

VI. ACTUARIAL ASSUMPTIONS AND METHODS

<u>Interest Rate</u>	<p>This is the assumed earnings rate on System assets, compounded annually, net of investment and administrative expenses.</p> <p><i>Tiers 1 & 2:</i> 7.20% per year.</p> <p><i>Tier 3:</i> 7.00% per year.</p>
<u>Salary Increases</u>	<p>See table at the end of this section. This is an annual increase for individual member's salary. These rates are based on a 2022 experience study using actual plan experience.</p>
<u>Inflation</u>	<p>2.50%.</p>
<u>Tier 3 Compensation Limit</u>	<p>\$115,868 for calendar 2022. Assumed increases of 2.00% per year thereafter.</p>
<u>Cost-of-Living Adjustment</u>	<p>1.85%.</p>
<u>Mortality Rates</u>	<p>These rates are used to project future decrements from the population due to death.</p> <p><i>Active Lives:</i> PubS-2010 Employee mortality, adjusted by a factor of 1.03 for male members and 1.08 for female members, with generational improvements using 85% of the most recent projection scale (currently Scale MP-2021). 100% of active deaths are assumed to be in the line of duty.</p> <p><i>Inactive Lives:</i> PubS-2010 Healthy Retiree mortality, adjusted by a factor of 1.03 for male retirees and 1.11 for female retirees, with generational improvements using 85% of the most recent projection scale (currently Scale MP-2021).</p> <p><i>Beneficiaries:</i> PubS-2010 Survivor mortality, adjusted by a factor of 0.98 for male beneficiaries and adjusted by a factor of 1.06 for female beneficiaries, with generational improvements using 85% of the most recent projection scale (currently Scale MP-2021).</p>

Funding Policy Amortization Method

Tiers 1 & 2:

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 at most 30 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.

Tier 3:

Any positive UAAL (assets less than liabilities) is amortized according to a Level Dollar method over a closed period of 10 years. No amortization is made of any negative UAAL (assets greater than liabilities).

Payroll Growth

2.50% 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 for Tier 1 and 2 members was decreased from 7.30% to 7.20% and the payroll growth assumption was lowered from 3.00% to 2.50%.

The expected DROP period length was increased from 4 years to 5 years to reflect DROP benefit changes.

There were no method changes since the prior valuation.

Salary Increase Rates

Age	Maricopa	Pima	Other	Maricopa	Pima	Other
	Police	Police	Police	Fire	Fire	Fire
20	15.00%	12.00%	14.00%	15.00%	12.00%	13.00%
21	14.00%	6.00%	12.00%	14.00%	11.00%	12.00%
22	13.00%	6.00%	10.00%	13.00%	10.00%	11.00%
23	12.00%	6.00%	9.00%	12.00%	9.50%	10.00%
24	11.00%	6.00%	8.00%	11.00%	9.00%	9.00%
25	10.00%	6.00%	7.00%	10.00%	8.50%	8.00%
26	9.00%	5.50%	6.50%	9.50%	7.50%	7.50%
27	8.00%	5.50%	6.25%	9.00%	6.50%	7.50%
28	7.50%	5.50%	6.00%	8.50%	5.75%	7.00%
29	7.00%	5.50%	5.80%	8.00%	5.75%	6.50%
30	6.50%	5.25%	5.60%	8.00%	5.50%	6.50%
31	6.00%	5.25%	5.40%	7.50%	5.50%	6.00%
32	5.50%	5.00%	5.20%	7.00%	5.00%	5.50%
33	5.10%	5.00%	5.00%	6.50%	5.00%	5.50%
34	4.90%	5.00%	4.90%	6.50%	5.00%	5.50%
35	4.70%	4.50%	4.80%	6.00%	5.00%	5.50%
36	4.50%	4.50%	4.70%	5.50%	5.00%	5.50%
37	4.30%	4.50%	4.60%	5.25%	4.50%	5.00%
38	4.10%	4.00%	4.50%	5.00%	4.50%	5.00%
39	4.00%	4.00%	4.40%	4.75%	4.50%	5.00%
40	3.90%	4.00%	4.30%	4.75%	4.50%	5.00%
41	3.80%	3.80%	4.20%	4.50%	4.50%	4.50%
42	3.70%	3.60%	4.10%	4.50%	4.00%	4.50%
43	3.60%	3.40%	4.00%	4.50%	4.00%	4.50%
44	3.50%	3.20%	3.90%	4.50%	4.00%	4.00%
45	3.50%	3.00%	3.80%	4.25%	4.00%	4.00%
46	3.50%	3.00%	3.70%	4.25%	3.75%	4.00%
47	3.50%	3.00%	3.60%	4.25%	3.75%	3.75%
48	3.50%	3.00%	3.50%	4.00%	3.75%	3.75%
49	3.50%	3.00%	3.50%	4.00%	3.50%	3.75%
50	3.25%	3.00%	3.50%	3.75%	3.50%	3.75%
51	3.25%	3.00%	3.50%	3.75%	3.50%	3.75%
52	3.25%	2.75%	3.50%	3.75%	3.50%	3.75%
53+	3.25%	2.75%	3.50%	3.75%	3.25%	3.75%

