ARIZONA CORRECTIONS OFFICER 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 Corrections Officer Retirement Plan
Phoenix, AZ

Re: Actuarial Valuation Report as of June 30, 2022 – Arizona Corrections Officer 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 Corrections Officer Retirement Plan (CORP). 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 CORP and those designated or approved by the Board. It documents the valuation of the consolidated plan and provides summary information for CORP participating employers. This report may be provided to parties other than CORP 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 6 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.

13420 Parker Commons Boulevard, Suite 104 Fort Myers, FL 33912 · (239) 433-5500 · Fax (239) 481-0634 · www.foster-foster.com

In conducting the valuation, we have relied on personnel, plan design, and asset information supplied by CORP 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.

In performing the analysis, we used third-party software to model (calculate) the underlying liabilities and costs. These results are reviewed in the aggregate and for individual sample lives. The output from the software is either used directly or input into internally developed models to generate the costs. All internally developed models are reviewed as part of the process. As a result of this review, we believe that the models have produced reasonable results. We do not believe there are any material inconsistencies among assumptions or unreasonable output produced due to the aggregation of assumptions.

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 sections of this report are considered an integral part of the actuarial opinions.

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 Corrections Officer Retirement Plan, nor does anyone at Foster & Foster, Inc. act as a member of the Board of Trustees of the Arizona Corrections Officer 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 Corrections Officer 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' recommended 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 employer contribution amounts applicable to the plan/fiscal year ending June 30, 2024 are as follows:

	Tier 1 & Tier 2 Members			Tier 3 Members *		
	Pension	**Health**	**Total**	**Pension**	**Health**	**Total**
Employer Contribution Rate	17.86%	0.00%	17.86%	4.12%	0.09%	4.21%
Funded Status	83.3%	159.8%	84.8%	108.8%	179.0%	110.3%

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

	Tier 1 & Tier 2 Members			Tier 3 Members *		
Valuation Date	**Pension**	**Health**	**Total**	**Pension**	**Health**	**Total**
June 30, 2021	25.47%	0.00%	25.47%	4.05%	0.09%	4.14%
June 30, 2022	17.86%	0.00%	17.86%	4.12%	0.09%	4.21%

Funded Status

	Tier 1 & Tier 2 Members			Tier 3 Members		
Valuation Date	**Pension**	**Health**	**Total**	**Pension**	**Health**	**Total**
June 30, 2021	68.1%	157.3%	69.9%	116.7%	197.5%	118.4%
June 30, 2022	83.3%	159.8%	84.8%	108.8%	179.0%	110.3%

** The Tier 3 rates shown are the calculated rates as of the valuation date and do not reflect any Legacy costs that the employer must also contribute.*

3. Reasons for Change

Changes in the results from the prior year's valuation can be illustrated in the following tables along with high-level explanations for the entire Plan below:

Contribution Rate

	Tier 1 & Tier 2	
	Pension	**Health**
Contribution Rate Last Valuation	25.47%	0.00%
Asset Experience	0.41%	0.02%
Payroll Base	0.41%	(0.01%)
Liability Experience	0.66%	(0.08%)
Additional Contributions	(9.71%)	0.00%
Assumption/Method Change	0.49%	0.00%
Other	0.13%	0.07%
Contribution Rate This Valuation	17.86%	0.00%

Funded Status

	Tier 1 & Tier 2	
	Pension	**Health**
Funded Status Last Valuation	68.1%	157.3%
Asset Experience	(0.6%)	(0.9%)
Liability Experience	(0.6%)	2.7%
Additional Contributions	13.9%	0.0%
Assumption/Method Change	(0.9%)	(1.0%)
Other	3.4%	1.7%
Funded Status This Valuation	83.3%	159.8%

Assets Experience – Asset gains and losses (relative to the assumed earnings rate) are smoothed over seven years for Tiers 1 and 2 and over five years for Tier 3. The return on the market value of assets for the year ending June 30, 2022 was (3.7%) for Tiers 1 and 2 and (4.1%) for Tier 3. On a smoothed, actuarial value of assets basis, however, the average return was 7.0% for Tiers 1 and 2 and 6.2% for Tier 3, which both fell short of the 2021 assumed earnings rate of 7.3%.

Payroll Base – Under the current amortization policy for Tiers 1 and 2, the contribution rate is developed as a level percentage of payroll. Payroll for this purpose includes members of this plan and defined contribution plan's members that would have been in this plan. To the extent that actual payroll is lower/greater than last year's projected payroll, the contribution rate will increase/decrease as a result. The payroll decreased compared to expected, resulting in an increase in the contribution rate.

Liability Experience – Experience overall was slightly unfavorable, driven by higher than expected salary increases for actives and higher than expected COLA increases for inactives.

Additional Contribution – Monies contributed in excess of the required contribution rate in order to pay down the unfunded liability.

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 2.50% to 2.00%.

Other – This is the combination of all other factors that could impact liabilities year-over-year, with the primary sources being changes in member data. Note that Tier 3 experience will stabilize as the group matures.

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 gains, 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 for Tiers 1 and 2 would be 80.9% (instead of 83.3%) and the pension employer contribution requirement would be 18.06% of payroll (instead of 17.86%).

5. Conclusion

The funded status for Tiers 1 and 2 will continue to improve if assumptions are met and contributions at least equal to the rates determined for each employer are made to the fund. The recent adoption of a layered amortization approach along with a plan to systematically lower the payroll growth assumption was an excellent step to improve funding and ensure the Plan is on a viable path.

The funded status for Tier 3 will stabilize as the population continues to grow, as contributions appear sufficient to keep the liabilities fully funded.

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	12.50%	$58,363,809	13.26%	$67,327,659
Employee Cost	(7.98%)	(37,234,426)	(8.38%)	(42,569,685)
Employer (Net) Normal Cost	4.52%	21,129,383	4.88%	24,757,974
Amortization of Unfunded Liability	13.34%	62,247,484	20.59%	104,600,219
Total Employer Cost (Pension)	17.86%	83,376,867	25.47%	129,358,193
Health				
Normal Cost	0.28%	$1,291,711	0.29%	$1,470,882
Amortization of Unfunded Liability	(0.28%)	(1,291,711)	(0.29%)	(1,470,882)
Total Employer Cost (Health)	0.00%	0	0.00%	0
Total Employer Cost (Pension + Health)	**17.86%**	**83,376,867**	**25.47%**	**129,358,193**
Total Minimum Contribution Requirement (if applicable)	6.00%		6.00%	
Alternate Contribution Rate (ACR) *	13.34%		20.59%	
Underlying Payroll (as of valuation date)		466,762,442		507,923,077

** The Alternate Contribution Rate is the sum of the positive amortization rates for Tiers 1 & 2 Pension and Health (subject to a 6% minimum) and is charged when retirees return to active status.*

The results above are shown both prior to and after the application of the statutory minimum contribution requirement of 6% of payroll.

