ARIZONA ELECTED OFFICIALS' RETIREMENT PLAN

CONSOLIDATED REPORT

ACTUARIAL VALUATION
AS OF JUNE 30, 2022

CONTRIBUTIONS APPLICABLE TO THE
PLAN/FISCAL YEAR ENDING JUNE 30, 2024

FOSTER & FOSTER
ACTUARIES AND CONSULTANTS

VIA E-MAIL

December 2022

Board of Trustees
Arizona Elected Officials' Retirement Plan
Phoenix, AZ

Re: Actuarial Valuation Report as of June 30, 2022 – Arizona Elected Officials' Retirement Plan

Dear Members of the Board:

We are pleased to present to the Board this report of the annual actuarial valuation of the Arizona Elected Officials' Retirement Plan (EORP). The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and to develop the appropriate funding requirements for the applicable plan year.

This report was prepared at the request of the Board and is intended for use by EORP and those designated or approved by the Board. This report may be provided to parties other than EORP only in its entirety and only with the permission of the Board. Foster & Foster is not responsible for the unauthorized use of this report.

The valuation has been conducted in accordance with generally accepted actuarial principles and practices, including the applicable Actuarial Standards of Practice as issued by the Actuarial Standards Board, and reflects laws and regulations issued to date pursuant to the provisions of Title 38, Chapter 5, Article 3 of the Arizona Revised Statutes, as well as applicable federal laws and regulations. In our opinion, the assumptions used in this valuation, as adopted by the Board of Trustees, represent reasonable expectations of anticipated plan experience. Future actuarial measurements may differ significantly from the current measurements presented in this report for a variety of reasons including: changes in applicable laws, changes in plan provisions, changes in assumptions, or plan experience differing from expectations. Due to the limited scope of the valuation, we did not perform an analysis of the potential range of such future measurements.

The computed contribution rates shown in the "Contribution Results" section should be considered minimum contribution rates that comply with the Board's funding policy and Arizona Statutes. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Given the importance of benefit security to any retirement system, we suggest that contributions to the Plan in excess of those presented in this report be considered.

The funding percentages and unfunded accrued liability as measured based on the actuarial value of assets will differ from similar measures based on the market value of assets. These measures, as provided, are appropriate for determining the adequacy of future contributions, but may not be appropriate for the purpose of settling a portion or all of the Plan's liabilities.

In conducting the valuation, we have relied on personnel, plan design, and asset information supplied by EORP through June 30, 2022 and the actuarial assumptions and methods described in the Actuarial Assumptions section of this report. While we cannot verify the accuracy of all this information, the supplied information was reviewed for consistency and reasonableness. As a result of this review, we have no reason to doubt the substantial accuracy of the information and believe that it has produced appropriate results. This information, along with any adjustments or modifications, is summarized in various sections of this report.

This valuation assumes the continuing ability of the participating employers to make the contributions necessary to fund this plan. A determination regarding whether or not the participating employers are actually able to do so is outside our scope of expertise. Consequently, we did not perform such an analysis.

The undersigned are familiar with the immediate and long-term aspects of pension valuations and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. All of the sections of this report are considered an integral part of the actuarial opinion.

To our knowledge, no associate of Foster & Foster, Inc. working on valuations of the program has any direct financial interest or indirect material interest in the Arizona Elected Officials' Retirement Plan, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the Arizona Elected Officials' Retirement Plan. Thus, there is no relationship existing that might affect our capacity to prepare and certify this actuarial report.

If there are any questions, concerns, or comments about any of the items contained in this report, please contact us at 239-433-5500.

Respectfully Submitted,

Foster & Foster, Inc.

By: ______________________
Bradley R. Heinrichs, FSA, EA, MAAA

By: ______________________
Paul M. Baugher, FSA, EA, MAAA

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I. Summary of Report

The regular annual actuarial valuation of the Arizona Elected Officials' Retirement Plan, performed as of June 30, 2022, has been completed and the results are presented in this Report. The purpose of this valuation is to:

- Compute the liabilities associated with benefits likely to be paid on behalf of current retired and active members. This information is contained in the section entitled "Liability Support."
- Compare accumulated assets with the liabilities to assess the funded condition. This information is contained in the section entitled "Liability Support."
- Compute the employers' statutory contribution rates for the Fiscal Year beginning July 1, 2023. This information is contained in the section entitled "Contribution Results."

1. Key Valuation Results

The funded status as of June 30, 2022 and the statutory employer contribution amounts applicable to the plan/fiscal year ending June 30, 2024 are as follows:

	Pension	Health	Total
Employer Contribution Rate *	76.51%	0.00%	76.51%
Funded Status	32.6%	202.3%	34.8%

2. Comparison of Key Results to Prior Year

The chart below compares the results from this valuation with the results of the prior year's valuation (as of June 30, 2021):

Contribution Rate *

Valuation Date	Pension	Health	Total
June 30, 2021	70.42%	0.00%	70.42%
June 30, 2022	76.51%	0.00%	76.51%

Funded Status

Valuation Date	Pension	Health	Total
June 30, 2021	33.2%	211.5%	35.4%
June 30, 2022	32.6%	202.3%	34.8%

** The rates shown are the calculated rates as of the valuation date.*

3. Reasons for Change

Changes in the results from the prior year's valuation are illustrated in the following tables along with high-level explanations below:

Contribution Rate

	Pension	Health
Contribution Rate Last Valuation	70.42%	0.00%
Asset Experience	0.12%	0.01%
Liability Experience	(0.85%)	0.11%
Payroll Base	2.70%	(0.03%)
Assumption/Method Change	6.23%	0.08%
Other	(2.11%)	(0.17%)
Contribution Rate This Valuation	76.51%	0.00%

Funded Status

	Pension	Health
Funded Status Last Valuation	33.2%	211.5%
Asset Experience	(0.1%)	(0.4%)
Liability Experience	0.1%	(9.4%)
Assumption/Method Change	(1.3%)	(6.7%)
Other	0.7%	7.3%
Funded Status This Valuation	32.6%	202.3%

Assets Experience – Asset gains and losses (relative to the assumed earnings rate) are smoothed over seven years. The return on the market value of assets for the year ending June 30, 2022 was (4.1%). On a smoothed, actuarial value of assets basis, however, the average return was 7.0%. This fell short of the 2021 assumed earnings rate of 7.3%.

