

Arizona Elected Officials' Retirement Plan  
Consolidated Report  
June 30, 2018





December 17, 2018

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

**Re: Arizona Elected Officials' Retirement Plan Actuarial Valuation as of June 30, 2018**

Ladies and Gentlemen:

The results of the June 30, 2018 annual actuarial valuation of members covered by the Arizona Elected Officials' Retirement Plan (EORP) are presented in this report.

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

The purpose of the valuation was to measure the Retirement Plan's funding progress and to determine the employer contribution for the 2019-2020 fiscal year. The funding objective is stated in Article 4, Chapter 5, Title 38, Sections 810C-D of the Arizona Revised Statutes. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

The computed contributions shown on page A-2 may be considered as a minimum contribution that that complies with the Board's funding policy. 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 System in excess of those presented in the body of this report be considered (as shown in Appendix I).

The findings in this report are based on data and other information through June 30, 2018. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

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

The valuation was based upon information furnished by the Retirement Plan, concerning Retirement Plan benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the Retirement Plan.

In addition, this report was prepared using certain assumptions approved by the Board as described in the section of this report entitled Methods and Assumptions.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement plans. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the Arizona Elected Officials' Retirement Plan as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and with applicable statutes.

Mark Buis, James D. Anderson and Francois Pieterse are Members of the American Academy of Actuaries (MAAA). These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor.

Gabriel, Roeder, Smith & Company will be pleased to review this valuation report with the Board of Trustees and to answer any questions pertaining to the valuation.

Respectfully submitted,



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FSA, EA, FCA, MAAA



James D. Anderson  
FSA, EA, FCA, MAAA



Francois Pieterse  
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MB/JDA/FP:rmn



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# Executive Summary/Board Summary

## 1. Statutorily Required Employer Contributions to Support Retirement Benefits

Beginning January 1, 2014, by statute, employer contributions equal 23.5% of aggregate payroll. The 23.5% of aggregate payroll contribution rate was subsequently found to be insufficient, and starting with the June 30, 2018 valuation the statutory basis was changed to an actuarially determined contribution (applied to aggregate payroll). The statutory employer contribution and funded status for the fiscal year beginning July 1, 2019 are shown below.

<b>EORP</b>	<b>Pension</b>	<b>Health</b>	<b>Total</b>
Employer Contribution Rate	61.43%	0.00 %	61.43%
Funded Status	31.3%	181.3%	33.5%

## 2. Comparison to Prior Valuation

Plan liabilities changed in the current valuation due to:

- The November 2018 passage of Proposal 125, which changed plan provisions to incorporate a 2% capped COLA;
- Assumed PBI payments that were not triggered during year ending June 30, 2018.
- Lower than expected payroll growth;
- Lower than expected asset growth on an actuarial basis; and
- The impact of the COLA change on Tier 2 members.

The reasons for changes in plan liabilities are described in more detail on pages 2 through 4 of this report.

## Executive Summary/Board Summary

### 3. Reasons for Change

The change in funded status is illustrated on the following chart:

Funded Status	Pension	Health	Total
Funded Status Last Valuation	30.7%	170.8%	32.6%
Asset Losses	(0.6)%	(1.4)%	(0.6)%
Payroll Base	(0.1)%	0.0%	(0.1)%
PBI Gain/(Loss)	0.8%	0.0%	0.8%
Benefit Changes	3.5%	0.0%	3.7%
Hall/Parker Settlement	(2.1)%	0.0%	(2.0)%
Other	(0.9)%	11.9%	(0.9)%
Funded Status This Valuation	31.3%	181.3%	33.5%

**Asset Losses** – Asset losses are based on 7-year smoothing of assets. The return on market value was 7.2% for the year ending June 30, 2018. However, based on funding value, the average return for the last 7 years is approximately 5.6%.

**Payroll Base** – The change in the funded status is primarily due to gains or losses on the overall salary assumption, which includes both the wage base assumption and the merit and longevity components of the salary assumption.

**PBI Gain/(Loss)** – Under the previous structure, retired members will receive a PBI under certain conditions based on the current year excess asset return. The valuation assumed a resulting average PBI of approximately 3.00% per year. Since there was no PBI for EORP members this year, this resulted in a gain for the Plan with a corresponding increase in funded status. Due to the passage of Proposal 125, this item will no longer apply going forward.

**Benefit Changes** – Replace the prior Permanent Benefit Increase with a CPI-based Cost-of-Living Adjustment (COLA) for all retirees. This change had the largest impact on plan liabilities and by extension, funded status.

# Executive Summary/Board Summary

**Hall/Parker Settlement** – Final disposition of liabilities related to these court cases served to decrease funded status.

**Other** – This is the combination of all factors other than those listed above and primarily reflect demographic gains and losses (i.e., retirement, turnover, disability, etc. experience that differs from the actuarial assumptions).

## 4. Plan Experience

Experience during the year ended June 30, 2018 was overall unfavorable. On a market value basis, the Plan's return for the year ended June 30, 2018 was 7.2%. However, the market value smoothing techniques used in this valuation of the System recognize both past and present investment gains and losses. The resulting actuarial asset yield for the year was 5.6%. The effects of the asset losses were supplemented by losses attributable to demographic experience. Detailed information related to Plan experience is shown on page B-2.

## 5. Looking Ahead

The continuing effect of prior asset losses was dampened by the 7-year smoothing period. There remains \$8.7 million of unrecognized investment losses that will, in the absence of other gains, put slight upward pressure on the contribution rate next year.

If the June 30, 2018 pension valuation results were based on market value instead of smoothed funding value, the pension funded percent of the plan would be 30.4% (instead of 31.3%), and the statutory pension employer contribution would be 62.35% of payroll (instead of 61.43%). Absent investment market gains, it is expected that the funded percent will continue to decrease and the employer contribution requirement will continue to increase.

The Board has adopted an investment return assumption of 7.3% for the June 30, 2019 actuarial valuation. If all other assumptions are realized, this change will result in upward pressure on the contribution rate.

## 6. Conclusion

This plan is closed to new hires, but the statutory funding policy relies on receipt of contributions based on the combined payroll of current EORP plan members and current/future Defined Contribution members. Implications of this funding policy include:

- Most of the unfunded liability will be paid off in the last few years of the amortization period.
- The funding of the closed Arizona Elected Officials Retirement Plan (EORP) also depends on payroll increases (at a rate of 3.5% per year) for new hires in the DC plan. To the extent that pay increases are less than 3.5% or that the active population decreases, contribution amounts will fall short of those needed to adequately fund the plan.

## Executive Summary/Board Summary

The retired lives are 35.2% funded on a funding value of assets basis, and 34.0% funded based upon the market value of assets. It is most important that this Plan receive contributions at least equal to the dollars shown in this report.



## **SECTION A**

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### **INTRODUCTION**

## Funding Objective

The purpose of the annual actuarial valuation of the Arizona Elected Officials' Retirement Plan as of June 30, 2018 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 Section B.
- Compare accrued assets with accrued liabilities to assess the funded condition. This information is contained in Section B.
- Compute the employer's Statutory contribution rates for the Fiscal Year beginning July 1, 2019. This information is contained in Section A.