Development of Employer Contributions – Tier 3 Members

Valuation Date	June 30, 2022	June 30, 2021
Applicable to Fiscal Year Ending	2024	2023

Defined Benefit (DB) Retirement Plan [1]

	Rate	Dollar	Rate	Dollar
Pension				
Total Normal Cost	12.35%	$ 1,762,725	12.15%	$ 1,241,659
Amortization of Unfunded Liability	0.00%	0	0.00%	0
Total Pension Cost	12.35%	1,762,725	12.15%	1,241,659
Employee (EE) Pension Cost	8.23%	1,175,150	8.10%	827,773
Employer (ER) Pension Cost	4.12%	587,575	4.05%	413,886
Health				
Total Normal Cost	0.27%	38,537	0.27%	27,592
Amortization of Unfunded Liability	0.00%	0	0.00%	0
Total Health Cost	0.27%	38,537	0.27%	27,592
Employee (EE) Health Cost	0.18%	25,691	0.18%	18,395
Employer (ER) Health Cost	0.09%	12,846	0.09%	9,197
Total				
Total Calculated Tier 3 Required EE Individual Cost	8.41%	1,200,841	8.28%	846,168
Board Approved Tier 3 Required EE Individual Cost [2]	9.81%	1,400,189	10.18%	1,040,337
Total Calculated Tier 3 Required ER Individual Cost (before Legacy)	4.21%	600,421	4.14%	423,083
Board Approved Tier 3 Required ER Individual Cost (before Legacy) [2]	4.90%	699,381	5.09%	520,168
ER Legacy Cost of Tiers 1 & 2 Amort of Unfunded Liabilities [3]	36.32%	5,183,982	32.88%	3,360,144
Total Tier 3 Required ER Defined Benefit Cost	40.53%	5,784,403	37.02%	3,783,227
Total Board Approved Tier 3 Required ER Defined Benefit Cost	**41.22%**	**5,883,363**	**37.97%**	**3,880,312**
Underlying Payroll (as of valuation date)		14,273,078		10,219,416

[1] *Applicable to AOC Probation and Surveillance only.*

[2] *The total "Board Approved" costs were reset with the June 30, 2022 valuation. Going forward, the funding policy will reflect the approach in setting the costs and will be reviewed annually.*

[3] *Pursuant to ARS § 38-891(A), the amortization of positive unfunded liabilities for Tiers 1 & 2 shall be applied to all Tier 3 payroll on a level percent basis. However, while it is statutorily required to present the rates in this manner, these are the minimums where alternate methods for paying down that unfunded liability is at the discretion of each employer. Further, to understand the effects of reform in relation to Tier 3, compare the total rate of Tier 3 before application of those legacy costs.*

Development of Employer Contributions – Tier 3 Members		
Valuation Date	June 30, 2022	June 30, 2021
Applicable to Fiscal Year Ending	2024	2023

Defined Contribution (DC) Retirement Plan

	Rate	**Dollar**	**Rate**	**Dollar**
Tier 3 DC Only				
Employee Cost	7.00%	$ 12,465,098	7.00%	$ 9,668,546
Employee Health Subsidy Program Cost	0.17%	302,724	0.17%	234,808
Employee Disability Program Cost	0.45%	801,328	0.44%	607,737
Total Employee Cost	**7.62%**	**13,569,150**	**7.61%**	**10,511,091**
Employer Cost	5.00%	8,903,641	5.00%	6,906,104
Employer Health Subsidy Program Cost	0.17%	302,724	0.17%	234,808
Employer Disability Program Cost	0.45%	801,328	0.44%	607,737
Total Employer Cost (before Legacy)	**5.62%**	**10,007,693**	**5.61%**	**7,748,649**
ER Legacy Cost of Tiers 1 & 2 Amort of Unfunded Liabilities *	13.34%	23,754,915	20.59%	45,414,540
Total Employer Cost	**18.96%**	**33,762,608**	**26.20%**	**53,163,189**
Underlying Payroll (as of valuation date)		178,072,828		138,122,079

** Pursuant to ARS § 38-891(A), the amortization of positive unfunded liabilities for Tiers 1 & 2 shall be applied to all Tier 3 payroll on a level percent basis. However, while it is statutorily required to present the rates in this manner, these are the minimums where alternate methods for paying down that unfunded liability is at the discretion of each employer. Further, to understand the effects of reform in relation to Tier 3, compare the total rate of Tier 3 before application of those legacy costs.*

Historical Summary of Employer Rates

			Pension			Health		
	Valuation Date June 30	Fiscal Year Ending June 30	Normal Cost	Unfunded Amortization	Total	Normal Cost	Unfunded Amortization	Total
TIERS 1 & 2	2018	2020	7.67%	19.92%	27.59%	0.24%	(0.24%)	0.00%
	2019	2021	6.73%	24.19%	30.92%	0.35%	(0.23%)	0.12%
	2020	2022	5.01%	26.42%	31.43%	0.29%	(0.19%)	0.10%
	2021	2023	4.88%	20.59%	25.47%	0.29%	(0.29%)	0.00%
	2022	2024	4.52%	13.34%	17.86%	0.28%	(0.28%)	0.00%
TIER 3 [1]	2018	2020	4.95%	0.00%	4.95%	0.14%	0.00%	0.14%
	2019	2021	4.95%	0.00%	4.95%	0.14%	0.00%	0.14%
	2020	2022	4.95%	0.00%	4.95%	0.14%	0.00%	0.14%
	2021	2023	4.95%	0.00%	4.95%	0.14%	0.00%	0.14%
	2022 [2]	2024	4.12%	0.00%	4.12%	0.09%	0.00%	0.09%
	2022	2024	4.76%	0.00%	4.76%	0.14%	0.00%	0.14%

[1] *Rates shown are Board approved EE/ER rates, unless otherwise noted. Does not reflect Legacy costs that the employer must also contribute.*

[2] *Rates shown are calculated EE/ER rates.*

III. Liability Support

Liabilities and Funded Ratios by Benefit - Tiers 1 & 2

	June 30, 2022	June 30, 2021
Pension		
Actuarial Present Value of Benefits (PVB)		
Retirees and Beneficiaries	$ 2,571,374,159	$ 2,354,757,313
Vested Members	49,920,080	45,268,405
Active Members	2,344,531,001	2,401,641,624
Total Actuarial Present Value of Benefits	4,965,825,240	4,801,667,342
Actuarial Accrued Liability (AAL)		
All Inactive Members	2,621,294,239	2,400,025,718
Active Members	1,968,638,840	1,951,480,470
Total Actuarial Accrued Liability	4,589,933,079	4,351,506,188
Actuarial Value of Assets (AVA)	3,822,268,062	2,964,749,664
Unfunded Actuarial Accrued Liability	767,665,017	1,386,756,524
Funded Ratio (AVA / PVB)	77.0%	61.7%
Funded Ratio (AVA / AAL)	83.3%	68.1%
Health		
Actuarial Present Value of Benefits (PVB)		
Retirees and Beneficiaries	$ 46,511,954	$ 42,413,715
Active Members	53,413,228	55,882,687
Total Present Value of Benefits	99,925,182	98,296,402
Actuarial Accrued Liability (AAL)		
All Inactive Members	46,511,954	42,413,715
Active Members	45,454,842	46,910,617
Total Actuarial Accrued Liability	91,966,796	89,324,332
Actuarial Value of Assets (AVA)	147,004,307	140,497,164
Unfunded Actuarial Accrued Liability	(55,037,511)	(51,172,832)
Funded Ratio (AVA / PVB)	147.1%	142.9%
Funded Ratio (AVA / AAL)	159.8%	157.3%

Pension liabilities were increased by $523,594 and health liabilities were increased by $107,204 under the lateral transfer methodology.

Liabilities and Funded Ratios by Benefit - Tier 3

	June 30, 2022	June 30, 2021
Pension		
Actuarial Present Value of Benefits (PVB)		
Retirees and Beneficiaries	0	0
Vested Members	322,732	179,351
Active Members	18,658,242	12,634,386
Total Actuarial Present Value of Benefits	18,980,974	12,813,737
Actuarial Accrued Liability (AAL)		
All Inactive Members	322,732	179,351
Active Members	3,670,441	1,983,398
Total Actuarial Accrued Liability	3,993,173	2,162,749
Actuarial Value of Assets (AVA)	4,345,704	2,523,714
Unfunded Actuarial Accrued Liability	(352,531)	(360,965)
Funded Ratio (AVA / PVB)	22.9%	19.7%
Funded Ratio (AVA / AAL)	108.8%	116.7%
Health		
Actuarial Present Value of Benefits (PVB)		
Retirees and Beneficiaries	0	0
Active Members	385,713	267,833
Total Present Value of Benefits	385,713	267,833
Actuarial Accrued Liability (AAL)		
All Inactive Members	0	0
Active Members	84,922	47,455
Total Actuarial Accrued Liability	84,922	47,455
Actuarial Value of Assets (AVA)	152,034	93,717
Unfunded Actuarial Accrued Liability	(67,112)	(46,262)
Funded Ratio (AVA / PVB)	39.4%	35.0%
Funded Ratio (AVA / AAL)	179.0%	197.5%

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.