Payroll Base – Under the current amortization policy, the contribution rate is developed based on a percentage of payroll. Payroll for this purpose includes members of this plan and defined contribution plans' members that would have been in this plan (EORP DC and ASRS DC). To the extent that overall payroll is lower/greater than last year's projected payroll, the contribution rate will increase / decrease as a result. The payroll decreased from the prior year, resulting in an increase in the contribution rate.

Liability Experience – Experience overall was favorable, driven by lower salaries and more turnover than expected.

Assumption / Method Change – The Board adopted the assumption recommendations provided in the 2022 experience study report, dated April 21, 2022, which updated the salary, inflation, and demographic assumptions. The Board also reduced the interest rate from 7.30% to 7.20% and continued the decrease in the payroll growth assumption from 2.00% to 1.50%.

Other – This is the combination of all other factors that could impact liabilities year-over-year, with the primary sources being changes in benefits for continuing inactives.

4. Looking Ahead

The volatility in annual returns, which have produced both gains and losses in recent years, was dampened by the asset smoothing reflected in the actuarial value of assets. The significant loss realized this year will, in the absence of other gaines, put upward pressure on the contribution rate next year.

If the June 30, 2022 pension valuation results were based on the market value of assets instead of the actuarial value of assets, the pension funded percentage would be 32.0% (instead of 32.6%) and the statutory employer contribution requirement would be 77.32% of payroll (instead of 76.51%).

5. Conclusion

This plan is closed to new hires and relies on a statutory contribution that amortizes unfunded liabilities over a period that is much too long for the active membership. The contributions are based on the combined payroll of both current active members and defined contribution members that would have been part of this plan (EORP DC and ASRS DC). Two implications of this funding policy are that:

- Members who are not benefitting are helping to cover the cost of benefits (intergenerational equity).
- The assumption of continued payroll growth results in short-term growth in the unfunded liability and could significantly backload funding to the plan if the assumed growth is not achieved.

II. CONTRIBUTION RESULTS

Contribution Requirements

Development of Employer Contributions – Tiers 1 & 2 Members				
Valuation Date	June 30, 2022		June 30, 2021	
Applicable to Fiscal Year Ending	2024		2023	
	Rate	**Dollar**	**Rate**	**Dollar**
Pension				
Normal Cost				
Total Normal Cost	24.94%		28.84%	
Employee Cost	(7.00%)		(7.00%)	
Employer (Net) Normal Cost	17.94%		21.84%	
Amortization of Unfunded Liability	83.46%		72.83%	
Total Statutory Contribution Rate	101.40%	$ 59,628,104	94.67%	$ 55,721,697
Statutory Employer Contribution Rate	76.51%		70.42%	
Board Approved Employer Contribution Rate	**76.51%**	**43,628,880**	**70.42%**	**39,720,533**
Health				
Normal Cost	0.57%		0.59%	
Amortization of Unfunded Liability	(0.57%)		(0.59%)	
Total Employer Cost (Health)	0.00%	$ 0	0.00%	$ 0

As outlined in Section 38-810 of the Arizona Revised Statutes, the contribution rate, effective July 1, 2018, is determined actuarially as a combination of normal cost and an amortization of the plan's unfunded liability. This results in the "Total Statutory Contribution Rate" above. The statutes also outline that additional sources of funding will be provided through court fees (assumed to be approximately $11 million annually) and appropriation ($5 million each year through fiscal 2043). The "Statutory Employer Contribution Rate" nets out this additional funding from the total rate to arrive at an employer rate to be paid by the combined payrolls for members that would have been in this plan had it not been closed (EORP defined benefit, EORP defined contribution, and ASRS defined contribution members).

Development of Employer Contributions – Tier 3 EODCRS		
	FYE 2024 Rate	**FYE 2023 Rate**
Employee		
Employee DC Cost	8.00%	8.00%
Employee Disability Program Cost	0.15%	0.165%
Total Employee Cost	8.15%	8.165%
Employer		
Employer DC Cost	6.00%	6.00%
Employer Disability Program Cost	0.15%	0.165%
Employer Legacy Cost	70.51%	64.42%
Total Employer Cost	76.66%	70.585%

The rates above are only for those Tier 3 members who are participating in the Elected Officials' Defined Contribution Retirement System (EODCRS). Some Tier 3 members will participate in the defined contribution system provided by the Arizona State Retirement System (ASRS); those costs, most notably the disability program cost, are not prepared by Foster & Foster. As such, the ASRS costs are not summarized here.

Historical Summary of Employer Pension Rates

Valuation Date June 30	Fiscal Year Ending June 30	Normal Cost	Unfunded Amortization	Total *
2018	2020	21.71%	39.72%	61.43%
2019	2021	20.40%	41.03%	61.43%
2020	2022	19.84%	41.59%	61.43%
2021	2023	21.84%	48.58%	70.42%
2022	2024	17.94%	58.57%	76.51%

** Percent applied to combined DB/DC payroll and added to fees and $5 million appropriation.*

Historical Summary of Recommended Employer Health Rates

Valuation Date June 30	Fiscal Year Ending June 30	Normal Cost	Unfunded Amortization	Total
2018	2020	0.49%	(0.49%)	0.00%
2019	2021	0.63%	(0.63%)	0.00%
2020	2022	0.58%	(0.58%)	0.00%
2021	2023	0.59%	(0.59%)	0.00%
2022	2024	0.57%	(0.57%)	0.00%