This objective is stated in Article 4, Chapter 5, Title 38, Sections 810C-D of the Arizona Revised Statutes.

## Contribution Rates

The Retirement Plan is supported by member contributions, employer contributions and investment income from Retirement Plan assets.

Contributions which satisfy the funding objective are determined by the annual actuarial valuation and are sufficient to:

- (1) Cover the actuarial present value of benefits allocated to the current year by the actuarial cost method described in Section E (the normal cost); and
- (2) Finance over a period of future years the actuarial present value of benefits not covered by valuation assets and anticipated future normal costs (the unfunded actuarial accrued liability).

The **Computed Statutory contribution rate** for the fiscal year beginning July 1, 2019 is shown on page A-2.

The contribution based on a Closed Plan valuation of the Elected Officials' Retirement Plan (which finances unfunded accrued liabilities over a closed 18-year period as a level dollar amount) is shown on page A-4.

# Statutory Contribution Requirements

## Development of Employer Contributions for the Indicated Valuation Date

<b>Pension</b>	<b>Fiscal Year Ending 2020</b>
Total normal cost requirement	28.71%
Employee Contributions	
Total Employee Rate	8.05%
Less portion used to pay down unfunded liability	<u>1.05%</u>
Net employee rate	7.00%
Employer normal cost requirement	21.71%
Amortization of unfunded liabilities	62.83%
Total Statutory Contribution Rate before applying Fees and appropriation (= \$15 million)	84.54%
<b>Total Statutory Employer Contribution Rate</b> net of Fees and appropriation (= \$15 million)	<b>61.43%</b>
<b>Estimated Dollar Statutory Employer Contribution including fees and appropriation (= \$15 million)</b>	<b>\$53,035,421</b>
<b>Health</b>	
Normal cost requirement	0.49%
Amortization of unfunded liabilities	<u>(0.49)%</u>
<b>Total health contribution rate</b>	<b>0.00%</b>
<b>Estimated Dollar Health Contribution</b>	<b>\$ -</b>

**Pension:** Actuarial accrued liability of \$904,884,325 exceeded the funding value of assets which equaled \$283,453,428. The resulting unfunded actuarial accrued liabilities (after netting out the maintenance of effort reserve of \$6,314,821 from the actuarial value of assets) were amortized as a level percent of Combined Defined Benefit and Defined Contribution payroll over a closed period of 26 years ending June 30, 2044 and added to the employer normal cost. The 26-year period is a one year decrease from last year.

**Health:** Actuarial accrued liability of \$13,392,662 was less than the funding value of assets which equaled \$14,287,431. The resulting overfunded actuarial accrued liabilities were amortized as a level percent of payroll over a period of 20 years and added to the employer normal cost.

# Statutory Contribution Requirements

**Pension Contribution Amounts per Section 38-810, Arizona Revised Statutes:** Beginning January 1, 2014 and continuing for 30 years, employer contributions equal 23.5% of aggregate payroll. The 23.5% of aggregate payroll contribution rate was subsequently increased to 61.50% of aggregate payroll, and starting with the June 30, 2018 valuation reflects an actuarially determined contribution. Aggregate payroll is on behalf of active members in the Arizona Elected Official's Retirement Plan (EORP) and active members in the Elected Officials' Defined Contribution Retirement System (EODCRS), and active members in the Arizona State Retirement System (ASRS because they had money on account with ASRS. The employer contributions are used to pay for:

- 1) EORP Defined Benefits = Employer Normal Cost plus an amount to amortize the unfunded accrued liability;
- 2) EODCRS Defined Contribution = 6% of pay for those electing EODCRS, first effective January 1, 2014; and
- 3) ASRS Defined Benefits = Employer's contribution amount.

Additionally, in fiscal years 2013-2014 through 2042-2043, the sum of \$5,000,000 is appropriated in each fiscal year from the State general fund to EORP to supplement the Normal Cost plus an amount to amortize the unfunded accrued liability. Lastly, annual court fees of roughly \$10,000,000 are expected to be contributed to the Plan.

## **Statutory Actuarially Determined Contribution**

As shown on page A-2, the Statutory Actuarially Determined Contribution rate (for FYE 2020) equals 61.43%. Applying this rate to June 30, 2018 Defined Benefit payroll of \$50,939,103 and Defined Contribution payroll of \$10,977,584; and adding to \$15,000,000 (court fees and appropriation), the estimated employer contribution for the fiscal year ending June 30, 2020 will be **\$53,035,421**.

## **Comments:**

- 1) The Actuarially Determined Contribution of \$53,035,421 is \$17.5 million less than the \$70.4 million Level Dollar contribution shown on page A-4 (calculated using a method appropriate for pension plans that are closed to new hires).
- 2) The statutory funding method relies on receipt of contributions based on the combined payroll of current EORP plan members and current/future Defined Contribution members. This means that a significant portion of the unfunded liability will be paid off in the last few years of the amortization period.
- 3) The statutory funding method also depends on combined valuations payroll increases at a rate of 3.5% per year. To the extent that combined valuation payroll increases are less than 3.5% or that the active population decreases, contribution amounts will fall short of those needed to adequately fund the plan.
- 4) Given the funded status of the plan (the retired lives are 35.2% funded on a funding value of assets basis), and the statutory funding method deferral of costs to future time periods, we recommend contributing more than the statutory amount of \$53,035,421.
- 5) The funding method results in negative amortization, meaning that the payment towards the unfunded liability is less than the interest accruing on the unfunded liability. Under this method, the unfunded liability is projected to increase for several more years and eventually begin to decrease once the remaining amortization period falls below 20 years in 2025.

## Historical Summary of Recommended Employer Pension Rates

Valuation Date June 30	Fiscal Year Ending June 30	Normal Cost	Unfunded Actuarial Accrued Liability	Total
2009	2011	18.51%	11.28%	29.79%
2010	2012	18.52	14.47	32.99
2011	2013	17.33	19.11	36.44
2012	2014	18.31	21.31	39.62
2013	2015	17.49	40.00	57.49
2014*	2016	17.70	68.84	86.54
2015	2017	17.57	77.99	95.56
2016	2018	18.99	87.56	106.55
2017	2019	24.34	138.29	162.63
<b>2018**</b>	<b>2020</b>	<b>21.71</b>	<b>116.43</b>	<b>138.14</b>

\* Beginning with the June 30, 2014 valuation, the rates are for pension only, and applied to DB payroll only.

The statutory minimum employer contribution is 10% of payroll.