Tier 1 Retirement Rates– reaching age 62 after attaining 20 years of service

Service	Maricopa	Pima	Other	Maricopa		Other
	Police	Police	Police	Fire	Pima Fire	Fire
20	28%	28%	35%	14%	20%	20%
21	25%	25%	35%	17%	20%	25%
22	15%	16%	22%	7%	13%	15%
23	12%	12%	12%	7%	7%	10%
24	8%	9%	12%	7%	7%	10%
25	30%	22%	25%	17%	22%	30%
26	42%	42%	40%	30%	26%	30%
27	32%	30%	28%	23%	30%	30%
28	32%	30%	28%	30%	30%	30%
29	32%	20%	28%	30%	30%	30%
30	35%	25%	35%	30%	30%	35%
31	35%	33%	30%	40%	30%	35%
32	60%	50%	70%	55%	30%	35%
33	60%	50%	70%	55%	60%	60%
34+	100%	100%	100%	100%	100%	100%

Termination Rates

Service	Maricopa	Pima	Other	Maricopa		Other
	Police	Police	Police	Fire	Pima Fire	OtherFire
0	13.0%	14.0%	13.5%	4.5%	10.0%	10.5%
1	8.0%	9.0%	11.5%	3.5%	6.0%	8.5%
2	6.0%	7.5%	10.5%	2.5%	4.5%	8.0%
3	4.5%	7.0%	9.5%	2.0%	4.0%	8.0%
4	3.6%	6.5%	9.0%	1.5%	4.0%	7.0%
5	3.3%	5.0%	8.0%	1.5%	4.0%	5.0%
6	3.3%	5.0%	7.0%	1.5%	4.0%	5.0%
7	3.3%	4.0%	6.5%	1.5%	3.0%	4.0%
8	2.4%	4.0%	6.5%	1.5%	3.0%	4.0%
9	2.4%	4.0%	6.0%	1.5%	3.0%	3.5%
10	2.4%	4.0%	5.0%	1.0%	2.0%	3.0%
11	1.8%	3.0%	4.0%	1.0%	2.0%	2.5%
12	1.8%	3.0%	4.0%	1.0%	1.5%	2.0%
13	1.3%	2.0%	3.5%	1.0%	1.0%	1.5%
14	1.3%	2.0%	3.0%	0.5%	1.0%	1.4%
15	0.8%	1.5%	2.5%	0.5%	1.0%	1.4%
16	0.8%	1.5%	2.0%	0.5%	0.5%	1.4%
17	0.8%	1.0%	2.0%	0.5%	0.5%	1.4%
18	0.8%	1.0%	1.8%	0.5%	0.5%	1.4%
19	0.8%	1.0%	1.8%	0.5%	0.5%	0.5%
20+	0.5%	1.0%	1.8%	0.4%	0.5%	0.5%