III. Liability Support

Liabilities and Funded Ratios by Benefit

	June 30, 2022	June 30, 2021
Pension		
Actuarial Present Value of Benefits (PVB)		
Retirees and Beneficiaries	$ 800,598,312	$ 770,195,335
Vested Members	12,686,931	15,390,001
Active Members	222,604,172	227,256,432
Total Actuarial Present Value of Benefits	1,035,889,415	1,012,841,768
Actuarial Accrued Liability (AAL)		
All Inactive Members	813,285,243	785,585,336
Active Members	179,713,767	169,459,069
Total Actuarial Accrued Liability	992,999,010	955,044,405
Actuarial Value of Assets (AVA)	323,944,540	317,024,916
Unfunded Actuarial Accrued Liability	669,054,470	638,019,489
Funded Ratio (AVA / PVB)	31.3%	31.3%
Funded Ratio (AVA / AAL)	32.6%	33.2%
Health		
Actuarial Present Value of Benefits (PVB)		
Retirees and Beneficiaries	$ 10,605,217	$ 9,915,477
Active Members	3,387,947	3,352,239
Total Present Value of Benefits	13,993,164	13,267,716
Actuarial Accrued Liability (AAL)		
Retirees and Beneficiaries	10,605,217	9,915,477
Active Members	2,466,632	2,231,353
Total Actuarial Accrued Liability	13,071,849	12,146,830
Actuarial Value of Assets (AVA)	26,444,928	25,695,964
Unfunded Actuarial Accrued Liability	(13,373,079)	(13,549,134)
Funded Ratio (AVA / PVB)	189.0%	193.7%
Funded Ratio (AVA / AAL)	202.3%	211.5%

Derivation of Experience (Gain)/Loss

Actual experience will never exactly match assumed experience, except by coincidence. Ideally, gains and losses will cancel each other over a period of years, but sizable year-to-year fluctuations are common. Detail on the derivation of the experience (gain) / loss is shown below, along with sources of the gains and losses.

		Pension	Health
(1)	Unfunded Actuarial Accrued Liability as of June 30, 2021	$ 638,019,489	$ (13,549,134)
(2)	Normal Cost Developed in Last Valuation	7,280,024	196,667
(3)	Actual Contributions	56,351,857	0
(4)	Expected Interest On (1), (2), and (3)	45,086,248	(974,730)
(5)	Expected Unfunded Actuarial Accrued Liability as of June 30, 2022 (1)+(2)-(3)+(4)	634,033,904	(14,327,197)
(6)	Changes to UAAL Due to Assumptions, Methods and Benefits	36,729,848	419,441
(7)	Change to UAAL Due to Actuarial (Gain)/Loss	(1,709,282)	534,677
(8)	Unfunded Actuarial Accrued Liability as of June 30, 2022	669,054,470	(13,373,079)

FY 2022 Gains and Losses by Source

	Pension		Health	
	(Gain) / Loss	% of Liabilities	(Gain) / Loss	% of Liabilities
Investment Return	936,563	0.1%	54,779	0.4%
Salary Increases	(4,894,378)	(0.5%)	0	0.0%
Retirement	639,259	0.1%	(147,743)	(1.1%)
Turnover	(1,641,362)	(0.2%)	4,711	0.0%
Disability	(15,550)	0.0%	(697)	0.0%
Death-In-Service	(133)	0.0%	(3,891)	0.0%
Retiree Mortality	(490,383)	0.0%	(90,541)	(0.7%)
Other *	3,756,702	0.3%	718,059	5.5%
Total	(1,709,282)	(0.2%)	534,677	4.1%

** The combination of all other factors that could impact liabilities year-over-year, with the primary sources being changes in member data.*

Amortization of Unfunded Liabilities

	Date Established	Outstanding Balance	Years Remaining	Amortization Rate *
Pension	6/30/2019	661,639,246	22	81.02%
	6/30/2022	18,306,737	22	2.44%
	Total	679,945,983		83.46%
Health	6/30/2019	0	10	0.00%
	6/30/2022	(12,065,894)	10	(2.52%)
	Total	(12,065,894)		(2.52%)

* *By Statute, any unfunded liability is adjusted to remove any "maintenance of effort" balance included in the assets. The current balance is $10,891,513.*

IV. Asset Support

Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2022

Market Value Basis

	Pension	Health
Additions		
Contributions		
Member Contributions	$ 3,405,242	$ 0
Employer Contributions	40,735,120	0
Health Insurance Contributions	0	0
Other Contributions	15,616,737	0
Total Contributions	59,757,099	0
Investment Income		
Net Increase in Fair Value	(18,491,434)	(1,503,788)
Interest and Dividends	3,321,211	270,092
Other Income	2,088,909	169,878
Less Investment Expenses	(591,954)	(48,140)
Net Investment Income	(13,673,268)	(1,111,958)
Transfers In	13,048	0
Total Additions	46,096,879	(1,111,958)
Deductions		
Distributions to Members		
Benefit Payments	74,448,051	0
Health Insurance Subsidy	0	1,034,310
Refund of Contributions	70,414	0
Total Distributions	74,518,465	1,034,310
Administrative Expenses	194,102	15,785
Transfers Out	0	0
Other	0	0
Total Deductions	74,712,567	1,050,095
Net Increase / (Decrease)	(28,615,688)	(2,162,053)
Net Position Held in Trust		
Prior Valuation	346,481,987	28,094,587
End of the Year	317,866,299	25,932,534

Development of Pension Actuarial Value of Assets

A. Investment Income	
A1. Actual Investment Income	$ (13,867,370)
A2. Expected Amount for Immediate Recognition	24,764,353
A3. Amount Subject to Amortization	(38,631,723)

	Year Ended June 30						
B. Amortization Schedule	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
2022 Experience (A3 / 7)	(5,518,818)	(5,518,818)	(5,518,818)	(5,518,818)	(5,518,818)	(5,518,818)	(5,518,815)
2021 Experience	7,491,790	7,491,790	7,491,790	7,491,790	7,491,790	7,491,787	
2020 Experience	(2,138,405)	(2,138,405)	(2,138,405)	(2,138,405)	(2,138,403)		
2019 Experience	(973,961)	(973,961)	(973,961)	(973,958)			
2018 Experience	(198,529)	(198,529)	(198,532)				
2017 Experience	1,448,275	1,448,276					
2016 Experience	(3,206,763)						
Total Amortization	(3,096,411)	110,353	(1,337,926)	(1,139,391)	(165,431)	1,972,969	(5,518,815)

C. Actuarial Value of Assets	
C1. Actuarial Value of Assets, June 30, 2021	317,024,916
C2. Noninvestment Net Cash Flow	(14,748,318)
C3. Preliminary Actuarial Value of Assets, June 30, 2022 (A2 + B + C1 + C2)	323,944,540
C4. Market Value of Assets, June 30, 2022	317,866,299
C5. Final Actuarial Value of Assets, June 30, 2022 (C3 Within 20% Corridor of C4)	323,944,540