## Historical Summary of Statutory Actuarial Employer Pension Rates

Valuation Date June 30	Fiscal Year Ending June 30	Normal Cost	Unfunded Actuarial Accrued Liability	Total
2018	2020	21.71%	39.72%	61.43%*

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

## Historical Summary of Recommended Employer Health Rates

Valuation Date June 30	Fiscal Year Ending June 30	Normal Cost	Unfunded Actuarial Accrued Liability	Total
2014	2016	0.59%	(0.59)%	0.00%
2015	2017	0.56	(0.56)	0.00
2016	2018	0.58	(0.58)	0.00
2017	2019	0.51	(0.51)	0.00
<b>2018*</b>	<b>2020</b>	<b>0.49</b>	<b>(0.49)</b>	<b>0.00</b>

## **SECTION B**

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### **FUNDING RESULTS**

## Present Value of Future Benefits and Accrued Liability

	June 30,	
	2017	2018
<b>Pension</b>		
A. Accrued Liability		
1. For retirees and beneficiaries	\$ 765,456,170	\$ 677,039,606
2. For inactive/vested members	6,958,674	6,087,635
3. For present active members		
a. Value of expected future benefit payments	327,220,890	300,570,909
b. Value of future normal costs	87,682,219	78,813,825
c. Active member accrued liability: (a) - (b)	239,538,671	221,757,084
4. Total accrued liability	1,011,953,515	904,884,325
B. Present Assets (Funding Value)	310,764,980	283,453,428
C. Unfunded Accrued Liability: (A.4) - (B)	701,188,535	621,430,897
D. Funding Ratio: (B) / (A.4)	30.7%	31.3%
<b>Health</b>		
A. Accrued Liability		
1. For retirees and beneficiaries	\$ 10,494,117	\$ 9,740,025
2. For present active members		
a. Value of expected future benefit payments	4,849,155	4,872,462
b. Value of future normal costs	1,299,559	1,219,825
c. Active member accrued liability: (a) - (b)	3,549,596	3,652,637
3. Total accrued liability	14,043,713	13,392,662
B. Present Assets (Funding Value)	23,982,161	24,287,431
C. Unfunded Accrued Liability: (A.3) - (B)	(9,938,448)	(10,894,769)
D. Funding Ratio: (B) / (A.3)	170.8%	181.3%

## Derivation of Experience Gain/(Loss)

Actual experience will never (except by coincidence) exactly match assumed experience. Gains and losses often 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 a year-by-year comparative schedule.

	June 30,	
	2017	2018
(1) UAAL* at start of year	\$522,953,725	\$701,188,535
(2) Normal cost from last valuation	13,497,333	19,708,999
(3) Actual Contributions	37,276,864	39,567,856
(4) Interest Accrual	38,329,797	51,153,174
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	537,503,991	732,482,852
(6) Changes from plan provisions, methods and assumptions	159,145,675	(116,010,794)
(7) Change in reserve for future pension increases	-	-
(8) Expected UAAL after changes: (5) + (6) + (7)	696,649,666	616,472,058
(9) Actual UAAL at end of year	701,188,535	621,430,897
(10) Experience Gain/(Loss): (8) - (9)	(4,538,869)	(4,958,839)

\* Unfunded Actuarial Accrued Liabilities.

### FY 2018 Gains and Losses by Source

	Gain/(Loss)	% of Liabilities
Investment Return	\$(5,329,600)	(0.5)%
Salary Increases	(2,482,601)	(0.2)%
Retirement	332,153	0.0%
Turnover	(1,765,705)	(0.2)%
Disability	17,173	0.0%
Death-in-Service	163,258	0.0%
PBI	22,050,613	2.2%
Retiree Mortality	(271,329)	0.0%
Hall/Parker	(18,612,219)	(1.8)%
Other	939,418	0.1%
<b>Total</b>	<b>(4,958,839)</b>	<b>(0.5)%</b>



# Unfunded Actuarial Accrued Liabilities Comparative Statement

(Dollar amounts in \$'000s)

## Pension

Valuation Date	(1) Actuarial Accrued Liabilities (AAL)	(2) Valuation Assets	(3) Unfunded AAL	(4) Funded Ratio (2)/(1)	(5) Financing Period	(6) Payroll	Liability Ratio	
							(7) Unfunded (3)/(6)	(8) Total (1)/(6)
2009	\$ 506,191	\$360,950	\$ 145,241	71.3%	27	\$ 67,777	214.3%	746.8%
2010	535,771	357,342	178,429	66.7	26	66,442	268.5	806.4
2011	590,322	366,429	223,893	62.1	25	66,637	336.0	885.9
2012	610,229	356,346	253,883	58.4	24	67,934	373.7	898.3
2013	632,537	350,885	281,652	55.5	23	67,505	417.2	937.0
2014*	796,246	313,382	482,864	39.4	22	68,341	706.6	1,165.1
2015	813,450	315,387	498,063	38.8	21	61,933	804.2	1,313.4
2016	837,478	314,525	522,953	37.6	20	57,766	905.3	1,449.8
2017	1,011,954	310,765	701,189	30.7	19	50,878	1,378.2	1,989.0
<b>2018</b>	<b>904,884</b>	<b>283,453</b>	<b>621,431</b>	<b>31.3</b>	<b>26</b>	<b>50,939</b>	<b>1,219.9</b>	<b>1,776.4</b>

\* Pension only beginning with the June 30, 2014 valuation.

## Health

Valuation Date	(1) Actuarial Accrued Liabilities (AAL)	(2) Valuation Assets	(3) Unfunded AAL	(4) Funded Ratio (2)/(1)	(5) Financing Period	(6) Payroll	Liability Ratio	
							(7) Unfunded (3)/(6)	(8) Total (1)/(6)
2014	\$12,112	\$23,113	\$(11,001)	190.8%	22	\$ 68,341	(16.1)%	17.7%
2015	12,361	23,044	(10,683)	186.4	21	61,933	(17.2)	20.0
2016	12,854	23,509	(10,655)	182.9	20	57,766	(18.4)	22.3
2017	14,044	23,982	(9,938)	170.8	19	50,878	(19.5)	27.6
<b>2018</b>	<b>13,393</b>	<b>24,287</b>	<b>(10,894)</b>	<b>181.3</b>	<b>26</b>	<b>50,939</b>	<b>(21.4)</b>	<b>26.3</b>

The Unfunded Liability ratio gives a general measure of the ability to collect contributions to pay off the unfunded liabilities. The Total Liability ratio gives a longer term indication of the volatility of the contribution rate.

## Short Condition Test

**A short condition test** is one means of checking a system’s progress under its funding program. In a short condition test, the plan’s present assets (cash and investments) are compared with:

- 1) Member contributions on deposit;
- 2) The liabilities for future benefits to present retired lives; and
- 3) The liabilities for service already rendered by active and inactive members.

In a plan that has been following the discipline of pre-funding, the liabilities for member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active and inactive members (liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the plan.

### Short Condition Test

(in \$'000s)

#### Pension

Calendar Year	Aggregate Actuarial Liabilities for			Actuarial Assets	Portion of Actuarial Liabilities Covered by Assets		
	(1) Non-Retired Contributions	(2) Annuitants	(3) Non-Retired Members (Employer Financed Portion)		(1)	(2)	(3)
2009	\$40,924	\$324,200	\$141,067	\$360,950	100%	99%	0.0%
2010	43,283	349,417	143,071	357,342	100	90	0.0
2011	42,171	393,830	154,321	366,429	100	82	0.0
2012	47,274	400,005	162,949	356,346	100	77	0.0
2013	47,351	431,511	153,675	350,885	100	70	0.0
2014*	54,318	576,015	165,913	313,382	100	45	0.0
2015	56,387	601,711	155,353	315,387	100	43	0.0
2016	57,473	622,642	157,363	314,525	100	41	0.0
2017	56,414	765,456	190,083	310,765	100	33	0.0
<b>2018</b>	<b>44,813</b>	<b>677,040</b>	<b>183,031</b>	<b>283,453</b>	<b>100</b>	<b>35</b>	<b>0.0</b>

\* Pension only beginning with the June 30, 2014 valuation.

