Public Employees Retirement Association of New Mexico

Annual Actuarial Valuation - Funding

As of June 30, 2022

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October 27, 2022

The Retirement Board
Public Employees Retirement Association
33 Plaza La Prensa
Santa Fe, NM 87507

Re: Actuarial Valuation for Funding Purposes as of June 30, 2022

Members of the Board:

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the Public Employees Retirement Association of New Mexico (PERA) as of June 30, 2022. This report was prepared at the request of the Board and is intended for use by PERA staff and those designated or approved by the Board. This report may be provided to parties other than PERA only in its entirety and only with the permission of the Board.

Actuarial Valuation

The primary purposes of the actuarial valuation report are to determine the adequacy of the current employer contributions for each PERA division, describe the current financial condition of each PERA division, analyze changes in the condition of each PERA division, and provide various summaries of the data.

Plan Provisions

Our actuarial valuation as of June 30, 2022 reflects the benefit and contribution provisions that were in effect as of June 30, 2022. The current plan provisions are outlined in Section E of this report.

Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees based on the experience investigation that covered the four-year period from July 1, 2015 through June 30, 2019. The current actuarial assumptions and methods are outlined in Section F of this report.

Data

This valuation was based upon information as of June 30, 2022, furnished by PERA staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal 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 PERA staff.

Certification

All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of, where applicable, the Internal Revenue Code and ERISA.

The signing actuaries are independent of the plan sponsor. The undersigned are Enrolled Actuaries, Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries. Finally, each of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

R. Ryan Falls, FSA, EA, MAAA
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Janie Shaw, ASA, EA, MAAA
Consultant & Actuary

Table of Contents

SECTION A

EXECUTIVE SUMMARY

Executive Summary

All PERA Divisions

Item	2022	2021
Membership		
• Number of		
- Active members	46,901	47,679
- Retirees, beneficiaries, and disabled	44,115	42,743
- Inactive, vested	6,973	6,565
- Inactive, nonvested	19,873	18,235
- Total	117,862	115,222
• Valuation Payroll	$ 2,537,114,966	$ 2,460,173,934
Statutory contribution rates (Effective)	FY 2023	FY 2022
• Members*	12.99%	12.41%
• Employer*	16.18%	15.73%
Additional Annual Appropriation	0	0
Assets		
• Market value (MVA)	$ 16,309,242,875	$ 17,764,109,282
• Actuarial value (AVA)	$ 16,735,492,929	$ 16,460,210,558
• Return on market value	-4.3%	26.5%
• Return on actuarial value	6.1%	9.1%
Actuarial Information on AVA (smoothed)		
• Normal cost % (Effective)	17.78%	16.24%
• Actuarial accrued liability	$ 23,924,483,762	$ 23,042,469,829
• Unfunded actuarial accrued liability (UAAL)	$ 7,188,990,833	$ 6,582,259,271
• Funded ratio	70.0%	71.4%
Actuarially Determined Contribution (ADC)		
• ADC Rate	36.57%	34.01%
• ADC Amount	$ 927,822,943	$ 836,768,323
Total Anticipated Contribution Amount	$ 740,076,436	$ 692,292,945
(Excess)/Deficiency of Anticipated Contributions	$ 187,746,507	$ 144,475,378
(Excess)/Deficiency of Anticipated Contribution Rate	7.40%	5.87%
Amortization Period	59 years	72 years
Actuarial Information on MVA		
• Unfunded actuarial accrued liability (UAAL)	$ 7,615,240,887	$ 5,278,360,547
• Funded ratio	68.2%	77.1%

** For State plans, employee and employer rates will increase by 0.5% of payroll effective July 1, 2023. For Municipal plans, employee and employer rates will increase by 0.5% of payroll effective July 1, 2023, July 1, 2024, and July 1, 2025.*