D. Rates of Return	
D1. Market Value Rate of Return	(4.1%)
D2. Actuarial Value Rate of Return	7.0%

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Development of Health Actuarial Value of Assets

A. Investment Income	
A1. Actual Investment Income	$ (1,127,743)
A2. Expected Amount for Immediate Recognition	2,013,817
A3. Amount Subject to Amortization	(3,141,560)

	Year Ended June 30						
B. Amortization Schedule	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
2022 Experience (A3 / 7)	(448,794)	(448,794)	(448,794)	(448,794)	(448,794)	(448,794)	(448,796)
2021 Experience	607,293	607,293	607,293	607,293	607,293	607,293	
2020 Experience	(175,817)	(175,817)	(175,817)	(175,817)	(175,815)		
2019 Experience	(82,099)	(82,099)	(82,099)	(82,097)			
2018 Experience	(12,326)	(12,326)	(12,325)				
2017 Experience	118,122	118,119					
2016 Experience	(236,922)						
Total Amortization	(230,543)	6,376	(111,742)	(99,415)	(17,316)	158,499	(448,796)

C. Actuarial Value of Assets	
C1. Actuarial Value of Assets, June 30, 2021	25,695,964
C2. Noninvestment Net Cash Flow	(1,034,310)
C3. Preliminary Actuarial Value of Assets, June 30, 2022 (A2 + B + C1 + C2)	26,444,928
C4. Market Value of Assets, June 30, 2022	25,932,534
C5. Final Actuarial Value of Assets, June 30, 2022 (C3 Within 20% Corridor of C4)	26,444,928

D. Rates of Return	
D1. Market Value Rate of Return	(4.1%)
D2. Actuarial Value Rate of Return	7.1%

V. Member Statistics

Valuation Data Summary

	June 30, 2022	June 30, 2021
Actives		
Number	354	373
Average Current Age	59.9	59.0
Average Age at Employment	45.7	46.3
Average Past Service	14.2	12.7
Average Annual Salary	$91,818	$91,067
Retirees		
Number	1,043	1,056
Average Current Age	73.5	73.0
Average Annual Benefit	$60,131	$58,287
Beneficiaries		
Number	245	242
Average Current Age	80.1	79.8
Average Annual Benefit	$43,901	$42,497
Disability Retirees		
Number	15	17
Average Current Age	73.4	72.2
Average Annual Benefit	$116,514	$112,560
Inactive / Vested		
Number	168	177
Average Current Age	58.0	57.5
Average Accumulated Contributions	$12,335	$12,335
Total Number	1,825	1,865

Active Counts and Pay Summary by Service

	Past Service									
Age	0-4	5-9	10-14	15-19	20-24	25-29	30+	Total Count	Total Pay	Average Pay
<40	0	2	2	0	0	0	0	4	$ 193,960	$ 48,490
40 - 44	1	3	8	0	0	0	0	12	680,916	56,743
45 - 49	1	11	14	4	0	0	0	30	2,476,202	82,540
50 - 54	1	15	31	8	0	0	0	55	5,436,047	98,837
55 - 59	3	12	28	25	3	0	0	71	7,858,786	110,687
60 - 64	6	14	25	27	5	2	2	81	8,193,669	101,156
65 - 69	2	10	21	23	8	5	1	70	6,421,832	91,740
70 - 74	0	3	4	5	0	2	1	15	664,598	44,307
75+	0	5	6	2	2	0	1	16	577,669	36,104
Total	14	75	139	94	18	9	5	354	32,503,680	91,818

In-Payment Counts and Benefit Summary

Age	Count	Average Annual Benefit
< 40	0	$ 0
40 - 44	4	23,698
45 - 49	8	14,282
50 - 54	26	33,572
55 - 59	38	50,911
60 - 64	100	55,144
65 - 69	210	61,565
70 - 74	307	65,010
75 - 79	243	58,107
80 - 84	187	55,085
85 - 89	115	52,417
90 - 94	51	56,761
95 - 99	12	35,534
100+	2	16,021
Total	1,303	57,728

"In-Payment" refers to retired, beneficiary, and disabled members.

VI. Actuarial Assumptions and Methods

Interest Rate	7.20% per year. This is the assumed earnings rate on System assets, compounded annually, net of investment and administrative expenses.
Salary Increases	3.25%. This is an annual increase for individual member's salary. This rate is based on a 2022 experience study using actual plan experience.
Inflation	2.50%.
Cost-of-Living Adjustment	1.85%.
Mortality Rates	These rates are used to project future decrements from the population due to death. ***Active Lives:*** PubG-2010 (Above Median) Employee mortality, projected with future mortality improvements reflected generationally using 85% of the most recent projection scale (currently Scale MP-2021). ***Inactive Lives:*** PubG-2010 (Above Median) Healthy Retiree mortality, projected with future mortality improvements reflected generationally using 85% of the most recent projection scale (currently Scale MP-2021). ***Beneficiaries:*** PubG-2010 (Above Median) Survivor mortality, projected with future mortality improvements reflected generationally using 85% of the most recent projection scale (currently Scale MP-2021). ***Disabled Lives:*** PubNS-2010 Disabled mortality, projected with future mortality improvements reflected generationally using 85% of the most recent projection scale (currently Scale MP-2021). The mortality assumptions sufficiently accommodate anticipated future mortality improvements.
Retirement Rates	These rates are used to project future decrements from the active population due to retirement. The rates below are based on a 2022 experience study using actual plan experience. ***Tier 1 (reaching age 62 before attaining 20 years of service) & Tier 2:*** Service-related rates based on service at retirement: 40% per year with

20 years of service, 30% per year with 21 years of service, 15% per year with 22-34 years of service, and 100% assumed with 35+ years of service.

Tier 1 - reaching age 62 after attaining 20 years of service:

Age-related rates based on age at retirement: 20% per year from age 62 - 74 and 100% assumed at age 75.

Tier 1 - eligible for early retirement:

4.0% per year for each year of eligibility.

Termination Rates

These rates are used to project future decrements from the active population due to termination. Service-related rates based on service at termination: 7.0% per year for up to 8 years of service and 1.0% per year for 9+ years of service. These rates are based on a 2022 experience study using actual plan experience.

Disability Rates

These rates are used to project future decrements from the active population due to disability. Sample age-related rates based on age at disability are provided below. These rates are based on a 2022 experience study using actual plan experience.