		Tiers 1 & 2		Tier 3	
		Pension	**Health**	**Pension**	**Health**
(1)	Unfunded Actuarial Accrued Liability as of June 30, 2021	1,386,756,524	(51,172,832)	(360,965)	(46,262)
(2)	Normal Cost Developed in Last Valuation	24,757,974	1,470,882	1,241,659	27,592
(3)	Actual Contributions	806,004,556	538,942	591,230	49,807
(4)	Expected Interest On (1), (2), and (3)	74,139,546	(3,647,567)	43,091	(3,149)
(5)	Expected Unfunded Actuarial Accrued Liability as of June 30, 2022 (1)+(2)-(3)+(4)	679,649,488	(53,888,459)	332,555	(71,626)
(6)	Changes to UAAL Due to Assumptions, Methods and Benefits	50,790,444	564,817	150,900	4,181
(7)	Change to UAAL Due to Actuarial (Gain)/Loss	37,225,085	(1,713,869)	(835,986)	333
(8)	Unfunded Actuarial Accrued Liability as of June 30, 2022	767,665,017	(55,037,511)	(352,531)	(67,112)

FY 2022 Gains and Losses by Source

	Tiers 1 & 2		Tier 3	
	Pension	**Health**	**Pension**	**Health**
Investment Return	26,196,030	792,488	45,254	735
Salary Increases	29,665,662	-	10,270	139
Retirement	15,961	(3,149,276)	-	-
Turnover	(27,998,688)	(597,356)	(179,797)	(6,675)
Disability	(3,578,793)	(15,458)	(56,412)	(1,089)
Death-In-Service	166,114	(25,358)	(27,582)	(1,605)
Retiree Mortality	(4,432,446)	(1,432,399)	(8,245)	-
Other *	17,191,245	2,713,490	(619,474)	8,828
Total	37,225,085	(1,713,869)	(835,986)	333

** The combination of all other factors that could impact liabilities year-over-year, with the primary sources being plan experience related to current and former inactive members.*

IV. ASSET SUPPORT

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

Market Value Basis

	Tiers 1 & 2		Tier 3	
	Pension	**Health**	**Pension**	**Health**
Additions				
Contributions				
Member Contributions	$ 40,034,012	$ 0	$ 1,170,113	$ 0
Employer Contributions	806,004,555	0	591,230	0
Health Insurance Contributions	0	538,941	0	49,807
Total Contributions	846,038,567	538,941	1,761,343	49,807
Investment Income				
Net Increase in Fair Value	(172,953,636)	(8,096,213)	(190,870)	(6,414)
Interest and Dividends	32,720,422	1,531,691	36,110	1,213
Other Income	19,389,614	1,055,032	21,398	836
Less Investment Expenses	(5,907,087)	(221,268)	(6,519)	(175)
Net Investment Income	(126,750,687)	(5,730,758)	(139,881)	(4,540)
Transfers In	37,657	0	0	0
Total Additions	719,325,537	(5,191,817)	1,621,462	45,267
Deductions				
Distributions to Members				
Benefit Payments	197,762,666	0	0	0
Health Insurance Subsidy	0	4,455,924	0	0
Refund of Contributions	21,402,121	0	143,860	0
Total Distributions	219,164,787	4,455,924	143,860	0
Administrative Expenses	2,269,333	102,940	2,512	82
Transfers Out	424,158	0	2,954	0
Other	0	0	0	0
Total Deductions	221,858,278	4,558,864	149,326	82
Net Increase / (Decrease)	497,467,259	(9,750,681)	1,472,136	45,185
Net Position Held in Trust				
Prior Valuation	3,215,933,036	155,576,224	2,668,803	102,181
Beginning of the Year Adjustment	(1)	0	0	0
End of the Year	3,713,400,295	145,825,543	4,140,939	147,366

Development of Pension Actuarial Value of Assets - Tiers 1 & 2

A. Investment Income	
A1. Actual Investment Income	$ (129,020,020)
A2. Expected Amount for Immediate Recognition	257,227,149
A3. Amount Subject to Amortization	(386,247,169)

	Year Ended June 30						
B. Amortization Schedule	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
2022 Experience (A3 / 7)	(55,178,167)	(55,178,167)	(55,178,167)	(55,178,167)	(55,178,167)	(55,178,167)	(55,178,167)
2021 Experience	57,594,125	57,594,125	57,594,125	57,594,125	57,594,125	57,594,122	
2020 Experience	(13,457,282)	(13,457,282)	(13,457,282)	(13,457,282)	(13,457,281)		
2019 Experience	(5,782,115)	(5,782,115)	(5,782,115)	(5,782,112)			
2018 Experience	(1,511,828)	(1,511,828)	(1,511,825)				
2017 Experience	8,429,734	8,429,733					
2016 Experience	(16,290,497)						
Total Amortization	(26,196,030)	(9,905,534)	(18,335,264)	(16,823,436)	(11,041,323)	2,415,955	(55,178,167)

C. Actuarial Value of Assets	**Total**
C1. Actuarial Value of Assets, June 30, 2021	2,964,749,664
C2. Non-investment Net Cash Flow	626,487,279
C3. Preliminary Actuarial Value of Assets, June 30, 2022 (A2 + B + C1 + C2)	3,822,268,062
C4. Market Value of Assets, June 30, 2022	3,713,400,295
C5. Final Actuarial Value of Assets, June 30, 2022 (C3 Within 20% Corridor of C4)	3,822,268,062

D. Rates of Return	
D1. Market Value Rate of Return	(3.7%)
D2. Actuarial Value Rate of Return	7.0%

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Development of Health Actuarial Value of Assets - Tiers 1 & 2

A. Investment Income	
A1. Actual Investment Income	$ (5,833,698)
A2. Expected Amount for Immediate Recognition	11,216,613
A3. Amount Subject to Amortization	(17,050,311)

	Year Ended June 30						
B. Amortization Schedule	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
2022 Experience (A3 / 7)	(2,435,759)	(2,435,759)	(2,435,759)	(2,435,759)	(2,435,759)	(2,435,759)	(2,435,757)
2021 Experience	3,479,700	3,479,700	3,479,700	3,479,700	3,479,700	3,479,703	
2020 Experience	(806,920)	(806,920)	(806,920)	(806,920)	(806,919)		
2019 Experience	(382,214)	(382,214)	(382,214)	(382,213)			
2018 Experience	(81,544)	(81,544)	(81,541)				
2017 Experience	574,691	574,693					
2016 Experience	(1,140,442)						
Total Amortization	(792,488)	347,956	(226,734)	(145,192)	237,022	1,043,944	(2,435,757)

C. Actuarial Value of Assets	Total
C1. Actuarial Value of Assets, June 30, 2021	140,497,165
C2. Non-investment Net Cash Flow	(3,916,983)
C3. Preliminary Actuarial Value of Assets, June 30, 2022 (A2 + B + C1 + C2)	147,004,307
C4. Market Value of Assets, June 30, 2022	145,825,543
C5. Final Actuarial Value of Assets, June 30, 2022 (C3 Within 20% Corridor of C4)	147,004,307