## Short Condition Test

### Health

Calendar Year	Aggregate Actuarial Liabilities for			Actuarial Assets	Portion of Actuarial Liabilities Covered by Assets		
	(1) Non-Retired Contributions	(2) Annuitants	(3) Non-Retired Members (Employer Financed Portion)		(1)	(2)	(3)
2014	\$0	\$ 7,684	\$4,428	\$23,113	100%	100%	348.5%
2015	0	8,237	4,124	23,044	100	100	359.0
2016	0	8,563	4,291	23,509	100	100	348.3
2017	0	10,494	3,550	23,982	100	100	379.9
<b>2018</b>	<b>0</b>	<b>9,740</b>	<b>3,653</b>	<b>24,287</b>	<b>100</b>	<b>100</b>	<b>398.2</b>

## **SECTION C**

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### **FUND ASSETS**

## Development of Pension Funding Value of Assets (7-Year Smoothing)

Year Ended June 30:	2018	2019	2020	2021	2022	2023	2024
A. Funding Value Beginning of Year	\$ 310,764,980						
B. Market Value End of Year	274,746,486						
C. Market Value Beginning of Year	298,118,144						
D. Non-Investment Net Cash Flow	(43,373,732)						
E. Investment Income							
E1. Total: B-C-D	20,002,074						
E2. Amount for Immediate Recognition: (7.40%)	21,391,780						
E3. Amount for Phased-in Recognition: E1-E2	(1,389,706)						
F. Phased-in Recognition of Investment Income							
F1. Current Year: E3 / 7	(198,529)						
F2. First Prior Year	1,448,275	\$ (198,529)					
F3. Second Prior Year	(3,206,762)	1,448,275	\$ (198,529)				
F4. Third Prior Year	(1,951,168)	(3,206,762)	1,448,275	\$ (198,529)			
F5. Fourth Prior Year	1,735,522	(1,951,168)	(3,206,762)	1,448,275	\$ (198,529)		
F6. Fifth Prior Year	452,369	1,735,522	(1,951,168)	(3,206,762)	1,448,275	\$ (198,529)	
F7. Sixth Prior Year	(3,609,307)	452,366	1,735,522	(1,951,166)	(3,206,763)	1,448,276	\$ (198,532)
F8. Total Recognized Investment Gain	(5,329,600)	(1,720,296)	(2,172,662)	(3,908,182)	(1,957,017)	1,249,747	(198,532)
G. Funding Value End of Year							
G1. Preliminary Funding Value End of Year: (A+D+E2+F1:F7)	283,453,428						
G2. Upper Corridor: (120% x B)	329,695,783						
G3. Lower Corridor: (80% x B)	219,797,189						
G4. End of Year: (G1 subject to max of G2 and min of G3)	283,453,428						
H. Difference Between Market Value & Funding Value: (B-G4)	(8,706,942)	(6,986,646)	(4,813,984)	(905,802)	1,051,215	(198,532)	0
I. Market Rate of Return	7.2%						
J. Recognized Rate of Return	5.6%						
K. Ratio of Funding Value to Market Value	103.2%						

The funding value of assets recognizes assumed investment return (line E2) fully each year. Differences between actual and assumed investment return (line E3) are phased-in over a closed 7-year period. During periods when investment performance exceeds the assumed rate, funding value of assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, funding value of assets will tend to be greater than market value. The funding value of assets is **unbiased** with respect to market value. At any time it may be either greater or less than market value. If actual and assumed rates of investment return are exactly equal for 7 consecutive years, the funding value will become equal to market value.

## Development of Health Funding Value of Assets (7-Year Smoothing)

Year Ended June 30:	2018	2019	2020	2021	2022	2023	2024
A. Funding Value Beginning of Year	\$ 23,982,161						
B. Market Value End of Year	23,726,589						
C. Market Value Beginning of Year	23,149,855						
D. Non-Investment Net Cash Flow	(1,072,001)						
E. Investment Income							
E1. Total: B-C-D	1,648,735						
E2. Amount for Immediate Recognition: (7.40%)	1,735,016						
E3. Amount for Phased-in Recognition: E1-E2	(86,281)						
F. Phased-in Recognition of Investment Income							
F1. Current Year: E3 / 7	(12,326)						
F2. First Prior Year	118,122	\$ (12,326)					
F3. Second Prior Year	(236,920)	118,122	\$ (12,326)				
F4. Third Prior Year	(138,912)	(236,920)	118,122	\$ (12,326)			
F5. Fourth Prior Year	128,006	(138,912)	(236,920)	118,122	\$ (12,326)		
F6. Fifth Prior Year	30,910	128,006	(138,912)	(236,920)	118,122	\$ (12,326)	
F7. Sixth Prior Year	(246,625)	30,912	128,006	(138,912)	(236,922)	118,119	\$ (12,325)
F8. Total Recognized Investment Gain	(357,745)	(111,118)	(142,030)	(270,036)	(131,126)	105,793	(12,325)
G. Funding Value End of Year							
G1. Preliminary Funding Value End of Year: (A+D+E2+F1:F7)	24,287,431						
G2. Upper Corridor: (120% x B)	28,471,907						
G3. Lower Corridor: (80% x B)	18,981,271						
G4. End of Year: (G1 subject to max of G2 and min of G3)	24,287,431						
H. Difference Between Market Value & Funding Value: (B-G4)	(560,842)	(449,724)	(307,694)	(37,658)	93,468	(12,325)	0
I. Market Rate of Return	7.3%						
J. Recognized Rate of Return	5.9%						
K. Ratio of Funding Value to Market Value	102.4%						

The funding value of assets recognizes assumed investment return (line E2) fully each year. Differences between actual and assumed investment return (line E3) are phased-in over a closed 7-year period. During periods when investment performance exceeds the assumed rate, funding value of assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, funding value of assets will tend to be greater than market value. The funding value of assets is **unbiased** with respect to market value. At any time it may be either greater or less than market value. If actual and assumed rates of investment return are exactly equal for 7 consecutive years, the funding value will become equal to market value.

