management and Enterprise Services, Employees Group Insurance Division (or other eligible employer health plans) for members receiving retirement benefits.

## Summary of Actuarial Assumptions and Methods

1. The investment return rate used in the valuation was 6.50 percent per year, net of investment expenses, compounded annually. This rate of return is not the assumed real rate of return. The real rate of return is the rate of return in excess of the inflation rate. Considering other financial assumptions, the 6.50 percent investment return rate translates to an assumed real rate of return of 4.00 percent.
2. Pub-2010 Below Median, General Membership Active/Retiree Healthy Mortality Table with base rates projected to 2030 using Scale MP-2019. Male rates are unadjusted and female rates are set forward two years.
3. The probabilities of withdrawal from service, together with individual pay increase assumptions, are shown in Schedule 1.
4. The probabilities of retirement with an age and service allowance are shown in Schedules 2A, 2B and 2C.
5. Because of the passage of House Bill 2132, benefits are not assumed to increase due to future ad hoc cost-of-living increases.
6. The individual entry-age normal actuarial cost method of valuation was used in determining actuarial accrued liability and normal cost. The unfunded actuarial accrued liability as of July 1, 2021 is amortized as a level percent of payroll over a 20-year closed period commencing July 1, 2007. New experience bases due to assumption changes or actual experience gains/losses will be established each year and amortized over closed 15-year periods.
7. The actuarial value of assets is based on a five-year moving average of expected actuarial values and market values. A preliminary expected value is determined equal to the prior year's actuarial value of assets plus net cash flow for the year ending on the valuation date, assuming the valuation investment return. The expected actuarial asset value is equal to the preliminary expected actuarial value plus the unrecognized investment gains and losses as of the beginning of the previous fiscal year. Twenty percent (20%) of the gain/loss as measured by the difference between the expected actuarial value and the market value at the valuation date is added to the preliminary expected actuarial value plus twenty percent (20%) of the unrecognized gains or losses for the four preceding fiscal years. The final result is constrained to a value no less than 80% and no more than 120% of the market value at the valuation date.
8. The actuarial assumptions and methods used in the valuation were adopted by the Board based on System experience from July 1, 2016 through June 30, 2019.

## Summary of Actuarial Assumptions and Methods (continued)

### Schedule 1

#### Withdrawal From Active Employment Before Age & Service Retirement and Individual Pay Increase Assumptions

Sample Service Values	Withdrawal	Sample Ages	Percent Increase in Individual's Pay During Next Year
1	22.00%	25	7.55%
5	10.50	30	6.05
10	6.00	35	5.25
15	4.30	40	4.95
20	3.00	45	4.55
25	1.80	50	4.25
		55	4.05
		60	3.55
		65	3.25

### Schedule 2A

#### Percent of Regular Non-Elected Members Retiring Within Next Year

Retirement Ages	Hired Prior to 11/1/2011		Hired on or After 11/1/2011	
	Eligible for Unreduced	Eligible for Reduced	Eligible for Unreduced	Eligible for Reduced
50-54	15%			
55	10%	4%		
56	10%	4%		
57	11%	4%		
58	12%	4%		
59	13%	5%		
60	14%	6%	30/15%*	5%
61	20%	13%	30/15%*	6%
62	25%		30/15%*	6%
63	15%		30/15%*	6%
64	15%		30/15%*	13%
65	30%		30/15%*	
66-69	25%		25%	
70-74	50%		50%	
75	100%		100%	

\*30% when first eligible to retire and 15% thereafter

## Summary of Actuarial Assumptions and Methods (continued)

### Schedule 2B

#### Percent of Elected Members Retiring Within Next Year

Retirement Ages	Elected Prior to 11/1/2011		Elected on or After 11/1/2011	
	Eligible for Unreduced	Eligible for Reduced	Eligible for Unreduced	Eligible for Reduced
50-54	25%			
55-59	20%	7%		
60-61	20%			10%
62-66	20%		20%	
67-74	35%		35%	
75	100%		100%	

### Schedule 2C

#### Percent of Hazardous Duty Members Retiring Within Next Year

#### Hazardous Duty Members With Less Than 20 Years of Service

Retirement Ages	Hired Prior To 11/1/2011	Hired on or After 11/1/2011
55	4%	
56-59	5%	
60	5%	7%
61	20%	20%
62	40%	20%
63	22%	20%
64	25%	20%
65	40%	40%
66	25%	25%
67	25%	23%
68	25%	22%
69	25%	21%
70	100%	100%

## Summary of Actuarial Assumptions and Methods (continued)

### Hazardous Duty Members With 20 or More Years of Service

Service	Percent
20	25%
21	25%
22	20%
23 - 24	15%
25 - 29	23%
30 - 34	25%
35	100%