D. Rates of Return	
D1. Market Value Rate of Return	(3.8%)
D2. Actuarial Value Rate of Return	7.5%

Development of Pension Actuarial Value of Assets - Tiers 3

A. Investment Income	
A1. Actual Investment Income	$ (142,393)
A2. Expected Amount for Immediate Recognition	252,715
A3. Amount Subject to Amortization	(395,108)

	Year Ended June 30				
B. Amortization Schedule	**2022**	**2023**	**2024**	**2025**	**2026**
2022 Experience (A3 / 5)	(79,022)	(79,022)	(79,022)	(79,022)	(79,020)
2021 Experience	43,088	43,088	43,088	43,090	
2020 Experience	(8,624)	(8,624)	(8,624)		
2019 Experience	(696)	(697)			
2018 Experience	0				
Total Amortization	(45,254)	(45,255)	(44,558)	(35,932)	(79,020)

C. Actuarial Value of Assets	**Total**
C1. Actuarial Value of Assets, June 30, 2021	2,523,714
C2. Non-investment Net Cash Flow	1,614,529
C3. Preliminary Actuarial Value of Assets, June 30, 2022 (A2 + B + C1 + C2)	4,345,704
C4. Market Value of Assets, June 30, 2022	4,140,939
C5. Final Actuarial Value of Assets, June 30, 2022 (C3 Within 20% Corridor of C4)	4,345,704

D. Rates of Return	
D1. Market Value Rate of Return	(4.1%)
D2. Actuarial Value Rate of Return	6.2%

Development of Health Actuarial Value of Assets - Tiers 3

A. Investment Income	
A1. Actual Investment Income	$ (4,622)
A2. Expected Amount for Immediate Recognition	9,245
A3. Amount Subject to Amortization	(13,867)

			Year Ended June 30		
B. Amortization Schedule	**2022**	**2023**	**2024**	**2025**	**2026**
2022 Experience (A3 / 5)	(2,773)	(2,773)	(2,773)	(2,773)	(2,775)
2021 Experience	2,330	2,330	2,330	2,331	
2020 Experience	(273)	(273)	(272)		
2019 Experience	(19)	(20)			
2018 Experience	0				
Total Amortization	(735)	(736)	(715)	(442)	(2,775)

C. Actuarial Value of Assets	**Total**
C1. Actuarial Value of Assets, June 30, 2021	93,717
C2. Non-investment Net Cash Flow	49,807
C3. Preliminary Actuarial Value of Assets, June 30, 2022 (A2 + B + C1 + C2)	152,034
C4. Market Value of Assets, June 30, 2022	147,366
C5. Final Actuarial Value of Assets, June 30, 2022 (C3 Within 20% Corridor of C4)	152,034

D. Rates of Return	
D1. Market Value Rate of Return	(3.6%)
D2. Actuarial Value Rate of Return	7.2%

V. Member Statistics

Valuation Data Summary

	June 30, 2022		June 30, 2021	
	Tiers 1 & 2	Tier 3	Tiers 1 & 2	Tier 3
Actives				
Number	8,135	284	9,374	216
Average Current Age	43.1	33.6	42.2	33.5
Average Age at Employment	30.7	31.8	30.7	32.0
Average Past Service	12.4	1.8	11.5	1.5
Average Annual Salary	$53,163	$47,554	$49,903	$44,577
Actives (transferred)				
Number	259	3	271	2
Average Current Age	37.3	32.0	35.9	34.2
Average Age at Employment	29.4	30.1	29.4	33.5
Average Past Service	7.9	1.9	6.5	0.7
Average Annual Salary	$51,862	$47,810	$47,738	$43,280
Retirees				
Number	5,768	0	5,457	0
Average Current Age	64.4	N/A	64.3	N/A
Average Annual Benefit	$31,293	N/A	$30,625	N/A
Beneficiaries				
Number	850	0	800	0
Average Current Age	69.1	N/A	68.5	N/A
Average Annual Benefit	$21,063	N/A	$22,045	N/A
Disability Retirees				
Number	173	0	160	0
Average Current Age	59.3	N/A	59.7	N/A
Average Annual Benefit	$22,351	N/A	$22,202	N/A
Inactive / Vested				
Number	3,736	61	3,689	37
Average Current Age	40.0	36.2	39.2	34.9
Average Accumulated Contributions	$8,609	$5,150	$8,161	$4,512
Total Number	18,921	348	19,751	255
Former Members (transferred)	N/A	N/A	N/A	N/A

Counts and Pay Summary by Service - Tiers 1 & 2

				Past Service						
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total Count**	**Total Pay**	**Average Pay**
< 25	52	5	0	0	0	0	0	57	2,414,038	42,352
25 - 29	352	481	7	0	0	0	0	840	38,855,177	46,256
30 - 34	239	899	286	16	0	0	0	1,440	71,063,826	49,350
35 - 39	128	439	485	322	1	0	0	1,375	72,559,197	52,770
40 - 44	63	284	333	531	74	1	0	1,286	71,055,791	55,253
45 - 49	47	207	263	398	197	30	0	1,142	63,870,152	55,928
50 - 54	37	155	251	338	132	80	10	1,003	56,756,405	56,587
55 - 59	26	103	140	236	87	55	36	683	38,070,039	55,739
60 - 64	16	56	96	136	77	24	28	433	23,845,133	55,070
65+	1	31	27	35	18	10	13	135	7,420,397	54,966
Total	961	2,660	1,888	2,012	586	200	87	8,394	445,910,155	53,122

Counts and Pay Summary by Service - Tier 3

				Past Service						
Age	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30+**	**Total Count**	**Total Pay**	**Average Pay**
< 25	21	0	0	0	0	0	0	21	959,059	45,669
25 - 29	99	0	0	0	0	0	0	99	4,774,026	48,222
30 - 34	63	0	0	0	0	0	0	63	3,025,552	48,025
35 - 39	52	0	0	0	0	0	0	52	2,483,085	47,752
40 - 44	19	0	0	0	0	0	0	19	953,427	50,180
45 - 49	16	0	0	0	0	0	0	16	713,819	44,614
50 - 54	12	0	0	0	0	0	0	12	562,700	46,892
55 - 59	3	0	0	0	0	0	0	3	132,581	44,194
60 - 64	0	0	0	0	0	0	0	0	0	0
65+	2	0	0	0	0	0	0	2	44,607	22,304
Total	287	0	0	0	0	0	0	287	13,648,856	47,557

In-Payment Counts and Benefit Summary - Tiers 1 & 2

Age	Count	Average Annual Benefit
< 40	50	17,178
40 - 44	132	27,164
45 - 49	455	29,709
50 - 54	747	30,558
55 - 59	929	32,629
60 - 64	1,063	32,690
65 - 69	1,140	30,452
70 - 74	1,034	30,264
75 - 79	663	27,064
80 - 84	364	22,502
85 - 89	160	20,646
90 - 94	51	17,912
95 - 99	3	18,888
100+	0	0
Total	6,791	29,785

"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	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.
Inflation	2.50%.
Tier 3 Compensation Limit	$72,947 for calendar 2022. Assumed increases of 2.00% per year thereafter.
Cost-of-Living Adjustment	1.85%.
Reverse DROP Interest	2.00%.
Mortality Rates	These rates are used to project future decrements from the population due to death.

Active Lives:
PubS-2010 Employee mortality, adjusted by a factor of 1.28 for male members and 1.11 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.

Inactive Lives:
PubS-2010 Healthy Retiree mortality, adjusted by a factor of 1.33 for male retirees and 1.13 for female retirees, with generational improvements using 85% of the most recent projection scale (currently Scale MP-2021).

Beneficiaries:
PubS-2010 Survivor mortality, adjusted by a factor of 0.99 for male beneficiaries and adjusted by a factor of 1.09 for female beneficiaries, with generational improvements with 85% of most recent projection scale (currently Scale MP-2021).