Executive Summary

By Individual Division as of June 30, 2022

Item	State General	State Police/ Corrections	Municipal General	Municipal Police	Municipal Fire
Membership					
• Number of					
- Active members	18,330	2,273	20,196	3,608	2,494
- Retirees, beneficiaries, disabled	20,452	1,754	15,580	4,113	2,216
- Inactive, vested	3,534	165	2,783	329	162
- Inactive, nonvested	7,624	605	10,667	700	277
- Total	49,940	4,797	49,226	8,750	5,149
• Valuation Payroll	$ 1,037,181,203	$ 124,648,232	$ 978,468,110	$ 235,976,448	$ 160,840,973
Statutory contribution rates	FY 2023	FY 2023	FY 2023	FY 2023	FY 2023
• Members*	10.42%	9.01%	13.97%	17.83%	19.53%
• Employer*	18.74%	25.65%	10.47%	19.47%	22.26%
Additional Annual Appropriation	0	0	0	0	0
Assets					
• Market value (MVA)	$ 5,844,306,805	$ 1,463,947,696	$ 5,640,385,468	$ 2,275,567,305	$ 1,085,035,601
• Actuarial value (AVA)	$ 5,997,050,627	$ 1,502,208,686	$ 5,787,799,706	$ 2,335,040,372	$ 1,113,393,538
Actuarial Information on AVA					
• Normal cost % (Effective)	16.52%	21.56%	15.86%	23.31%	25.71%
• Actuarial accrued liability	$ 10,002,358,625	$ 1,182,219,557	$ 7,623,071,506	$ 3,180,362,128	$ 1,936,471,945
• UAAL	$ 4,005,307,998	$ (319,989,129)	$ 1,835,271,800	$ 845,321,756	$ 823,078,407
• Funded ratio	60.0%	127.1%	75.9%	73.4%	57.5%
Actuarially Determined Contribution (ADC)					
• ADC Rate	41.94%	5.49%	28.47%	46.93%	59.23%
• ADC Amount	$ 434,993,797	$ 6,843,188	$ 278,569,871	$ 110,743,747	$ 95,266,108
Total Anticipated Contribution Amount	$ 302,442,039	$ 43,203,077	$ 239,137,606	$ 88,019,215	$ 67,215,443
(Excess)/Deficiency of Anticipated Contributions	$ 132,551,758	$ (36,359,889)	$ 39,432,265	$ 22,724,532	$ 28,050,665
(Excess)/Deficiency of Anticipated Contribution Rate	12.78%	-29.17%	4.03%	9.63%	17.44%
Amortization Period	N/A	0 years	32 years	59 years	N/A
Actuarial Information on MVA					
• UAAL	$ 4,158,051,820	$ (281,728,139)	$ 1,982,686,038	$ 904,794,823	$ 851,436,344
• Funded ratio	58.4%	123.8%	74.0%	71.6%	56.0%

** For State plans, employee and employer rates will increase by 0.5% of payroll effective July 1, 2023. For Municipal plans, employee and employer rates will increase by 0.5% of payroll effective July 1, 2023, July 1, 2024, and July 1, 2025.*

SECTION B

DISCUSSION

Discussion

Introduction

This report presents the results of the June 30, 2022 actuarial valuation of the Public Employees Retirement Association of New Mexico (PERA).

The primary purposes of this actuarial valuation report are to determine the adequacy of the current State and employer contributions, describe the current financial condition of PERA, analyze the changes in condition of PERA, and provide various summaries of the data.

All of the tables referenced in the following discussion appear in Section C of this report.

Funding Adequacy

The Actuarially Determined Contribution (ADC) according to the funding policy is the contribution rate necessary to fund the annual normal cost of PERA and fully amortize the UAAL over 25 years. The amount calculated is expected to remain a constant percentage of payroll over the remaining amortization period.

The ADC determined by this valuation and the statutory employer and member contribution rates for FY2023 are noted below:

	Actuarially Determined Contribution	Employer Contribution Rate*	Member Contribution Rate*	Shortfall /(Excess)
State General	41.94%	18.74%	10.42%	12.78%
State Police	5.49%	25.65%	9.01%	-29.17%
Municipal General	28.47%	10.47%	13.97%	4.03%
Municipal Police	46.93%	19.47%	17.83%	9.63%
Municipal Fire	59.23%	22.26%	19.53%	17.44%
All PERA Divisions	**36.57%**	**16.18%**	**12.99%**	**7.40%**

** For State plans, employee and employer rates will increase by 0.5% of payroll effective July 1, 2023. For Municipal plans, employee and employer rates will increase by 0.5% of payroll effective July 1, 2023, July 1, 2024, and July 1, 2025.*