## Revenues and Disbursements

	<b>Pension</b>	
	<u>2017</u>	<u>2018</u>
<b>Market Value at the Beginning of Year:</b>	\$ 288,994,996	\$ 298,118,144
<b>Revenues:</b>		
a. Member contributions	\$ 8,136,769	\$ 5,080,822
b. Employer contributions	29,091,116	34,230,259
c. Interest and dividends	2,085,123	2,613,287
d. Investment gain	32,567,796	19,376,060
e. Net transfers	48,979	256,775
f. Total	<u>\$ 71,929,783</u>	<u>\$ 61,557,203</u>
<b>Disbursements:</b>		
a. Refunds of member contributions	\$ 264,327	\$ 55,413
b. Hall/Parker Settlement	-	18,612,219
c. Pension benefits	60,453,101	63,969,647
d. Investment expenses	1,814,951	1,987,273
e. Administrative expenses	274,256	304,309
f. Total	<u>\$ 62,806,635</u>	<u>\$ 84,928,861</u>
<b>Reserve Increase:</b>		
Total revenues minus total disbursements	\$ 9,123,148	\$ (23,371,658)
<b>Market Value at the End of Year:</b>	\$ 298,118,144	\$ 274,746,486
	<b>Health</b>	
	<u>2017</u>	<u>2018</u>
<b>Market Value at the Beginning of Year:</b>	\$ 21,667,056	\$ 23,149,855
<b>Revenues:</b>		
a. Health Insurance contributions	\$ -	\$ -
b. Interest, dividends and investment gain	2,690,913	1,812,542
c. Total	<u>\$ 2,690,913</u>	<u>\$ 1,812,542</u>
<b>Disbursements:</b>	\$ 1,208,114	\$ 1,235,808
<b>Reserve Increase:</b>		
Total revenues minus total disbursements	\$ 1,482,799	\$ 576,734
<b>Market Value at the End of Year:</b>	\$ 23,149,855	\$ 23,726,589

## **SECTION D**

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### **CENSUS DATA**



## June 30, 2018 Valuation Data Summary

For purposes of the June 30, 2018 valuation, information on 1,932 covered persons was furnished. These people may be briefly described as follows:

	No.	Averages			
		Age	Years of Service	Annual Pay or Retirement Allowance	
				2018	2017
Actives	579	58.0	11.4	\$87,978	\$84,796
Retirees & Beneficiaries	1,203	73.4		53,120	53,084
Inactive/Vested	150	56.1			
	1,932				

In addition, Defined Contribution payroll of \$10,977,584 was provided.

## Active Members

### Members in Active Service as of June 30, 2018 by Years of Service

Age	Years of Service							Total Count	Total Pay	Average Pay
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 & Up			
Under 25								-	\$ -	\$ -
25 - 29								-	-	-
30 - 34		6						6	276,516	46,086
35 - 39	2	9	2					13	582,286	44,791
40 - 44	1	24	5	3				33	1,795,239	54,401
45 - 49	5	39	11	4				59	5,555,685	94,164
50 - 54		42	19	9	5			75	7,774,405	103,659
55 - 59	8	47	42	20	2	1	1	121	12,147,968	100,396
60 - 64	5	43	36	37	10	4	1	136	13,294,694	97,755
65 and Over	6	44	40	28	9	7	2	136	9,512,310	69,943
<b>Total</b>	<b>27</b>	<b>254</b>	<b>155</b>	<b>101</b>	<b>26</b>	<b>12</b>	<b>4</b>	<b>579</b>	<b>\$ 50,939,103</b>	<b>\$87,978</b>

## Inactive/Vested Members

Age	Years of Service					Total Count
	0 - 4	5 - 9	10 - 14	15 - 19	20 & Up	
Under 30						
30 - 39	5	4				9
40 - 44	9	3		1		13
45 - 49	11	8	2			21
50 - 54	11	6	2			19
55 - 59	13	15	1	1		30
60 - 69	22	20	3	1		46
70 and Over	6	2	1	2	1	12
<b>Total</b>	<b>77</b>	<b>58</b>	<b>9</b>	<b>5</b>	<b>1</b>	<b>150</b>

## Retirees and Beneficiaries

Attained Ages	Males		Females		Total	
	No.	Annual Pension Benefits	No.	Annual Pension Benefits	No.	Annual Pension Benefits
Under 25	0	\$ 0	0	\$ 0	0	\$ 0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	6	57,808	0	0	6	57,808
45-49	8	204,018	4	74,921	12	278,939
50-54	16	475,403	8	348,963	24	824,366
55-59	27	1,319,331	17	787,669	44	2,107,000
60-64	66	3,329,162	52	2,681,857	118	6,011,019
65-69	150	9,883,537	99	6,149,515	249	16,033,052
70-74	144	8,861,563	95	4,446,773	239	13,308,336
75-79	138	7,623,167	78	2,916,419	216	10,539,586
80-84	82	4,663,062	67	2,955,918	149	7,618,980
85-89	50	3,277,812	42	1,740,810	92	5,018,622
90-94	20	861,325	26	955,570	46	1,816,895
95-99	4	228,689	4	60,616	8	289,305
100 and Over	0	0	0	0	0	0
<b>Totals</b>	<b>711</b>	<b>\$40,784,877</b>	<b>492</b>	<b>\$23,119,031</b>	<b>1,203</b>	<b>\$63,903,908</b>

Pension Being Paid		Number	Annual Pensions	Average Pensions
Retired Members	Service Pensions	970	\$53,507,716	\$ 55,163
	Disability Pensions	17	1,781,992	104,823
Totals		987	55,289,708	56,018
Survivors of Members	Spouses	214	8,544,973	39,930
	Children with Guardians	2	69,227	34,614
Total		216	8,614,200	39,881
<b>Total Pension being Paid</b>		<b>1,203</b>	<b>\$63,903,908</b>	<b>\$ 53,120</b>
		<b>Average Age</b>	<b>Average Service</b>	<b>Average Age at Retirement</b>
Normal Retired Members		72.4	14.4	61.3
Disability Retired Members		70.1	12.1	58.8
Spouse Beneficiaries		78.4	13.8	57.7

## Pensions Being Paid Historical Schedule

Valuation Date June 30	No.	Annual Pensions	% Incr. in Annual Pensions	Average Pension	Present Value of Pensions	
					Total	Average
2009	905	\$36,262,571	10.4%	\$40,069	\$317,313,745	\$350,623
2010	921	39,337,025	8.5	42,711	342,362,491	371,729
2011	990	43,461,664	10.5	43,901	386,446,172	390,350
2012	992	43,910,140	1.0	44,264	392,503,050	395,668
2013	1,057	47,203,698	7.5	44,658	423,992,661	401,128
2014	1,053	53,005,466	12.3	50,338	576,014,997	547,023
2015	1,116	56,744,053	7.1	50,846	601,710,784	539,167
2016	1,123	58,091,729	2.4	51,729	622,642,155	554,445
2017	1,196	63,488,377	9.3	53,084	765,456,170	640,014
<b>2018</b>	<b>1,203</b>	<b>63,903,908</b>	<b>0.7</b>	<b>53,120</b>	<b>677,039,606</b>	<b>562,793</b>

## SECTION E

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### **METHODS AND ASSUMPTIONS**

## Valuation Methods

**Actuarial Cost Method** - Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using the Entry Age Normal Cost Method having the following characteristics:

- (i) The annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate to the value of the member's pension at time of retirement; and
- (ii) Each annual normal cost is a constant percentage of the member's year by year projected compensation.

The entry-age actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's compensation between the entry age of the member and the assumed exit ages.

**Actuarial Accrued Liability** - The actuarial accrued liability is the portion of actuarial present value allocated to service rendered prior to the valuation date, including experience gains and losses. The actuarial accrued liability was computed using the assumptions summarized in this report.

**Actuarial Value of System Assets** - The actuarial value of assets recognizes assumed investment income fully each year. Differences between actual and assumed investment income are phased-in over a closed seven-year period subject to a 20% corridor. During periods when investment performance exceeds the assumed rate, actuarial value of assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, the actuarial value of assets will tend to be greater than market value.