Disabled Lives:
PubS-2010 Disabled mortality, adjusted by a factor of 1.02 for male disabled members and 0.98 for female disabled members, with generational improvements using 85% of the most recent projection

scale (currently Scale MP-2021).

The mortality assumptions sufficiently accommodate anticipated future mortality improvements.

Retirement

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 20 (25 for dispatchers) years of service after age 62:
Age-related rates based on age at retirement: 35% per year from age 62 - 74 and 100% assumed at age 75.

Tier 1 – reaching 20 (25 for dispatchers) years of service before age 62:
Service-related rates based on service at retirement. See complete table of rates at the end of this section

Tiers 2 & 3:
Age-related rates based on age at retirement:

Age	Rate
53-54	40%
55	30%
56-57	15%
58-59	30%
60-61	65%
62+	100%

Termination Rate

These rates are used to project future decrements from the active population due to termination. Complete table of rates based on service at termination are provided at the end of this section. The rates apply to members prior to retirement eligibility and are based on a 2022 experience study using actual plan experience.

Disability Rate

These rates are used to project future decrements from the active population due to disability. Complete table of rates based on age at disability are provided at the end of this section. These rates are based on a 2022 experience study using actual plan experience. 80% of disablements are assumed to be duty-related.

Marital Status

For active members, 75% of males and 50% of females are assumed to be married. Actual marital status is used, where applicable, for inactive members.

Spouse's Age	Male spouses are assumed to be 3 years older than female members and female spouses are assumed to be 2 years younger than males members.
Health Care Utilization	For active members, 60% of retirees are expected to utilize retiree health care. Actual utilization is used for inactive members.
Funding Method	Entry Age Normal Cost Method.
Lateral Transfers	When active members transfer between employers, the new employer's liability starts from their new date of hire with no past service liability (i.e., all liability is accrued through normal cost). Per PSPRS administrative decision, once the new employer's liability is fully funded, the liability will reflect all past service liability.
Actuarial Asset Method	Method described below. Note that 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. ***Tiers 1 & 2:*** 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. ***Tier 3:*** Each year the assumed investment income is recognized in full while the difference between actual and assumed investment income are smoothed over a 5-year period subject to a 20% corridor around the market value.
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 — 2.00% 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 2.50% to 2.00%.

There were no method changes since the prior valuation.

Retirement Rates Tier 1 20 (25) years before Age 62

Service	Rate
20	32%
21	32%
22	20%
23	17%
24	17%
25	17%
26	24%
27	17%
28	17%
29	17%
30	25%
31	25%
32	25%
33	25%
34	30%
35	30%
36	30%
37+	100%

Termination Rates

Service	Tier 1 and Tier 2	Tier 3
0	23.0%	15.0%
1	20.0%	13.5%
2	16.5%	12.0%
3	15.5%	11.0%
4	14.0%	9.0%
5	10.5%	8.0%
6	10.0%	7.0%
7	9.0%	6.0%
8	8.0%	6.0%
9	8.0%	6.0%
10	8.0%	6.0%
11	6.5%	2.5%
12	5.0%	2.5%
13	4.0%	2.5%
14	3.0%	2.5%
15	3.0%	2.5%
16	2.0%	2.0%
17	2.0%	1.5%
18	2.0%	1.0%
19	2.0%	0.5%
20+	2.0%	0.5%

Age	Disability Rates Rate	Salary Scale Rate
20	0.020%	6.25%
21	0.020%	6.00%
22	0.020%	5.50%
23	0.020%	5.25%
24	0.020%	5.25%
25	0.020%	5.25%
26	0.020%	5.25%
27	0.020%	5.00%
28	0.020%	5.00%
29	0.020%	5.00%
30	0.020%	4.75%
31	0.020%	4.75%
32	0.020%	4.50%
33	0.020%	4.50%
34	0.020%	4.25%
35	0.035%	4.25%
36	0.035%	4.00%
37	0.035%	4.00%
38	0.035%	3.75%
39	0.035%	3.75%
40	0.045%	3.75%
41	0.045%	3.75%
42	0.045%	3.75%
43	0.045%	3.50%
44	0.045%	3.50%
45	0.055%	3.50%
46	0.055%	3.50%
47	0.055%	3.50%
48	0.055%	3.50%
49	0.055%	3.50%
50	0.080%	3.50%
51	0.080%	3.50%
52	0.080%	3.25%
53	0.080%	3.25%
54	0.080%	3.25%
55	0.100%	3.25%
56	0.100%	3.25%
57	0.100%	3.25%
58	0.100%	3.00%
59	0.100%	3.00%
60	0.200%	3.00%
61+	0.000%	3.00%

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 for Tiers 1 and 2 from 128.5% on June 30, 2019 to 79.7% on June 30, 2022. This is expected since the plan is closed to new active members. For Tier 3, the Ratio decreased from 2,150.0% on June 30, 2019 to 470.5% on June 30, 2022, consistent with the growth of a new group.
- 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 57.1% for Tiers 1 and 2. With a group 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 53.1% on June 30, 2019 to 83.3% on June 30, 2022, due mainly to contributions in excess of the required amount and favorable plan experience. For Tier 3, the Ratio increased from 68.9% on June 30, 2019 to 108.8% on June 30, 2022, consistent with a new group with appropriate contribution rates.
- The Net Cash Flow Ratio, determined as the ratio of the Net Cash Flow (contributions minus benefit payments) to the Market Value of Assets, increased from 1.9% on June 30, 2019 to 16.8% on June 30,

2022, meaning that contributions are currently covering the group's benefit payments. For Tier 3, the Ratio was 39.1%, which is consistent with a new benefit that is beginning to accumulate assets.

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 – Tiers 1 & 2

	06/30/2019	06/30/2020	06/30/2021	06/30/2022
Support Ratio				
Total Actives	12,027	10,773	9,645	8,394
Total Inactives	9,356	9,639	10,106	10,527
Actives / Inactives	128.5%	111.8%	95.4%	79.7%
Asset Volatility Ratio				
Market Value of Assets (MVA)	1,996,273,344	2,070,559,462	3,215,933,036	3,713,400,295
Total Annual Payroll	547,363,066	533,673,543	480,729,371	445,910,155
MVA / Total Annual Payroll	364.7%	388.0%	669.0%	832.8%
Accrued Liability (AL) Ratio				
Inactive Accrued Liability	2,098,736,826	2,235,778,137	2,400,025,718	2,621,294,239
Total Accrued Liability	3,884,070,116	4,225,066,906	4,351,506,188	4,589,933,079
Inactive AL / Total AL	54.0%	52.9%	55.2%	57.1%
Funded Ratio				
Actuarial Value of Assets (AVA)	2,063,352,240	2,202,747,086	2,964,749,664	3,822,268,062
Total Accrued Liability	3,884,070,116	4,225,066,906	4,351,506,188	4,589,933,079
AVA / Total Accrued Liability	53.1%	52.1%	68.1%	83.3%
Net Cash Flow Ratio				
Net Cash Flow *	38,292,853	22,370,431	570,412,534	625,343,868
Market Value of Assets (MVA)	1,996,273,344	2,070,559,462	3,215,933,036	3,713,400,295
Net Cash Flow / MVA	1.9%	1.1%	17.7%	16.8%

** 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

	06/30/2019	06/30/2020	06/30/2021	06/30/2022
Support Ratio				
Total Actives	86	163	218	287
Total Inactives	4	14	37	61
Actives / Inactives	2,150.0%	1,164.3%	589.2%	470.5%
Asset Volatility Ratio				
Market Value of Assets (MVA)	239,659	1,049,886	2,668,803	4,140,939
Total Annual Payroll	3,736,128	7,128,851	9,715,138	13,648,856
MVA / Total Annual Payroll	6.4%	14.7%	27.5%	30.3%
Accrued Liability (AL) Ratio				
Inactive Accrued Liability	3,122	42,399	179,351	322,732
Total Accrued Liability	351,682	922,405	2,162,749	3,993,173
Inactive AL / Total AL	0.9%	4.6%	8.3%	8.1%
Funded Ratio				
Actuarial Value of Assets (AVA)	242,444	1,086,471	2,523,714	4,345,704
Total Accrued Liability	351,682	922,405	2,162,749	3,993,173
AVA / Total Accrued Liability	68.9%	117.8%	116.7%	108.8%
Net Cash Flow Ratio				
Net Cash Flow *	234,614	806,918	1,280,905	1,617,483
Market Value of Assets (MVA)	239,659	1,049,886	2,668,803	4,140,939
Net Cash Flow / MVA	97.9%	76.9%	48.0%	39.1%

* *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.*

VIII. SUMMARY OF CURRENT PLAN

The following is a summary of the benefit provisions provided in Title 38, Chapter 5, Article 6 of the Arizona Revised Statutes.