Age	**Rate**
30	0.00%
35	0.00%
40	0.00%
45	0.00%
50	0.13%
55	0.17%

Marital Status

For active members, 80% of males and 70% of females are assumed to be married. Actual marital status is used, where applicable, for inactive members.

Spouse's Age

Males are assumed to be three years older than females.

Health Care Utilization

For active members, 70% of retirees are expected to utilize retiree health care. Actual utilization is used for inactive members.

Funding Method

Entry Age Normal Cost Method.

Actuarial Asset Method

Each year the assumed investment income is recognized in full while the difference between actual and assumed investment income are smoothed over a 7-year period subject to a 20% corridor around the market value. During periods when investment performance exceeds (falls short) of the assumed rate, the actuarial value of assets will tend to be less (greater) than the market value of assets.

Funding Policy Amortization Method	Any positive UAAL (assets less than liabilities) is amortized using a layered approach beginning with the June 30, 2020 valuation, with new amounts determined according to a Level Dollar method over a closed period of 15 years (phased into from current period of 23 years). Initial layer from June 30, 2019 valuation continues to be amortized according to a Level Percentage of Payroll method. Any negative UAAL (assets greater than liabilities) is amortized according to a Level Dollar method over an open period of 20 years.
Payroll Growth	1.50% per year. This is annual increase for total employer payroll.

Changes to Actuarial Assumptions and Methods Since the Prior Valuation

Based on the results of the 2022 experience study, the following assumption changes were made:

- Updated mortality, retirement, termination, and disability rate tables.
- Updated assumed salary increase and cost-of-living adjustment rates.

In addition, the interest rate was decreased from 7.30% to 7.20% and the payroll growth assumption was lowered from 2.00% to 1.50%.

There were no method changes since the prior valuation.

VII. Discussion of Risk

ASOP No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, states that the actuary should identify risks that, in the actuary's professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition.

Throughout this report, actuarial results are determined under various assumption scenarios. These results are based on the premise that all future plan experience will align with the plan's actuarial assumptions; however, there is no guarantee that actual plan experience will align with the plan's assumptions. Whenever possible, the recommended assumptions in this report reflect conservatism to allow for some margin of unfavorable future plan experience. However, it is still possible that actual plan experience will differ from anticipated experience in an unfavorable manner that will negatively impact the plan's funded position.

Below are examples of ways in which plan experience can deviate from assumptions and the potential impact of that deviation. Typically, this results in an actuarial gain or loss representing the current-year financial impact on the plan's unfunded liability of the experience differing from assumptions; this gain or loss is amortized over a period of time determined by the plan's amortization method. When assumptions are selected that adequately reflect plan experience, gains and losses typically offset one another in the long term, resulting in a relatively low impact on the plan's contribution requirements associated with plan experience. When assumptions are too optimistic, losses can accumulate over time and the plan's amortization payment could potentially grow to an unmanageable level.

- <u>Investment Return</u>: When the rate of return on the Actuarial Value of Assets falls short of the assumption, this produces a loss representing assumed investment earnings that were not realized. Further, it is unlikely that the plan will experience a scenario that matches the assumed return in each year as capital markets can be volatile from year to year. Therefore, contribution amounts can vary in the future.
- <u>Salary Increases</u>: When a plan participant experiences a salary increase that was greater than assumed, this produces a loss representing the cost of an increase in anticipated plan benefits for the participant as compared to the previous year. The total gain or loss associated with salary increases for the plan is the sum of salary gains and losses for all active participants.
- <u>Payroll Growth</u>: The plan's payroll growth assumption, if one is used, causes a predictable annual increase in the plan's amortization payment in order to produce an amortization payment that remains constant as a percentage of payroll if all assumptions are realized. If payroll does not increase according to the plan's payroll growth assumption, the plan's amortization payment can increase significantly as a percentage of payroll even if all assumptions other than the payroll growth assumption are realized.
- <u>Demographic Assumptions:</u> Actuarial results take into account various potential events that could happen to a plan participant, such as retirement, termination, disability, and death. Each of these potential events is assigned a liability based on the likelihood of the event and the financial consequence of the event for the plan. Accordingly, actuarial liabilities reflect a blend of financial consequences associated with various possible outcomes (such as retirement at one of various possible ages). Once the outcome is known (e.g. the participant retires) the liability is adjusted to reflect the known outcome. This adjustment

produces a gain or loss depending on whether the outcome was more or less favorable than other outcomes that could have occurred.

- Contribution risk: This risk results from the potential that actual employer contributions may deviate from actuarially determined contributions, which are determined in accordance with the Board's funding policy. The funding policy is intended to result in contribution requirements that if paid when due, will result in a reasonable expectation that assets will accumulate to be sufficient to pay plan benefits when due. Contribution deficits, particularly large deficits and those that occur repeatedly, increase future contribution requirements and put the plan at risk for not being able to pay plan benefits when due.

IMPACT OF PLAN MATURITY ON RISK

For newer pension plans, most of the participants and associated liabilities are related to active members who have not yet reached retirement age. As pension plans continue in operation and active members reach retirement ages, liabilities begin to shift from being primarily related to active members to being shared amongst active and retired members. Plan maturity is a measure of the extent to which this shift has occurred. It is important to understand that plan maturity can have an impact on risk tolerance and the overall risk characteristics of the plan. For example, plans with a large amount of retired liability do not have as long of a time horizon to recover from losses (such as losses on investments due to lower than expected investment returns) as plans where the majority of the liability is attributable to active members. For this reason, less tolerance for investment risk may be warranted for highly mature plans with a substantial inactive liability. Similarly, mature plans paying substantial retirement benefits resulting in a small positive or net negative cash flow can be more sensitive to near term investment volatility, particularly if the size of the fund is shrinking, which can result in less assets being available for investment in the market.