**Financing of Unfunded Actuarial Accrued Liabilities** - The actuarial value of assets were subtracted from the computed actuarial accrued liability. Any unfunded amount would be amortized as follows:

- Statutory funding: as a level percent-of-payroll (combined payroll for defined benefit and defined contribution members) over a closed period of 26 years.
- Closed Plan funding: as a level dollar amount over a closed period of 18 years.

If the actuarial value of assets exceeded the actuarial accrued liability, the excess was amortized over an open period of 20 years and applied as a credit to reduce the normal cost which otherwise would be payable.

## Valuation Assumptions

**Funded Ratio** - Unless otherwise indicated, a funded ratio measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

1. The measurement is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations, in other words, of transferring the obligations to an unrelated third party in an arm's length market value type transaction.
2. The measurement is dependent upon the actuarial cost method which, in combination with the plan's amortization policy, affects the timing and amounts of future contributions. The amount of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon actuarial assumptions. A funded ratio measurement in this report of 100% is not synonymous with no required future contributions. If the funded ratio were 100%, the plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
3. The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets, unless the market value of assets is used in the measurement.

**Stabilization Reserve** - Beginning with the June 30, 2007 valuation and with each subsequent valuation, if the actuarial value of assets exceeds the actuarial accrued liabilities, one half of this excess in each year is allocated to a Stabilization Reserve. The Stabilization Reserve is excluded from the calculation of the employer contribution rates. The Stabilization Reserve continues to accumulate as long as the plan is over-funded. Once the plan becomes under-funded, the Stabilization Reserve will be used to dampen increases in the employer contribution rates. With the June 30, 2018 valuation the plan is underfunded and the Stabilization Reserve is zero.



## Valuation Assumptions

Assumptions for this valuation are based on the most recent experience study performed in 2017.

**The rate of investment return** was 7.40% a year, compounded annually net of investment and administrative expenses.

The assumed real return is the rate of return in excess of wage growth. Considering other assumptions used in the valuation, the 7.40% nominal rate translates to a net real return over wage growth of 3.90% a year.

**The rates of pay increase** used for individual members are shown below. This assumption is used to project a member's current pay to the pay upon which Plan benefits will be based. This assumption was first used for the June 30, 2017 valuation of the Plan.

Sample Ages	Salary Increase Assumptions for an Individual Member		
	Merit & Seniority	Base (Economy)	Increase Next Year
20	0.25%	3.5%	3.75%
25	0.25%	3.5%	3.75%
30	0.25%	3.5%	3.75%
35	0.25%	3.5%	3.75%
40	0.25%	3.5%	3.75%
45	0.25%	3.5%	3.75%
50	0.25%	3.5%	3.75%
55	0.25%	3.5%	3.75%
60	0.25%	3.5%	3.75%

**The price inflation** component of the investment return rate and the wage inflation rate is assumed to be 2.50%.

## Valuation Assumptions

**Mortality Tables.** The mortality rates utilized are based upon the RP-2014 tables, as extended, and include a margin for future mortality improvements projected using a fully generational improvement scale. The tables used were as follows:

- **Healthy Pre-Retirement:** The RP-2014 Employee Mortality Tables, extended via cubic spline, with future mortality improvements assumed each year using scale MP-2016.
- **Healthy Post-Retirement:** The RP-2014 Healthy Annuitant Mortality Tables, extended via cubic spline, with future mortality improvements assumed each year using scale MP-2016.
- **Disability Retirement:** The RP-2014 Disabled Mortality Table, extended via cubic spline, with future mortality improvements assumed each year using scale MP-2016.

This assumption was first used for the June 30, 2017 valuation of the Plan.

Sample Ages in 2018	% Dying Next Year			
	Health Post-Retirement		Disability Retirement	
	Males	Females	Males	Females
40	0.1796%	0.1522%	1.2540%	0.6579%
45	0.2603%	0.2044%	1.5941%	0.8891%
50	0.3818%	0.2662%	1.9160%	1.1453%
55	0.5526%	0.3591%	2.2518%	1.4355%
60	0.7707%	0.5207%	2.6386%	1.7050%
65	1.0919%	0.7859%	3.1413%	2.0370%
70	1.6240%	1.2276%	3.9074%	2.6906%
75	2.5592%	1.9953%	5.1791%	3.9114%
80	4.2622%	3.3481%	7.3019%	5.8649%

Sample Ages in 2018	% Dying Next Year	
	Healthy Pre-Retirement	
	Males	Females
50	0.1188%	0.1060%
55	0.2015%	0.1659%
60	0.3487%	0.2449%
65	0.6155%	0.3609%

## Valuation Assumptions

### Mortality Tables (continued)

Sample Attained Ages	Healthy Post-Retirement		Healthy Pre-Retirement		Disabled Retirement	
	Future Life Expectancy (Years)*		Future Life Expectancy (Years)*		Future Life Expectancy (Years)*	
	Men	Women	Men	Women	Men	Women
55	30.41	32.97	34.57	36.22	22.06	26.03
60	25.84	28.17	29.54	31.19	19.00	22.41
65	21.48	23.58	24.74	26.27	16.08	18.89
70	17.37	19.21	20.23	21.47	13.27	15.44
75	13.55	15.14	16.00	16.87	10.58	12.24
80	10.12	11.47	12.12	12.53	8.12	9.45

\* Based on retirements in 2018. Retirements in future years will reflect improvements in life expectancy.

**Retirement Rates:** Age-related rates for employees who were hired before January 1, 2012 are shown below, and were first used for the June 30, 2017 valuation of the Plan:

Age at Retirement	EORP
62	15%
63	15%
64	15%
65	15%
66	15%
67	15%
68	15%
69	15%
70	15%
71	15%
72	15%
73	15%
74	15%
75	100%

These retirement rates are applicable to employees attaining age 62 before attaining 20 years of service.

## Valuation Assumptions

Service-related rates for employees who were hired before January 1, 2012 are shown below, and were first used for the June 30, 2017 valuation of the Plan:

Service at Retirement	EORP
20	40%
21	30%
22	15%
23	15%
24	15%
25	15%
26	15%
27	15%
28	15%
29	15%
30	15%
31	15%
32	15%
33	15%
34	15%
35	100%

These retirement rates are applicable to employees attaining 20 years of service before attaining age 62.

Age-related rates for employees who were hired after January 1, 2012 are shown below:

Age at Retirement	EORP
62	40%
63	30%
64	20%
65	15%
66	15%
67	45%
68	45%
69	15%
70	100%

## Valuation Assumptions

**Early Retirement Rates:** Service-related rates for employees who were hired before January 1, 2012 are shown below, and were first used for the June 30, 2017 valuation of the Plan:

Service at Retirement	EORP
5	3.5%
6	3.5%
7	3.5%
8	3.5%
9	3.5%
10	3.5%
11	3.5%
12	3.5%
13	3.5%
14	3.5%
15	3.5%
16	3.5%
17	3.5%
18	3.5%
19	3.5%

**Rates of disability** among active members used in the valuation are shown below. This assumption was first used for the June 30, 2017 valuation of the Plan.