The total unfunded actuarial accrued liability (UAAL) for PERA increased from $6.6 billion as of June 30, 2021 to $7.2 billion as of June 30, 2022. Additionally, the funded ratio—actuarial value of assets divided by the actuarial accrued liability—decreased from 71.4% to 70.0%, as of June 30, 2022. **The current contribution rates, including the scheduled increases to member and employer contributions, are expected to eliminate the UAAL in 57 years. Therefore, the Board's goal of eliminating the UAAL in 25 years is not currently being met.**

The UAAL was expected to increase to $6.8 billion (an increase of $0.2 billion) as of June 30, 2022, primarily because the current contributions are less than the interest accruing on the current UAAL. The additional $0.4 billion increase in the UAAL is primarily attributable to investment losses on the actuarial value of assets and salary increases larger than expected (especially with the municipal divisions). Table 8 provides additional detail on the changes to the UAAL, by division.

The funded status is one of many metrics used to show trends and develop future expectations about the health of a retirement system. The funded status measure itself is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

Plan Provisions

There were no changes to plan provisions for this actuarial valuation. The current plan provisions are outlined in Section E of this report.

Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees based on the experience investigation that covered the four-year period from July 1, 2015 through June 30, 2019. We believe the assumptions are internally consistent and are reasonable, based on the actual experience of PERA.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. A review of the impact of a different set of assumptions on the funded status of PERA is outside the scope of this actuarial valuation.

The current actuarial assumptions and methods are outlined in Section F of this report.

System Assets

This report contains several tables that summarize key information with respect to the assets for PERA and the individual divisions, including the Legislative division.

The total market value of assets decreased from $17.8 billion to $16.3 billion as of June 30, 2022 (excluding the Legislative division). Table 5 reconciles the changes in the fund during the year. Total contributions increased from $689 million to $725 million.

Table 6 shows the development of the Actuarial Value of Assets (AVA). The current AVA method recognizes each year's gain or loss over a closed four-year period. The AVA increased from $16.5 billion to $16.7 billion as of June 30, 2022 (excluding the Legislative division).

When measured on a market value, the approximate investment return for the fiscal year ending June 30, 2022 was -4.3%. When measured on an actuarial value, the net investment return was 6.1%. Table 7 shows a history of return rates. The PERA ten-year average market return is 7.4%.

Table 8 provides a history of the contributions paid into PERA and the administrative expenses and benefit payments paid out of PERA. PERA paid administrative expenses and benefit payments, in excess of contributions received, of $679 million (or 3.8% of assets) in fiscal year 2021 and $717 million (or 4.4% of assets) in fiscal year2022. PERA should continue to monitor this deficit as it could impact future liquidity needs.

Data

This valuation was based upon information as of June 30, 2022, furnished by PERA staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal 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 PERA staff.

The tables in Section G show key census statistics for the various groups included in the valuation.

SECTION C

TABLES

Table 1
Development of Employer Cost

	All PERA Divisions		*State General Division*	
	June 30, 2022	June 30, 2021	June 30, 2022	June 30, 2021
1. Payroll				
a. Annual Payroll	$ 2,463,218,413	$ 2,388,518,383	$ 1,006,972,042	$ 989,784,230
b. Valuation Payroll	2,537,114,966	2,460,173,934	1,037,181,203	1,019,477,757
2. Actuarial Accrued Liability for Active Members				
a. Present value of future benefits for active members	$ 10,120,356,325	$ 9,937,810,820	$ 3,879,200,762	$ 3,850,492,498
b. Less: present value of future normal costs	(2,936,587,753)	(2,915,471,755)	(1,090,111,684)	(1,086,166,619)
c. Actuarial accrued liability	$ 7,183,768,572	$ 7,022,339,065	$ 2,789,089,078	$ 2,764,325,879
3. Total Actuarial Accrued Liability for:				
a. Retirees and beneficiaries	$ 16,095,852,486	$ 15,414,038,507	$ 6,873,742,444	$ 6,791,048,303
b. Inactive members	644,862,704	606,092,257	339,527,103	323,142,807
c. Active members (Item 2c)	7,183,768,572	7,022,339,065	2,789,089,078	2,764,325,879
d. Total	$ 23,924,483,762	$ 23,042,469,829	$ 10,002,358,625	$ 9,878,516,989
4. Actuarial Value of Assets	$ 16,735,492,929	$ 16,460,210,558	$ 5,997,050,627	$ 5,981,582,669
5. Unfunded Actuarial Accrued Liability (UAAL) (Item 3d - Item 4)	$ 7,188,990,833	$ 6,582,259,271	$ 4,005,307,998	$ 3,896,934,320
6. Actuarially Determined Contribution (ADC)				
a. Gross normal cost rate	17.78%	16.24%	16.52%	15.08%
b. Administrative expenses	0.50%	0.50%	0.50%	0.50%
c. 25-Year Amortization of UAAL	18.29%	17.27%	24.92%	24.68%
d. Total ADC Rate (Items 6a+6b+6c)	36.57%	34.01%	41.94%	40.26%
e. Total ADC Amount (Item 1b * 6d)	$ 927,822,943	$ 836,768,323	$ 434,993,797	$ 410,408,257
7. Statutory and Appropriated Contributions				
a. Employer Contribution Rate (Current)	16.18%	15.73%	18.74%	18.24%
b. Member Contribution Rate (Current)	12.99%	12.41%	10.42%	9.92%
c. Additional Annual Appropriation	0	0	0	0
d. Total Anticipated Contribution Amount	740,076,436	692,292,945	302,442,039	287,084,936
8. ADC Comparison to Anticipated Contributions				
a. (Excess)/Deficiency of Anticipated Contributions	$ 187,746,507	$ 144,475,378	$ 132,551,758	$ 123,323,321
b. (Excess)/Deficiency in Contribution Rate	7.40%	5.87%	12.78%	12.10%
9. Amortization Period	59 years	72 years	N/A	N/A