To assist with determining the maturity of the plan, we have provided some relevant metrics in the table following titled "Plan Maturity Measures and Other Risk Metrics". Highlights of this information are discussed below:

- The Support Ratio, determined as the ratio of active to inactive members, has decreased from 34.5% on June 30, 2019 to 24.1% on June 30, 2022. This is expected since the plan is closed to new active members.
- The Accrued Liability Ratio, determined as the ratio of the Inactive Accrued Liability, which is the liability associated with members who are no longer employed but are due a benefit from the plan, to the Total Accrued Liability, is 81.9%. With a plan of this maturity, losses due to lower than expected investment returns or demographic factors will need to be made up for over a shorter time horizon than would be needed for a less mature plan.
- The Funded Ratio, determined as the ratio of the Actuarial Value of Assets to the Total Accrued Liability, has increased from 31.5% on June 30, 2019 to 32.6% on June 30, 2022, due mainly to plan experience including contributions. The contributions will need to continue at least at these statutory levels for the funded status to improve over time.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments) to the Market Value of Assets, decreased from (0.9%) on June 30, 2019 to (4.6%) on June 30, 2022, meaning that contributions are not currently covering the plan's benefit payments.

It is important to note that the actuary has identified the risks above as the most significant risks based on the characteristics of the plan and the nature of the project, however, it is not an exhaustive list of potential risks that could be considered. Additional advanced modeling, as well as the identification of additional risks, can be provided at the request of the reader.

Plan Maturity Measures and Other Risk Metrics

	06/30/2019	06/30/2020	06/30/2021	06/30/2022
Support Ratio				
Total Actives	485	457	373	354
Total Inactives	1,406	1,429	1,492	1,471
Actives / Inactives	34.5%	32.0%	25.0%	24.1%
Asset Volatility Ratio				
Market Value of Assets (MVA)	286,064,803	286,501,508	346,481,987	317,866,299
Total Annual Payroll	47,986,264	44,153,751	33,967,975	32,503,680
MVA / Total Annual Payroll	596.1%	648.9%	1,020.0%	977.9%
Accrued Liability (AL) Ratio				
Inactive Accrued Liability	731,356,122	742,174,987	785,585,336	813,285,243
Total Accrued Liability	949,242,004	961,463,313	955,044,405	992,999,010
Inactive AL / Total AL	77.0%	77.2%	82.3%	81.9%
Funded Ratio				
Actuarial Value of Assets (AVA)	298,895,212	309,015,722	317,024,916	323,944,540
Total Accrued Liability	949,242,004	961,463,313	955,044,405	992,999,010
AVA / Total Accrued Liability	31.5%	32.1%	33.2%	32.6%
Net Cash Flow Ratio				
Net Cash Flow *	(2,692,470)	(5,470,535)	(12,913,613)	(14,761,366)
Market Value of Assets (MVA)	286,064,803	286,501,508	346,481,987	317,866,299
Net Cash Flow / MVA	(0.9%)	(1.9%)	(3.7%)	(4.6%)

* *Determined as total contributions minus benefit payments. Administrative expenses are typically included but are considered part of the net interest rate assumption for this plan.*

VIII. Summary of Current Plan

The following is a summary of the benefit provisions provided in Title 38, Chapter 5, Article 3 of the Arizona Revised Statutes.

Membership

Eligible elected officials, justices, judges, and administrators who were members of the plan on December 31, 2013.

Benefit Tiers

Benefits differ for members based on their hire date:

Tier	Hire Date
1	Hired before January 1, 2012
2	Hired on or after January 1, 2012

Average Yearly Salary

Total salary paid during a considered period divided by the number of years (including fractional years) in which the salary was received.

Tier 1

Considered period is the three highest consecutive years within the last ten completed years of service.

Tier 2

Considered period is the five highest consecutive years within the last ten completed years of service.

Credited Service

Total periods of service, both from other State plans and those compensated periods of service for which the member made contributions to the Fund.

Normal Retirement Date

First of the month following attainment of 1) age 62 years with 10 years of Credited Service or 2) age 65 with 5 years of Credited Service. Members hired before January 1, 2012 are also eligible upon attainment of 20 years of Credited Service.

Benefit

Tier 1

4.00% times Average Yearly Salary times Credited Service (maximum 80% of Average Yearly Salary).

Tier 2

3.00% times Average Yearly Salary times Credited Service (maximum 75% of Average Yearly Salary).

Form of Benefit	For married retirees, an annuity payable for the life of the member with 75% continuing to the eligible spouse upon death (50% for members hired on/after January 1, 2012). For unmarried retirees, the normal form is a single life annuity.
Early Retirement Eligibility	***Only Applicable to Tier 1 Members*** 5 years of Credited Service.
Benefit	Normal Retirement benefit reduced by 0.25% for each month Early Retirement precedes the member's Normal Retirement date. Maximum reduction is 30%.
Disability Benefit Eligibility	Permanent mental or physical incapacitation that would prevent the member from performing the duties of their office.
Benefit Amount	Percentage (below) times Average Yearly Salary.

Tier 1

Credited Service	Percentage
Less than 5 years	20%
5 years to less than 10	40%
10+ years	80%

Tier 2

Credited Service	Percentage
Less than 5 years	18.75%
5 years to less than 10	37.50%
10+ years	75.00%

Pre-Retirement Death Benefit

Payable to Eligible Survivor	75% (50% for members hired on/after January 1, 2012) of benefit calculated in same manner as disability benefit. Payable to eligible spouse for life; payable to eligible children until adopted, age 18, or age 23 if full-time student.
No Survivors	Accumulated contributions.
Vesting (Termination) Deferred Annuity	For those with 5 years of credited service, Normal Retirement Benefit is payable upon reaching age requirement if contributions are left in fund.
Return of Contributions	***Tier 1*** Lump sum payment of accumulated contributions, plus additional amount based on years of credited service.

Contributions left on deposit more than 30 days receive interest (as determined by the Board) from termination.

Service	Additional % of Contributions
Less than 5 years	0%
5 years	25%
6 years	40%
7 years	55%
8 years	70%
9 years	85%
10+ years	100%

Tier 2

Lump sum payment of accumulated contributions, with interest at rate determined by the Board.

Cost-of-Living Adjustment

Compound cost-of-living adjustment on base benefit, payable to retired member or survivor of retired member. First payment is made on July 1, 2019, with annual adjustments effective every July 1 thereafter.

Cost-of-living adjustment will be based on the average annual percentage change in the Metropolitan Phoenix-Mesa Consumer Price Index published by the United States Department of Labor, Bureau of Statistics. Maximum increase of 2%.

Post-Retirement Health Insurance Subsidy

Eligibility

Retired member or survivor who elect health coverage provided by the state or participating employer.