Sample Ages	% of Active Members Becoming Disabled Within Next Year
	EORP
20	0.00%
25	0.00%
30	0.00%
35	0.00%
40	0.00%
45	0.00%
50	0.13%
55	0.17%

## Valuation Assumptions

**Rates of separation from active membership** used in the valuation are shown below (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment. This assumption was first used for the June 30, 2017 valuation of the Plan.

Sample Ages	Service Index	% of Active Members Separating Within Next Year
All	1	5.50%
	2	5.50%
	3	5.50%
	4	5.50%
	5	5.50%
	6	5.50%
	7	5.50%
	8	5.50%
	9	5.50%
	10	5.50%
	11	2.50%
	12	2.50%
	13	2.50%
	14	2.50%
	15	2.50%
	16	2.50%
	17	2.50%
	18	2.50%
	19	2.50%
	20	2.50%
	21 & Over	2.00%

# Summary of Assumptions Used

## June 30, 2018

### Miscellaneous and Technical Assumptions

<b>Marriage Assumption:</b>	80% of males and 70% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
<b>Pay Increase Timing:</b>	Six months after the valuation date. This means that the pays received are assumed to be annual rates of pay on the valuation date as opposed to W-2 type earnings for the prior 12 months.
<b>Decrement Timing:</b>	Decrements of all types are assumed to occur mid-year.
<b>Eligibility Testing:</b>	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
<b>Decrement Relativity:</b>	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
<b>Decrement Operation:</b>	Disability and turnover decrements do not operate during retirement eligibility.
<b>Service Credit Accruals:</b>	It is assumed that members accrue one year of service credit per year.
<b>Incidence of Contributions:</b>	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
<b>Normal Form of Benefit:</b>	A straight life payment is the assumed normal form of benefit for members who are not married, and the 75% Joint and Survivor form of payment with no reduction, for married members. 80% of males and 70% of females are assumed to be married at time of retirement.
<b>Benefit Service:</b>	Exact fractional service is used to determine the amount of benefit payable.
<b>Health Care Utilization:</b>	70% of future retirees are expected to utilize health care. 80% of males and 70% of females are assumed to be married at time of retirement.

# Summary of Assumptions Used

## June 30, 2018

### Miscellaneous and Technical Assumptions

**Assumed Future Cost-of-Living Adjustments:**

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. We have assumed that to be 1.75% for this valuation.

**Financing of Unfunded Actuarial Accrued Liabilities (Money in the Pipes):**

The rate-setting valuation projects the unfunded actuarial accrued liability to the beginning of the applicable fiscal year to determine the applicable unfunded amortization rate.

**Maintenance of Effort:**

For Tier 2 members, the amount of member contributions that exceed 7.00% of the member's compensation will NOT be used to reduce the employer's contribution requirement. Therefore this Maintenance of Effort is subtracted from assets prior to calculating the contribution rate.



## **SECTION F**

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### **PLAN PROVISIONS**

# Summary of Plan Provisions Valued and/or Considered

## ***Average Yearly Salary.***

### **For members hired before January 1, 2012:**

Effective July 17, 1994, average yearly salary is the elected official's highest average salary during a three consecutive year period within the final 10 years of service. For elected officials whose membership commenced before July 17, 1994, average yearly salary will generally be final salary at termination of service.

### **For members hired on or after January 1, 2012:**

Average yearly salary is the elected official's highest average salary during a five-consecutive year period within the last 10 years of service.

## ***Normal Retirement (no reduction for age).***

### **For members hired before January 1, 2012:**

An elected official may retire upon meeting one of the following age and service requirements:

- Age 62 years with 10 or more years of credited service; and
- Age 65 years with 5 or more years of credited service.

Effective August 6, 1999, a member may retire at any age with 20 or more years of credited service.

The amount of a normal retirement pension is four percent of average yearly salary multiplied by years of credited service. The maximum is 80 percent of average yearly salary.

### **For members hired on or after January 1, 2012:**

An elected official may retire upon meeting one of the following age and service requirements:

- 65 years of age with 5 or more years of credited service; or
- 62 years of age with 10 or more years of service.

The amount of a normal retirement pension is three percent of average yearly salary multiplied by years of credited service. The maximum is 75 percent of average yearly salary.

## ***Early Retirement (reduction for age).***

### **For members hired before January 1, 2012:**

A member with at least five years of credited service may retire before meeting the age and service requirement for normal retirement. For those members who retire under this August 6, 1999 provision, the amount of an early retirement pension is 4% of the member's average yearly salary multiplied by the years of the member's credited service, not to exceed 80% of the member's average yearly salary then reducing that amount by three-twelfths of one percent for each month early retirement precedes the member's normal retirement age. The maximum reduction is 30%.

# Summary of Plan Provisions Valued and/or Considered

## **For members hired on or after January 1, 2012:**

No early retirement benefit.

***Vested Termination (deferred retirement).*** An elected official with five or more years of credited service retains entitlement to a deferred pension upon ceasing to be an elected official if the official's accumulated contributions are left on deposit in the Retirement Plan. The amount of pension is determined in the same manner as a normal or early pension, whichever is applicable.

## ***Disability Retirement.***

### **For members hired before January 1, 2012:**

An elected official who becomes incapacitated for the duties of office may be retired by the Board of Trustees. The amount of pension is 80 percent of three-year average salary if the elected official has at least 10 years of credited service, 40 percent of three-year average salary if the elected official has five but less than 10 years of credited service, and 20 percent of three-year average salary if the elected official has less than five years of credited service.

### **For members hired on or after January 1, 2012:**

An elected official who becomes incapacitated for the duties of office may be retired by the Board of Trustees. The amount of pension is 75 percent of five-year average salary if the elected official has at least 10 years of credited service, 37.5 percent of five-year average salary if the elected official has five but less than 10 years of credited service, and 18.75 percent of five-year average salary if the elected official has less than five years of credited service.

## ***Survivor Pensions.***

### **For members hired before January 1, 2012:**

Payable to the eligible beneficiary of a retired elected official or an active and inactive elected official. An eligible beneficiary is a surviving spouse who was married to the retired active or inactive elected official for at least two years; or, if there is no eligible spouse, a minor child. A surviving spouse's pension terminates upon death. A surviving child's pension terminates upon attainment of age 18 years, marriage, adoption or death, unless the child is a full time student under the age of 23 or was disabled prior to age 18. The amount of a surviving spouse's pension is 75% of the pension being paid the deceased retired elected official or the disability pension accrued by the deceased active elected official. The amount of a surviving child's pension is an equal share of the amount of a surviving spouse's pension.

### **For members hired on or after January 1, 2012:**

Payable to the eligible beneficiary of a retired elected official or an active and inactive elected official. An eligible beneficiary is a surviving spouse who was married to the retired active or inactive elected official for at least two years; or, if there is no eligible spouse, a minor child. A surviving spouse's pension terminates upon death. A surviving child's pension terminates upon attainment of age 18 years, marriage, adoption or death, unless the child is a full time student under the age of 23 or was disabled prior to age 18. The amount of a surviving spouse's pension is 50% of the pension being paid the deceased retired elected official or the disability pension accrued by the deceased active elected official. The amount of a surviving child's pension is an equal share of the amount of a surviving spouse's pension. A higher survivor benefit may be elected, but actuarial reduction will be applied to the benefit elected.