Disability Rates

Age	Maricopa Police	Pima Police	Other Police	Maricopa Fire	Pima Fire	Other Fire
20	0.050%	0.050%	0.120%	0.020%	0.020%	0.020%
21	0.050%	0.050%	0.120%	0.020%	0.020%	0.020%
22	0.050%	0.050%	0.120%	0.020%	0.020%	0.020%
23	0.050%	0.050%	0.120%	0.020%	0.020%	0.020%
24	0.050%	0.050%	0.120%	0.020%	0.020%	0.020%
25	0.050%	0.050%	0.120%	0.020%	0.020%	0.020%
26	0.100%	0.100%	0.160%	0.035%	0.020%	0.020%
27	0.100%	0.100%	0.160%	0.035%	0.020%	0.020%
28	0.100%	0.100%	0.160%	0.035%	0.020%	0.020%
29	0.100%	0.100%	0.160%	0.035%	0.020%	0.020%
30	0.100%	0.100%	0.160%	0.035%	0.020%	0.020%
31	0.230%	0.180%	0.240%	0.090%	0.100%	0.060%
32	0.230%	0.180%	0.240%	0.090%	0.100%	0.060%
33	0.230%	0.180%	0.240%	0.090%	0.100%	0.060%
34	0.230%	0.180%	0.240%	0.090%	0.100%	0.060%
35	0.230%	0.180%	0.240%	0.090%	0.100%	0.060%
36	0.450%	0.350%	0.320%	0.150%	0.150%	0.140%
37	0.450%	0.350%	0.320%	0.150%	0.150%	0.140%
38	0.450%	0.350%	0.320%	0.150%	0.150%	0.140%
39	0.450%	0.350%	0.320%	0.150%	0.150%	0.140%
40	0.450%	0.350%	0.320%	0.150%	0.150%	0.140%
41	0.520%	0.650%	0.550%	0.170%	0.300%	0.250%
42	0.520%	0.650%	0.550%	0.170%	0.300%	0.250%
43	0.520%	0.650%	0.550%	0.170%	0.300%	0.250%
44	0.520%	0.650%	0.550%	0.170%	0.300%	0.250%
45	0.520%	0.650%	0.550%	0.170%	0.300%	0.250%
46	0.650%	0.750%	0.750%	0.300%	0.420%	0.420%
47	0.650%	0.750%	0.750%	0.300%	0.420%	0.420%
48	0.650%	0.750%	0.750%	0.300%	0.420%	0.420%
49	0.650%	0.750%	0.750%	0.300%	0.420%	0.420%
50	0.650%	0.750%	0.750%	0.300%	0.420%	0.420%
51	0.800%	0.800%	0.800%	0.700%	0.750%	0.750%
52	0.800%	0.800%	0.800%	0.700%	0.750%	0.750%
53	0.800%	0.800%	0.800%	0.700%	0.750%	0.750%
54	0.800%	0.800%	0.800%	0.700%	0.750%	0.750%
55	0.800%	0.800%	0.800%	0.700%	0.750%	0.750%
56+	1.000%	0.850%	0.900%	1.100%	0.800%	1.000%

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.

- **Investment Return:** 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.
- **Salary Increases:** 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.
- **Payroll Growth:** 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.
- **Demographic Assumptions:** 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.” For a better understanding of the overall Plan and the impact of these risks, please refer to the consolidated PSPRS valuation report.

Plan Maturity Measures and Other Risk Metrics - Tiers 1 & 2

	06/30/2019	06/30/2020	06/30/2021	06/30/2022
Support Ratio				
Total Actives	20	20	19	15
Total Inactives	12	12	12	15
Actives / Inactives	166.7%	166.7%	158.3%	100.0%
Asset Volatility Ratio				
Market Value of Assets (MVA)	6,987,125	6,795,250	8,874,182	8,480,144
Total Annual Payroll	1,190,552	1,256,224	1,309,145	1,062,111
MVA / Total Annual Payroll	586.9%	540.9%	677.9%	798.4%
Accrued Liability (AL) Ratio				
Inactive Accrued Liability	5,997,911	5,849,230	6,464,060	7,779,551
Total Accrued Liability	9,633,490	10,218,438	11,257,105	11,613,223
Inactive AL / Total AL	62.3%	57.2%	57.4%	67.0%
Funded Ratio				
Actuarial Value of Assets (AVA)	7,226,901	7,316,359	8,112,932	8,711,005
Total Accrued Liability	9,633,490	10,218,438	11,257,105	11,613,223
AVA / Total Accrued Liability	75.0%	71.6%	72.1%	75.0%
Net Cash Flow Ratio				
Net Cash Flow ¹	178,505	(273,495)	174,633	(32,718)
Market Value of Assets (MVA)	6,987,125	6,795,250	8,874,182	8,480,144
Net Cash Flow / MVA	2.6%	(4.0%)	2.0%	(0.4%)

¹ 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.

Plan Maturity Measures and Other Risk Metrics - Tier 3 ¹

	06/30/2019	06/30/2020	06/30/2021	06/30/2022
Support Ratio				
Total Actives	944	1,408	1,853	2,417
Total Inactives	57	130	221	327
Actives / Inactives	1,656.1%	1,083.1%	838.5%	739.1%
Asset Volatility Ratio				
Market Value of Assets (MVA)	9,392,896	22,964,925	51,992,240	74,774,123
Total Annual Payroll	50,420,565	84,448,996	115,883,115	165,151,543
MVA / Total Annual Payroll	18.6%	27.2%	44.9%	45.3%
Accrued Liability (AL) Ratio				
Inactive Accrued Liability	203,244	1,173,104	2,290,610	4,598,114
Total Accrued Liability	7,956,725	23,239,599	42,733,537	68,939,204
Inactive AL / Total AL	2.6%	5.0%	5.4%	6.7%
Funded Ratio				
Actuarial Value of Assets (AVA)	9,305,220	23,570,444	45,863,401	76,171,857
Total Accrued Liability	7,956,725	23,239,599	42,733,537	68,939,204
AVA / Total Accrued Liability	116.9%	101.4%	107.3%	110.5%
Net Cash Flow Ratio				
Net Cash Flow ²	7,281,178	13,192,598	18,607,209	25,802,686
Market Value of Assets (MVA)	9,392,896	22,964,925	51,992,240	74,774,123
Net Cash Flow / MVA	77.5%	57.4%	35.8%	34.5%