Maximum Subsidy Amounts (Monthly)

	Member Only	With Dependents
Medicare Eligible	$100	$170
One w/ Medicare	N/A	$215
Not Medicare Eligible	$150	$260

Retired members or survivors with at least five years of service, but less than 8 years of service receive a proportionate share of full subsidy.

Employee Contributions

Tier 1

7.00%

Tier 2

13.00%. Amounts in excess of 7.00% are not used to reduce the employer contribution ("maintenance of effort").

Employer Contributions

Normal Cost plus amortization of unfunded actuarial accrued liability over a closed period not to exceed 30 years. Total employer and employee contributions cannot be less than the normal cost.

Changes to Benefit Provisions Since the Prior Valuation

None.

IX. Actuarial Funding Policy

A pension plan funding policy describes how pension funding will improve for underfunded plans or maintain funded benefits for funded plans over time for those benefits defined in ARS. Those benefits defined in ARS are to be equitably managed and administered by PSPRS.

This Actuarial Funding Policy identifies the funding objectives and elements of the actuarial funding policy set by the Board for the Arizona Public Safety Personnel Retirement System (PSPRS). The Board adopted this Funding Policy to help ensure the systematic funding of future benefit payments for members of the Retirement System as established by the legislature.

To achieve the systematic funding of future benefits, metrics are identified to measure the progress, or the lack of progress, over time to identify trends. These trends inform the continuation of the current policies or identify areas of needed research for consideration.

This funding policy is reviewed annually and adopted by the Board in accordance with ARS 38-863.02. This policy was reviewed and adopted by the Board in September 2022.

PSPRS Statement of Purpose

The Purpose of the Public Safety Personnel Retirement System is to provide uniform, consistent, and equitable statewide retirement programs for those who have been entrusted to our care.

Funding Objectives

1. Maintain adequate assets so that current plan assets, plus future contributions and investment earnings, are sufficient to fund all benefits expected to be paid to members and their beneficiaries.
    a. Corollary 1a: Current and future contributions should be calculated based upon assumptions that reflect the Board's best estimate of future experience and methods that appropriately allocate costs to address generational equity.
    b. Corollary 1b: While the shorter-term objective is to fully fund the actuarial liability (AAL) that estimates benefits earned as of the valuation date, contributions should target the long-term present value of benefits (PVB) to fund all benefits and help offset risks.
    c. As closed plans mature, the target funding should be 110% of AAL or 100% of PVB, whichever is greater

2. Maintain public policy goals of accountability and transparency through stakeholder communication and education. Each policy element is clear in intent and effect, and each should be considered in a balanced approach to determine how and when the funding requirements of the plan will be met.
    a. Corollary 2a: Board shall provide stakeholders with separate reports and tools to help explain current results as well as to help model future funding requirements.

3. Promote intergenerational equity. Defined benefit pensions are designed with a long-term perspective and designed to minimize contribution volatility that cannot avoid some level of generational cost shift. However, the goal is that each generation of members and employers (taxpayers) should, to the extent

possible, incur the cost of benefits for the employees who provide services to them, rather than shifting those costs to other generations of members and employers (taxpayers).

a. Corollary 3a: A systematic reduction of the Unfunded Actuarial Accrued Liability (UAAL) over a reasonable time period is paramount to achieving this objective.

Consideration can be given to reduce volatility, to the extent possible, of employer and employee contribution rates as long as the integrity of the objectives listed above is not compromised.

Elements of Actuarial Funding Policy

1. Actuarial Cost Method
   a. The Entry Age Normal level percent of pay actuarial cost method of valuation shall be used in determining the Actuarial Accrued Liability (AAL) and Normal Cost. Differences in the past between assumed experience and actual experience ("actuarial gains and losses") shall become part of the AAL. The Normal Cost shall be determined on an individual basis for each active member.

2. Asset Smoothing Method
   a. The investment gains or losses of each valuation period, resulting from the difference between the actual investment return and assumed investment return, shall be recognized annually in level amounts over seven years (Tiers 1 and 2) or five years (Tier 3) in calculating the Actuarial Value of Assets.
   b. The Actuarial Value of Assets so determined shall be subject to a 20% corridor relative to the Market Value of Assets.

3. Amortization Method (Unfunded Amounts)
   a. The Actuarial Value of Assets are subtracted from the computed AAL. Any unfunded amount is amortized as a level percent of payroll over a closed period.
   b. The unfunded liabilities, for EORP and Tiers 1 & 2 for both PSPRS and CORP, determined in the June 30, 2019 actuarial valuation will become the initial layer for each employer beginning with the June 30, 2020 actuarial valuation and amortized using the current closed year period for that employer and continue to decrease each year.
      i. The payroll growth rate assumption used to amortize the Public Safety Plan (PSPRS) June 30, 2019 Unfunded Liability will be decreased by 0.5% beginning with the 6/30/2021 actuarial valuation and again each year with the intention of ultimately achieving 0.0%. Once the payroll growth assumption reaches 2.0%, however, the Board will reevaluate the payroll growth assumption and decide whether to continue to let it track down to 0.0%.
      ii. The payroll growth rate used to amortize the Correction Officers Retirement Plan (CORP) June 30, 2019 Unfunded Liability will be 3.0% beginning with the 6/30/2020 actuarial valuation, and future years will be reduced by 0.5% until 0.0% is reached.
      iii. The payroll growth rate used to amortize the Elected Officials Retirement Plan (EORP) June 30, 2019 Unfunded Liability will be 2.5% beginning with the 6/30/2020 actuarial valuation, and future years will be reduced by 0.5% until 0.0% is reached.
   c. Gains and losses, for EORP and Tiers 1 & 2 for both PSPRS and CORP, for each employer beginning with the June 30, 2020 actuarial valuation will be amortized as a new layer over the same amortization period as the regular unfunded liability to a minimum of 15 years. Once the amortization period for each employer decreases to 15 years, each subsequent year's gains and losses will be amortized as a new 15-year closed layer.

i. The payroll growth rate used to amortize unfunded liability for all Plans under this paragraph will be 0.0% (i.e. level-dollar amortization).

d. Tier 3 amortization methods are established in ARS 38-843.G and ARS 38-891.K.