## Summary of Plan Provisions Valued and/or Considered

**Other Terminations.** The elected official is paid a refund of accumulated member contributions, plus an additional amount if the member has at least five years of service credit. The amount is a percent of the member contribution amount, ranging from 25% to 100% (with at least 10 years of service credit).

**Cost-of-Living Adjustment.**

Each retired member or survivor of a retired member is eligible to receive a compounding cost-of-living adjustment in the base benefit. The first payment shall be made on July 1, 2020 and every July 1 thereafter.

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% per year.

**Post-Retirement Health Insurance Subsidy.** Payable on behalf of retired members and survivors who elect coverage provided by the state or participating employer. The monthly amounts cannot exceed:

Member Only		With Dependents		
Not Medicare Eligible	Medicare Eligible	All Not Medicare Eligible	All Medicare Eligible	One With Medicare
\$150	\$100	\$260	\$170	\$215

Retired members or survivors who have between five and eight years of credited service are eligible for a proportionate share of the full subsidy.

**Employer Contributions.** A designated portion of court docket fees. Municipal employers contribute the computed normal cost rate plus a payment to amortize their unfunded actuarial accrued liability (UAAL) over a period not to exceed 30 years (a lump sum payment for UAAL is required for municipal employers entering after September 15, 1989). Pursuant to 1989 legislation, state and county employers contribute the difference between the actuarially determined contribution requirement and designated docket fees.

**Members Contributions.** Member contribution rates are shown in the schedule below. Additional member contributions DO NOT reduce the employer contribution; this means there is a “maintenance of effort” provision.

- Tier 1 members – 7.0%
- Tier 2 members – 13.0%

Employees who were appointed or elected on or after January 1, 2014 and do not have an active, inactive or retired member account with the EORP or the Arizona State Retirement System, will be required to participate in the Elected Officials’ Defined Contribution Retirement System (EODCRS) Plan.

## **APPENDIX I**

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### **HISTORICAL PENSION CONTRIBUTION RECOMMENDATION – (CLOSED PLAN BASIS)**

## Historical Pension Contribution Recommendation (Closed Plan Basis)

The EORP Statutory contribution rate is developed using not only payroll of the members receiving Defined Benefits (DB) from this Plan, but also factors in payroll for future members who receive no Defined Benefits from this plan and receive Defined Contribution (DC) plan benefits from a different plan. In this way, the statutory contribution is based on a level-percent of payroll approach that considers both DB and DC pay.

When considering the Defined Benefit Plan on its own, level percent financing cannot apply due to the ever decreasing payroll for members covered by the Plan. In this case, unfunded liabilities are amortized on a level-dollar basis shown in the development on the following page. The chart below compares the differences in calculations and resulting contribution dollars for the statutory funding approach versus a “Closed Plan” approach shown in previous valuations:

	<b>Payroll</b>	<b>Amortization Method</b>	<b>Amortization Period</b>	<b>Court Fees</b>	<b>Contribution Dollars (FYE2019)</b>
Statutory Funding	Combined Defined Benefit Members/ Defined Contribution Members	Level Percent of (Combined) Payroll	26 Years	In addition to Rate * Payroll	\$52.6 million
Closed Plan Funding	Defined Benefit Members Only	Level Dollar	18 Years	Not considered	\$70.4 million

The EORP statutory contribution rate is shown on page A-2. The information on the following page has been provided annually since EORP plan closure to new members.

## Contribution Requirements – Closed Plan Basis

### Development of Employer Contributions for the Indicated Valuation Date

Contribution for Fiscal Year Ending	June 30,	
	2017 2019	2018 2020
<b>Pension</b>		
Total normal cost requirement	31.34%	28.71%
Employee Contributions		
Total employee rate	8.30%	8.05%
Less portion used to pay down unfunded liability	<u>1.30</u>	<u>1.05</u>
Net employee rate	<u>7.00%</u>	<u>7.00%</u>
Employer normal cost requirement	24.34%	21.71%
Amortization of unfunded liabilities	<u>138.29%</u>	<u>116.43%</u>
<b>Total recommended pension contribution rate</b>	<b>162.63%</b>	<b>138.14%</b>
<b>Health</b>		
Normal cost requirement	0.51%	0.49%
Amortization of unfunded liabilities	<u>(0.51)%</u>	<u>(0.49)%</u>
<b>Total health contribution requirement</b>	<b>0.00%</b>	<b>0.00%</b>
<b>Total contribution rate</b>	<b>162.63%</b>	<b>138.14%</b>
<b>Estimated Dollar Pension Contribution</b>	<b>\$ 82,742,169</b>	<b>\$ 70,367,277</b>
<b>Estimated Dollar Health Contribution</b>	<b>\$ -</b>	<b>\$ -</b>

Actuarial accrued liability, \$904,884,325, exceeded the funding value of assets, which was \$283,453,428. The resulting unfunded actuarial accrued liabilities (after netting out the maintenance of effort reserve of \$6,314,821 from the actuarial value of assets) were amortized as a level dollar amount over a closed period of 18 years ending June 30, 2037 and added to the employer normal cost. The 18-year period is a one year decrease from last year. This method is appropriate for plans that are closed to new hires. The actual funding contribution is defined under statute (see pages A-2 and A-3).

## **SECTION G**

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### **GLOSSARY**



## Glossary

<b><i>Actuarial Accrued Liability</i></b>	The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as “accrued liability” or “past service liability.”
<b><i>Accrued Service</i></b>	The service credited under the plan which was rendered before the date of the actuarial valuation.
<b><i>Actuarial Assumptions</i></b>	Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.
<b><i>Actuarial Cost Method</i></b>	A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future plan benefits” between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”
<b><i>Actuarial Equivalent</i></b>	A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.
<b><i>Actuarial Present Value</i></b>	The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.
<b><i>Amortization</i></b>	Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.
<b><i>Experience Gain/(Loss)</i></b>	A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.
<b><i>Normal Cost</i></b>	The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as “current service cost.” Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

## Glossary

<b><i>Reserve Account</i></b>	An account used to indicate that funds have been set aside for a specific purpose and is not generally available for other uses.
<b><i>Unfunded Actuarial Accrued Liability</i></b>	The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as “unfunded accrued liability.”
<b><i>Valuation Assets</i></b>	The value of current plan assets recognized for valuation purposes. Generally based on market value plus a portion of unrealized appreciation or depreciation.

December 17, 2018

Mr. Jared A. Smout, Administrator  
Arizona Elected Officials' Retirement Plan (EORP)  
3010 E. Camelback Road, Suite 200  
Phoenix, Arizona 85016

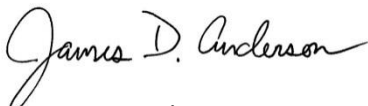
**Re: Report of the June 30, 2018 Actuarial Valuation of EORP**

Dear Mr. Smout:

Enclosed please find five copies of this report.

Any questions or comments you may develop will be welcome.

Sincerely,



James D. Anderson, FSA, EA, FCA, MAAA

JDA:rmn  
Enclosures