¹ Tier 3 results are shown for the Risk Sharing group, where applicable.

² 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 4 of the Arizona Revised Statutes.

Membership

Full-time employees of an eligible group, prior to attaining age 65, who are engaged to work for more than six months in a calendar year. Tier 3 Defined Contribution members are able to elect participation in post-retirement health insurance subsidy.

Benefit Tiers

Benefits differ for members based on their hire date:

<u>Tier</u>	<u>Hire Date</u>
1	Hired before January 1, 2012
2	Hired on or after January 1, 2012 but before July 1, 2017
3	Hired on or after July 1, 2017

Compensation

Compensation is the amount including base salary, overtime pay, shift and military differential pay, compensatory time used in lieu of overtime pay, and holiday pay, paid to an employee on a regular payroll basis and longevity pay paid at least every six months for which contributions are made to the System. For Tier 3 members, compensation is limited by statutory cap (\$110,000 with adjustments by the Board).

Average Monthly Benefit Compensation

Tier 1:

The highest compensation paid to member during three consecutive years out of the last 20 years of Credited Service, divided by months.

Tier 2:

The highest compensation paid to member during five consecutive years out of the last 20 years of Credited Service, divided by months.

Tier 3:

The highest compensation paid to member during five consecutive years out of the last 15 years of Credited Service, divided by months.

Credited Service

Total periods of service, both before and after the member's date of participation, for which the member made contributions to the fund.

Normal Retirement Date

Tier 1:

First day of month following attainment of 1) 20 years of service or

2) 62nd birthday and completion of 15 years of service.

Tier 2:

First day of month following the attainment of age 52.5 and completion of 15 years of service.

Tier 3:

First day of month following the attainment of age 55 and completion of 15 years of service.

Benefit

Tier 1:

50% of Average Monthly Benefit Compensation, adjusted based on Credited Service as follows (maximum benefit of 80% of Average Monthly Benefit Compensation):

<u>Credited Service</u>	<u>Benefit Adjustment</u>
15 years, but less than 20	Reduced 4% per year less than 20
20 years, but less than 25	Plus 2% per year between 20 and 25
25+ years	Plus 2.5% per year above 20

Tier 2:

Benefit multiplier (below) times Average Monthly Benefit Compensation times Credited Service (maximum benefit of 80% of Average Monthly Benefit Compensation):

<u>Credited Service</u>	<u>Benefit Multiplier</u>
15 years, but less than 17	1.50%
17 years, but less than 19	1.75%
19 years, but less than 22	2.00%
22 years, but less than 25	2.25%
25+ years	2.50%

Tier 3:

Benefit multiplier (below) times Average Monthly Benefit Compensation times Credited Service (maximum benefit of 80% of Average Monthly Benefit Compensation):

<u>Credited Service</u>	<u>Benefit Multiplier</u>
15 years, but less than 17	1.50%
17 years, but less than 19	1.75%
19 years, but less than 22	2.00%
22 years, but less than 25	2.25%
25+ years	2.50%

Form of Benefit	For married retirees, an annuity payable for the life of the member with 80% continuing to the eligible spouse upon death. For unmarried retirees, the normal form is a single life annuity.
<u>Early Retirement</u>	<i>Only applicable to Tier 3 members:</i>
Date	Attainment of age 52.5 and 15 years of Credited Service.
Benefit	Actuarial equivalent of Normal Retirement benefit.
<u>Disability Benefit – Accidental (duty-related)</u>	
Eligibility	Total and permanent disability incurred in performance of duty.
Benefit Amount	A maximum of: a.) 50% of Average Monthly Benefit Compensation, and; b.) The monthly Normal Retirement pension that the member is entitled to receive if he or she retired immediately.
<u>Disability Benefit – Ordinary (not duty-related)</u>	
Eligibility	Total and permanent disability not incurred in performance of duty.
Benefit Amount	Normal Retirement pension that the member is entitled to receive, prorated based on Credited Service earned over the required Credited Service for Normal Retirement (maximum ratio of 1).
<u>Disability Benefit – Other</u>	
Temporary	Benefit equals 1/12 of 50% of compensation during year preceding date of disability. Payments terminate after 12 months.
Catastrophic	Benefit equals 90% of Average Monthly Benefit Compensation. After 60 months member receives greater of 62.5% Average Monthly Benefit Compensation and accrued normal pension.
<u>Pre-Retirement Death Benefit</u>	
Service Incurred	100% of Average Monthly Benefit Compensation, reduced by child's pension.
Non-Service Incurred	80% of benefit based on calculation for accidental disability retirement.
Child's Pension	10% of pension for each child (maximum 20% paid) based on calculation for accidental disability retirement. Payable to dependent child under age 18 (23, if full-time student).
Guardian's Pension	Same as spouse's pension. Payable (along with child's pension) when no spouse is being paid and there is at least one child under 18 (23, if full-time student).