4. Amortization Method (Overfunded Amounts)
   a. The Actuarial Value of Assets are subtracted from the target funding level(greater of 110% of AAL or 100% of PVB). Any overfunded amount is amortized as a level dollar amount over an open 10-year period.

Metrics to Monitor Funding Objectives

1. Appropriateness of Assumptions – Gain/Loss Experience (Corollary 1a)
   a. Metric: Do the cumulative gain/loss layers over the prior five years exceed 8% of plan assets?
   b. Measurement: History of annual gain/loss (split by asset and liability experience) and five-year cumulative results will be tracked.
   c. Action Plan: This metric assumes that a full experience study is performed at least every five years so objective of measurement is to monitor interim experience. If the metric answer is yes, a review of the sources or causes of gains and losses should be analyzed and presented to the Advisory Committee to provide a recommendation to the Board of Trustees. The analysis and presentation are intended to provide a basis for consideration if assumption changes are warranted between full experience studies.

2. Funding Targets (Corollary 1b)
   a. Metric: Has the funded status, on both an AAL and PVB basis when compared to the market value of assets, increased over a five-year period?
   b. Measurement: History of funded status measures will be tracked.
   c. Action Plan: If the answer is no and not readily explainable (e.g., significant assumption change), a review of the reason(s) for the decrease should be researched and presented to the Advisory Committee to provide a recommendation to the Board of Trustees. The analysis and presentation are intended to provide a basis for consideration if changes to assumptions and/or methods are warranted between full experience studies.

3. Communication with Stakeholders (Corollary 2a)
   a. Metric: Have reports and budgeting tools been provided to stakeholders in a timely fashion?
   b. Measurement: Yes/No answer based on input from PSPRS administrator. (An annual standard survey of stakeholders – 3 to 5 questions.)
   c. Action Plan: If the answer is no, and periodically regardless (e.g., every three years), PSPRS staff will revisit this metric to report to the Advisory Committee to provide a recommendation to the Board of Trustees if current reports / tools are sufficient and if the delivery timing is appropriate.

4. Timely Recognition of Costs (Corollary 3a)
   a. Metric: Has the percentage of unfunded liability subject to negative amortization decreased over a five-year lookback period?
   b. Measurement: History of unfunded liability subject to negative amortization as a percentage of total unfunded liability will be tracked.
   c. Action Plan: If the answer is no, and not readily explainable (e.g., adopted assumption changes being phased in are anticipated to address negative amortization), a review of the reason(s) for negative

amortization should be researched and presented to the Advisory Committee to provide a recommendation to the Board of Trustees. The analysis and presentation are intended to provide a basis for consideration if changes to assumptions and/or methods are warranted between full experience studies.

X. GLOSSARY

Actuarial Accrued Liability – Computed differently under different funding methods, the actuarial accrued liability generally represents the portion of the actuarial present value of benefits attributable to service credit earned (or accrued) as of the valuation date.

Actuarial Present Value of Benefits – Amount which, together with future interest, is expected to be sufficient to pay all benefits to be paid in the future, regardless of when earned, as determined by the application of a particular set of actuarial assumptions; equivalent to the actuarial accrued liability plus the present value of future normal costs attributable to the members.

Actuarial Assumptions – Assumptions as to the occurrence of future events affecting pension costs. These assumptions include rates of investment earnings, changes in salary, rates of mortality, withdrawal, disablement, and retirement as well as statistics related to marriage and family composition.

Actuarial Cost Method – A method of determining the portion of the cost of a pension plan to be allocated to each year; sometimes referred to as the "actuarial funding method." Each cost method allocates a certain portion of the actuarial present value of benefits between the actuarial accrued liability and future normal costs.

Actuarial Equivalence – Series of payments with equal actuarial present values on a given date when valued using the same set of actuarial assumptions.

Actuarial Present Value - The amount of funds required as of a specified date to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest, and by probabilities of payments between the specified date and the expected date of payment.

Actuarial Value of Assets – The value of cash, investments, and other property belonging to the pension plan as used by the actuary for the purpose of the actuarial valuation. This may correspond to market value of assets, or some modification using an asset valuation method to reduce the volatility of asset values.

Asset Gain (Loss) – That portion of the actuarial gain attributable to investment performance above (below) the expected rate of return in the actuarial assumptions.

Amortization – Paying off an interest-discounted amount with periodic payments of interest and (generally) principal, as opposed to paying off with a lump sum payment.

Amortization Payment – That portion of the pension plan contribution designated to pay interest and reduce the outstanding principal balance of unfunded actuarial accrued liability. If the amortization payment is less than the accrued interest on the unfunded actuarial accrued liability the outstanding principal balance will increase.

Assumed Earnings Rate – The interest rate used in developing present values to reflect the time value of money.

Decrements – Events which result in the termination of membership in the system such as retirement, disability, withdrawal, or death.

Entry Age Normal (EAN) Funding Method – A standard actuarial funding method whereby each member's normal costs (service costs) are generally level as a percentage of pay from entry age until retirement. The annual cost of benefits is comprised of the normal cost plus an amortization payment to reduce the UAL.

Experience Gain (Loss) – The difference between actual unfunded actuarial accrued liabilities and anticipated unfunded actuarial accrued liabilities during the period between two valuation dates. It is a measurement of the difference between actual and expected experience, and may be related to investment earnings above (or below) those expected or changes in the liability due to fewer (or greater) than expected numbers of retirements, deaths, disabilities, or withdrawals, or variances in pay increases relative to assumed pay increases. The effect of such gains (or losses) is to decrease (or increase) future costs.

Funded Ratio – A measure of the ratio of the actuarial value of assets to liabilities of the system. Typically, the assets used in the measure are the actuarial value of assets as determined by the asset valuation method. The funded ratio depends not only on the financial strength of the plan but also on the asset valuation method used to determine the assets and on the funding method used to determine the liabilities.

Market Value of Assets (MVA) – The value of assets as they would trade on an open market.

Normal Cost – Computed differently under different funding methods, generally that portion of the actuarial present value of benefits allocated to the current plan year.

Unfunded Actuarial Accrued Liability (UAAL) – The excess of the actuarial accrued liability over the valuation assets; sometimes referred to as "unfunded past service liability". UAL increases each time an actuarial loss occurs and when new benefits are added without being fully funded initially and decreases when actuarial gains occur.