Membership	Full-time employees of a participating employer in a designated position, whose customary employment is at least 40 hours each week. Includes employees hired after July 1, 2018 only if they are a judiciary probation or surveillance officer who makes the irrevocable election to participate in the plan.
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 but before July 1, 2018
3	Hired on or after July 1, 2018

Salary	Salary is the amount including base salary, shift and military differential pay, and holiday pay, paid to an employee on a regular payroll basis. For Tier 3 members, salary is limited by statutory cap ($70,000 with adjustments by the Board).
Average Monthly Benefit Salary	***Tier 1:*** One-thirty-sixth of the highest total salary during a period of thirty-six consecutive months of service within the last one hundred twenty months of service. ***Tier 2 & 3:*** One-sixtieth of the highest total salary during a period of sixty consecutive months of service within the last one hundred twenty months of service.
Credited Service	Total periods of service, both from service other State plans and those compensated periods of service for which the member made contributions to the fund.
Normal Retirement Date	***Tier 1:*** First day of the month following attainment of 1) age 62 with 10 years of Credited Service, 2) 20 (25, if dispatcher) years of Credited Service, or 3) age and Credited Service points equal to 80.

Tier 2:
First day of month following the attainment of 1) age 52.5 with 25 years of Credited Service, or 2) age 62 with 10 years of Credited Service.

Tier 3:
First day of month following the attainment of age 55 with 10 years of Credited Service.

Benefit

Tier 1:
2.50% times Credited Service (up to 20 years) times Average Monthly Salary. If Credited Service exceeds 20 years, an additional 2.00% accrual is provided for up to five years. If Credited Service exceeds 25 years, the additional accrual for service in excess of 20 years is increased to 2.50%. Maximum benefit equals 80% of Average Monthly Salary.

Tier 2:
2.50% times Credited Service times Average Monthly Salary (maximum benefit equals 80% of Average Monthly Salary).

Tier 3:
Benefit multiplier (below) times Average Monthly Benefit Salary times Credited Service (maximum benefit of 80% of Average Monthly Benefit Salary):

Credited Service	Benefit Multiplier
10 years, but less than 15	1.25%
15 years, but less than 20	1.50%
20 years, but less than 22	1.75%
22 years, but less than 25	2.00%
25+ years	2.25%

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.

Early Retirement

Only applicable to Tier 3 members:

Date

Attainment of age 52.5 and 10 years of Credited Service.

Benefit

Actuarial equivalent of Normal Retirement benefit.

Disability Benefit – Duty-Related

Eligibility

Total and permanent disability incurred in performance of duty.

Benefit Amount	The greater of 1) 50% of Average Monthly Salary, and 2) the Normal Retirement pension that the member is entitled to receive.

Disability Benefit – Ordinary

Eligibility	Total and permanent disability not incurred in performance of duty.
Benefit Amount	
Dispatchers	Normal Retirement pension that the member is entitled to receive prorated on Credited Service (maximum 25 years) over 25.
All Others	Normal Retirement pension that the member is entitled to receive prorated on Credited Service (maximum 20 years) over 20.

Pre-Retirement Death Benefit

Payable to Eligible Survivor	Payable to eligible spouse for life; payable to eligible children until adopted, age 18, or age 23 if full-time student.
Service Incurred	100% of Average Monthly Salary
Non-Service Incurred	40% of Average Monthly Salary.
No survivors	Two times member's accumulated contributions.

Vesting (Termination)

Deferred Annuity

***Tier 1*:**
For those with 10 or more years of Credited Service, an 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.

Return of Contributions

***Tier 1*:**
Lump sum payment of accumulated contributions, plus additional amount based on years of credited service.

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%

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

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 fist 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, 2018 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, 2018 is 90% or more;
- 1.5%, if funded ratio for members who are hired on or after July 1, 2018 is 80-90%;
- 1%, if funded ratio for members who are hired on or after July 1, 2018 is 70-80%.

Reverse Deferred Retirement Option Plan (Reverse DROP):

Eligibility

Tier 1 and eligible for normal pension with at least 24 years of Credited Service (25 years for dispatchers). Must not have been awarded disability pension.

Reverse DROP Date

First day of month immediately following completion of required Credited Service or date not more than 60 consecutive months before the date the member elects to participate in the Reverse DROP, whichever is later.

Benefit Amount	Calculated based on Credited Service and Average Monthly Salary as of the Reverse DROP Date.
Reverse DROP Lump Sum	Accumulated benefit amounts (with interest) from Reverse DROP date to the date the member elected to participate in Reverse DROP. Interest is equal to the yield on five-year Treasury note as of the first day of the month, as published by the Federal Reserve Board.

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

Employee Contributions

Tiers 1 and 2:
Non-dispatchers: 8.41% of salary, or 50/50 split of total employer and employee costs, whichever is lower, until the plan is 100% funded. Minimum contribution of 7.65% of salary.

Dispatchers: 0.45% less than non-dispatcher rate until plan is 100% funded; equal thereafter.

Tier 3:
66.7% of the Normal Cost plus 50% of 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. Contribution will never be less than 6% of payroll.

Tier 3:
33.3% of the Normal Cost plus 50% of 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

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 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.

- 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.