Vesting (Termination)

Vesting Service Requirement *Tier 1:*
10 years of Credited Service.
Tiers 2 & 3:
15 years of Credited Service.

Non-Vested Benefit *Tier 1:*
Lump sum payment of accumulated contributions, plus additional amount based on years of Credited Service.

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

Tiers 2 & 3:
Lump sum payment of accumulated contributions, with interest at rate determined by the Board.

Vested Benefit *Tier 1:*
Deferred retirement annuity based on two times member's accumulated contributions, deferred to age 62. Member is not entitled to survivor benefits, benefit increases, or group health insurance subsidy.

Tiers 2 & 3:
Calculated same as normal retirement pension. Payable if contributions left in fund until reach age requirement. Member is entitled to survivor benefits, benefit increases, and group health insurance subsidy.

Cost-of-Living Adjustment

Payable to retired member or survivor of retired member

Tiers 1 & 2:
Compound cost-of-living adjustment on base benefit. First payment is made on July 1, 2018, 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%.

Tier 3:

Compound cost-of-living adjustment on base benefit beginning earlier of first calendar year after the 7th anniversary of retirement or when the retired member reaches 60 years of age.

A cost-of-living adjustment shall be paid on July 1 each year that the funded ratio for members hired on or after July 1, 2017 is 70% or more.

The 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. The cost-of-living adjustment will not exceed:

- 2%, if funded ratio for members who are hired on or after July 1, 2017 is 90% or more;
- 1.5%, if funded ratio for members who are hired on or after July 1, 2017 is 80-90%;
- 1%, if funded ratio for members who are hired on or after July 1, 2017 is 70-80%.

Deferred Retirement Option Plan (DROP):

Eligibility	Tier 1 and 20 years of Credited Service.	
DROP Period	Maximum 84 months.	
Member Contributions	Cease upon DROP entry.	
Benefit Amount	Calculated based on Credited Service and average monthly compensation as of the beginning of the DROP period, credited to DROP participation account for DROP period.	
Interest on DROP Participation Account	<u>Beginning Year</u>	<u>Interest Rate</u>
	July 1, 2016	7.40%
	July 1, 2018	7.30%
	July 1, 2022	7.20%
Payment of DROP Participation Account	Payable as lump sum distribution to Public Safety Personnel Defined Contribution Retirement Plan at earlier of 1) end of DROP period, 2) at termination, or 3) five years.	
Payment Monthly Benefit	System commences payment of benefit amount at the earlier of 1) the end of the DROP period and 2) at termination.	

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)	<u>Member Only</u>		<u>With Dependents</u>
	Medicare Eligible	\$100	\$170
One w/ Medicare	N/A	\$215	\$215
Not Medicare Eligible	\$150	\$260	\$260

Employee Contributions

Members hired before July 20, 2011:

7.65%

Members hired on/after July 20, 2011, but before July 1, 2017:

11.65%. Amounts in excess of 7.65% are not used to reduce the employer contribution (“maintenance of effort”).

Tier 3:

50% of total contribution, which is Normal Cost plus a level-dollar amortization of unfunded actuarial accrued liability over a closed period not to exceed 10 years.

Employer Contributions

Tiers 1 & 2:

Normal Cost plus amortization of unfunded actuarial accrued liability over a closed period not to exceed 20 years (subject to one-time election to extend to closed period not to exceed 30 years). Contribution will never be less than 8% of payroll.

Tier 3:

50% of total contribution, which is Normal Cost plus a level-dollar amortization of unfunded actuarial accrued liability over a closed period not to exceed 10 years.

Changes to Benefit Provisions Since the Prior Valuation

The DROP benefit was extended to 84 months.

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 determine 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.