APPENDIX A: SUMMARY OF POPULATION DATA BY EMPLOYER - TIERS 1 & 2

Employer Number	Employer Name	Number of Actives	Active Payroll	Number of Retirees	Annual Retiree Benefits	Number of Inactive/ Vested	Inactive/Vested Accum. Member Contrib.	Number Transferred Out
500	Department of Corrections - Detention	4,695	230,428,852	4,064	108,487,560	1,398	10,169,052	170
501	Dept of Juvenile Corrections - Detention	196	9,355,936	314	8,941,071	260	1,712,100	12
502	Pinal County - Detention	107	6,016,377	60	1,811,958	35	528,045	4
503	Gila County - Detention	23	1,096,481	18	327,879	35	251,755	3
504	Graham County - Detention	9	432,786	5	104,620	27	79,731	7
505	Maricopa County - Detention	1,322	79,961,115	779	26,259,568	532	6,132,896	53
506	City of Avondale - Detention	9	567,179	4	136,887	5	45,025	1
507	La Paz County - Detention	10	483,554	1	13,984	9	129,249	3
510	Yuma County - Detention	75	3,803,149	37	1,080,860	82	668,136	12
515	Pima County - Detention	245	12,843,752	260	8,183,356	200	2,107,800	14
520	Apache County - Detention	7	309,053	8	158,072	23	63,871	1
525	Cochise County - Detention	32	1,513,119	39	731,293	32	168,384	7
530	Coconino County - Detention	32	1,958,268	22	652,657	87	557,757	8
535	Mohave County - Detention	42	2,135,609	22	458,802	88	351,824	4
540	Santa Cruz County - Detention	7	255,782	6	148,902	30	227,760	3
545	Navajo County - Detention	19	877,826	10	229,818	44	176,704	7
550	Yavapai County - Detention	79	4,483,013	61	1,489,171	150	893,400	7
555	Pinal County - Dispatchers	4	217,144	5	174,493	8	60,944	0
556	Town of Oro Valley - Dispatchers	2	139,892	6	199,743	3	64,293	0
557	Town of Marana - Dispatchers	3	177,296	4	150,900	2	3,662	0
558	Gila County - Dispatchers	2	109,343	3	91,260	4	47,300	0
559	Town of Wickenburg - Dispatchers	0	0	3	50,739	2	42,928	0
560	Graham County - Dispatchers	2	96,795	0	0	3	20,982	0
561	Yavapai County - Dispatchers	1	72,947	3	68,151	1	39,398	0
562	City of Somerton - Dispatchers	2	86,475	2	72,322	2	38,408	0
563	Department of Public Safety - Dispatchers	11	690,351	22	859,434	5	106,595	0
564	Department of Public Safety - Detention	5	297,784	0	0	1	4,266	0
575	Administrative Office of the Courts	1,453	87,500,277	1,033	41,382,431	668	7,473,584	83
	TOTAL	8,394	445,910,155	6,791	202,265,931	3,736	32,165,849	N/A

APPENDIX B: SUMMARY OF PENSION FUNDED STATUS BY EMPLOYER - TIERS 1 & 2

Employer Number	Employer Name	Liability (PVB)	Liability (AAL)	Assets (AVA)	Assets (MV)	Unfunded (AAL - AVA)	Unfunded (AAL - MV)	Funded Percent (AVA/AAL)	Funded Percent (MV/AAL)
500	Department of Corrections - Detention	2,487,338,322	2,288,058,842	2,274,678,265	2,209,889,731	13,380,577	78,169,111	99.4%	96.6%
501	Dept of Juvenile Corrections - Detention	155,841,033	149,176,414	146,883,061	142,699,464	2,293,353	6,476,950	98.5%	95.7%
502	Pinal County - Detention	60,396,706	56,045,035	58,695,228	57,023,441	(2,650,193)	(978,406)	104.7%	101.7%
503	Gila County - Detention	9,131,559	8,340,404	9,426,982	9,158,478	(1,086,578)	(818,074)	113.0%	109.8%
504	Graham County - Detention	3,196,286	2,823,530	2,964,203	2,879,775	(140,673)	(56,245)	105.0%	102.0%
505	Maricopa County - Detention	780,901,082	709,555,889	416,498,560	404,635,638	293,057,329	304,920,251	58.7%	57.0%
506	City of Avondale - Detention	4,134,970	3,367,262	2,659,675	2,583,920	707,587	783,342	79.0%	76.7%
507	La Paz County - Detention	3,314,181	2,935,112	2,043,593	1,985,386	891,519	949,726	69.6%	67.6%
510	Yuma County - Detention	32,767,773	29,014,231	30,378,792	29,513,528	(1,364,561)	(499,297)	104.7%	101.7%
515	Pima County - Detention	172,133,602	160,210,138	150,733,374	146,440,110	9,476,764	13,770,028	94.1%	91.4%
520	Apache County - Detention	3,387,669	3,091,914	3,303,160	3,209,077	(211,246)	(117,163)	106.8%	103.8%
525	Cochise County - Detention	16,710,146	15,289,732	8,669,404	8,422,477	6,620,328	6,867,255	56.7%	55.1%
530	Coconino County - Detention	22,170,436	20,296,987	19,859,052	19,293,417	437,935	1,003,570	97.8%	95.1%
535	Mohave County - Detention	14,194,014	12,158,732	10,614,289	10,311,967	1,544,443	1,846,765	87.3%	84.8%
540	Santa Cruz County - Detention	3,163,597	2,869,848	2,974,545	2,889,823	(104,697)	(19,975)	103.6%	100.7%
545	Navajo County - Detention	7,178,622	6,420,100	6,930,127	6,732,740	(510,027)	(312,640)	107.9%	104.9%
550	Yavapai County - Detention	41,539,827	37,557,336	24,508,256	23,810,200	13,049,080	13,747,136	65.3%	63.4%
555	Pinal County - Dispatchers	3,884,031	3,683,579	4,012,371	3,898,089	(328,792)	(214,510)	108.9%	105.8%
556	Town of Oro Valley - Dispatchers	3,820,091	3,721,151	1,710,819	1,662,090	2,010,332	2,059,061	46.0%	44.7%
557	Town of Marana - Dispatchers	3,493,432	3,384,537	2,211,903	2,148,902	1,172,634	1,235,635	65.4%	63.5%
558	Gila County - Dispatchers	2,253,108	2,231,013	2,544,654	2,472,176	(313,641)	(241,163)	114.1%	110.8%
559	Town of Wickenburg - Dispatchers	590,986	590,986	680,469	661,087	(89,483)	(70,101)	115.1%	111.9%
560	Graham County - Dispatchers	748,426	681,154	759,229	737,604	(78,075)	(56,450)	111.5%	108.3%
561	Yavapai County - Dispatchers	1,504,037	1,418,186	899,297	873,683	518,889	544,503	63.4%	61.6%
562	City of Somerton - Dispatchers	1,760,490	1,679,913	847,994	823,841	831,919	856,072	50.5%	49.0%
563	Department of Public Safety - Dispatchers	18,183,926	17,764,148	18,095,317	17,579,917	(331,169)	184,231	101.9%	99.0%
564	Department of Public Safety - Detention	1,248,657	972,707	904,934	879,159	67,773	93,548	93.0%	90.4%
575	Administrative Office of the Courts	1,110,838,231	1,046,594,199	617,780,509	600,184,573	428,813,690	446,409,626	59.0%	57.3%
	Unallocated	0	0	0	2	0	(2)		
	TOTAL	4,965,825,240	4,589,933,079	3,822,268,062	3,713,400,295	767,665,017	876,532,784	83.3%	80.9%

APPENDIX C: SUMMARY OF PENSION CONTRIBUTION BY EMPLOYER - TIERS 1 & 2

Employer Number	Employer Name	ER NC%	UAAL Pmt %	Calculated ER Cont.	Required ER Cont.
500	Department of Corrections - Detention	5.00%	0.50%	5.50%	6.00%
501	Dept of Juvenile Corrections - Detention	4.57%	1.55%	6.12%	6.12%
502	Pinal County - Detention	3.94%	0.00%	3.94%	6.00%
503	Gila County - Detention	4.96%	0.00%	4.96%	4.96%
504	Graham County - Detention	5.71%	0.00%	5.71%	6.00%
505	Maricopa County - Detention	4.72%	29.03%	33.75%	33.75%
506	City of Avondale - Detention	8.01%	8.64%	16.65%	16.65%
507	La Paz County - Detention	3.48%	8.82%	12.30%	12.30%
510	Yuma County - Detention	5.68%	0.00%	5.68%	6.00%
515	Pima County - Detention	4.50%	4.95%	9.45%	9.45%
520	Apache County - Detention	5.35%	0.00%	5.35%	6.00%
525	Cochise County - Detention	5.20%	26.79%	31.99%	31.99%
530	Coconino County - Detention	4.45%	1.48%	5.93%	6.00%
535	Mohave County - Detention	4.68%	4.06%	8.74%	8.74%
540	Santa Cruz County - Detention	5.19%	0.00%	5.19%	6.00%
545	Navajo County - Detention	4.30%	0.00%	4.30%	6.00%
550	Yavapai County - Detention	4.19%	17.11%	21.30%	21.30%
555	Pinal County - Dispatchers	3.34%	0.00%	3.34%	6.00%
556	Town of Oro Valley - Dispatchers	2.25%	126.19%	128.44%	128.44%
557	Town of Marana - Dispatchers	1.95%	64.83%	66.78%	66.78%
558	Gila County - Dispatchers	2.07%	0.00%	2.07%	2.07%
559	Town of Wickenburg - Dispatchers	0.00%	0.00%	0.00%	0.00%
560	Graham County - Dispatchers	3.27%	0.00%	3.27%	3.27%
561	Yavapai County - Dispatchers	3.10%	65.41%	68.51%	68.51%
562	City of Somerton - Dispatchers	4.10%	93.08%	97.18%	97.18%
563	Department of Public Safety - Dispatchers	2.90%	0.00%	2.90%	6.00%
564	Department of Public Safety - Detention	5.23%	1.46%	6.69%	6.69%
575	Administrative Office of the Courts	3.12%	36.31%	39.43%	39.43%
	TOTAL	4.52%	13.34%	17.86%	17.86%

APPENDIX D: SUMMARY OF HEALTH FUNDED STATUS BY EMPLOYER - TIERS 1 & 2

Employer Number	Employer Name	Liability (PVB)	Liability (AAL)	Assets (AVA)	Assets (MV)	Unfunded (AAL - AVA)	Unfunded (AAL - MV)	Funded Percent (AVA/AAL)	Funded Percent (MV/AAL)
500	Department of Corrections - Detention	59,851,812	55,403,508	89,333,889	88,617,559	(33,930,381)	(33,214,051)	161.2%	159.9%
501	Dept of Juvenile Corrections - Detention	3,573,729	3,405,108	7,389,686	7,330,431	(3,984,578)	(3,925,323)	217.0%	215.3%
502	Pinal County - Detention	1,258,358	1,144,406	1,882,263	1,867,170	(737,857)	(722,764)	164.5%	163.2%
503	Gila County - Detention	188,289	168,159	465,836	462,101	(297,677)	(293,942)	277.0%	274.8%
504	Graham County - Detention	75,241	67,448	105,741	104,893	(38,293)	(37,445)	156.8%	155.5%
505	Maricopa County - Detention	13,129,129	11,846,208	21,359,560	21,188,287	(9,513,352)	(9,342,079)	180.3%	178.9%
506	City of Avondale - Detention	67,829	61,733	62,587	62,085	(854)	(352)	101.4%	100.6%
507	La Paz County - Detention	63,940	57,451	24,577	24,380	32,874	33,071	42.8%	42.4%
510	Yuma County - Detention	537,574	464,429	1,461,947	1,450,225	(997,518)	(985,796)	314.8%	312.3%
515	Pima County - Detention	2,481,002	2,249,659	4,734,398	4,696,435	(2,484,739)	(2,446,776)	210.4%	208.8%
520	Apache County - Detention	70,571	65,415	237,114	235,212	(171,699)	(169,797)	362.5%	359.6%
525	Cochise County - Detention	310,809	281,665	863,736	856,811	(582,071)	(575,146)	306.7%	304.2%
530	Coconino County - Detention	364,908	331,699	593,360	588,603	(261,661)	(256,904)	178.9%	177.5%
535	Mohave County - Detention	237,570	200,021	886,642	879,533	(686,621)	(679,512)	443.3%	439.7%
540	Santa Cruz County - Detention	136,758	131,320	217,215	215,473	(85,895)	(84,153)	165.4%	164.1%
545	Navajo County - Detention	123,753	107,594	499,647	495,641	(392,053)	(388,047)	464.4%	460.7%
550	Yavapai County - Detention	677,862	605,988	1,588,768	1,576,028	(982,780)	(970,040)	262.2%	260.1%
555	Pinal County - Dispatchers	51,682	46,804	219,071	217,314	(172,267)	(170,510)	468.1%	464.3%
556	Town of Oro Valley - Dispatchers	30,400	28,487	81,248	80,597	(52,761)	(52,110)	285.2%	282.9%
557	Town of Marana - Dispatchers	30,816	28,122	66,203	65,672	(38,081)	(37,550)	235.4%	233.5%
558	Gila County - Dispatchers	31,652	31,130	123,514	122,523	(92,384)	(91,393)	396.8%	393.6%
559	Town of Wickenburg - Dispatchers	0	0	55,999	55,550	(55,999)	(55,550)	100.0%	100.0%
560	Graham County - Dispatchers	20,689	18,516	29,160	28,926	(10,644)	(10,410)	157.5%	156.2%
561	Yavapai County - Dispatchers	53,044	51,839	32,718	32,456	19,121	19,383	63.1%	62.6%
562	City of Somerton - Dispatchers	22,706	19,973	33,468	33,199	(13,495)	(13,226)	167.6%	166.2%
563	Department of Public Safety - Dispatchers	366,820	356,357	203,898	202,263	152,459	154,094	57.2%	56.8%
564	Department of Public Safety - Detention	31,840	26,671	9,139	9,066	17,532	17,605	34.3%	34.0%
575	Administrative Office of the Courts	16,136,399	14,767,086	14,442,924	14,327,113	324,162	439,973	97.8%	97.0%
	Unallocated	0	0	(1)	(4)	1	4		
	TOTAL	99,925,182	91,966,796	147,004,307	145,825,542	(55,037,511)	(53,858,746)	159.8%	158.6%

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ACTUARIES AND CONSULTANTS

Appendix E: Summary of Health Contribution by Employer - Tiers 1 & 2

Employer Number	Employer Name	ER NC%	UAAL Pmt %	Calculated ER Cont.
500	Department of Corrections - Detention	0.29%	(0.29%)	0.00%
501	Dept of Juvenile Corrections - Detention	0.33%	(0.33%)	0.00%
502	Pinal County - Detention	0.28%	(0.28%)	0.00%
503	Gila County - Detention	0.33%	(0.33%)	0.00%
504	Graham County - Detention	0.30%	(0.28%)	0.02%
505	Maricopa County - Detention	0.24%	(0.24%)	0.00%
506	City of Avondale - Detention	0.13%	0.00%	0.13%
507	La Paz County - Detention	0.22%	0.32%	0.54%
510	Yuma County - Detention	0.27%	(0.27%)	0.00%
515	Pima County - Detention	0.26%	(0.26%)	0.00%
520	Apache County - Detention	0.24%	(0.24%)	0.00%
525	Cochise County - Detention	0.28%	(0.28%)	0.00%
530	Coconino County - Detention	0.22%	(0.22%)	0.00%
535	Mohave County - Detention	0.26%	(0.26%)	0.00%
540	Santa Cruz County - Detention	0.22%	(0.22%)	0.00%
545	Navajo County - Detention	0.26%	(0.26%)	0.00%
550	Yavapai County - Detention	0.25%	(0.25%)	0.00%
555	Pinal County - Dispatchers	0.40%	(0.40%)	0.00%
556	Town of Oro Valley - Dispatchers	0.23%	(0.23%)	0.00%
557	Town of Marana - Dispatchers	0.34%	(0.34%)	0.00%
558	Gila County - Dispatchers	0.27%	(0.27%)	0.00%
559	Town of Wickenburg - Dispatchers	0.00%	0.00%	0.00%
560	Graham County - Dispatchers	0.41%	(0.41%)	0.00%
561	Yavapai County - Dispatchers	0.23%	2.35%	2.58%
562	City of Somerton - Dispatchers	0.55%	(0.55%)	0.00%
563	Department of Public Safety - Dispatchers	0.36%	2.02%	2.38%
564	Department of Public Safety - Detention	0.24%	0.34%	0.58%
575	Administrative Office of the Courts	0.26%	0.01%	0.27%
	TOTAL	0.28%	(0.28%)	0.00%