Table 1
Development of Employer Cost (cont.)

	State Police/Corrections Division		*Municipal General Division*	
	June 30, 2022	June 30, 2021	June 30, 2022	June 30, 2021
1. Payroll				
a. Annual Payroll	$ 121,017,701	$ 116,842,280	$ 949,969,039	$ 912,307,045
b. Valuation Payroll	124,648,232	120,347,548	978,468,110	939,676,256
2. Actuarial Accrued Liability for Active Members				
a. Present value of future benefits for active members	$ 589,550,301	$ 627,440,511	$ 3,372,080,201	$ 3,257,707,079
b. Less: present value of future normal costs	(174,972,179)	(211,164,376)	(973,926,822)	(915,956,756)
c. Actuarial accrued liability	$ 414,578,122	$ 416,276,135	$ 2,398,153,379	$ 2,341,750,323
3. Total Actuarial Accrued Liability for:				
a. Retirees and beneficiaries	$ 754,249,275	$ 683,557,586	$ 4,971,560,589	$ 4,705,461,568
b. Inactive members	13,392,160	11,197,408	253,357,538	234,332,333
c. Active members (Item 2c)	414,578,122	416,276,135	2,398,153,379	2,341,750,323
d. Total	$ 1,182,219,557	$ 1,111,031,129	$ 7,623,071,506	$ 7,281,544,224
4. Actuarial Value of Assets	$ 1,502,208,686	$ 1,434,367,187	$ 5,787,799,706	$ 5,679,750,605
5. Unfunded Actuarial Accrued Liability (UAAL) (Item 3d - Item 4)	$ (319,989,129)	$ (323,336,058)	$ 1,835,271,800	$ 1,601,793,619
6. Actuarially Determined Contribution (ADC)				
a. Gross normal cost rate	21.56%	22.81%	15.86%	13.69%
b. Administrative expenses	0.50%	0.50%	0.50%	0.50%
c. 25-Year Amortization of UAAL	-16.57%	-17.34%	12.11%	11.00%
d. Total ADC Rate (Items 6a+6b+6c)	5.49%	5.97%	28.47%	25.19%
e. Total ADC Amount (Item 1b * 6d)	$ 6,843,188	$ 7,176,216	$ 278,569,871	$ 236,701,655
7. Statutory and Appropriated Contributions				
a. Employer Contribution Rate (Current)	25.65%	25.59%	10.47%	10.01%
b. Member Contribution Rate (Current)	9.01%	9.01%	13.97%	13.53%
c. Additional Annual Appropriation	0	0	0	0
d. Total Anticipated Contribution Amount	43,203,077	41,640,252	239,137,606	221,199,791
8. ADC Comparison to Anticipated Contributions				
a. (Excess)/Deficiency of Anticipated Contributions	$ (36,359,889)	$ (34,464,036)	$ 39,432,265	$ 15,501,864
b. (Excess)/Deficiency in Contribution Rate	-29.17%	-28.63%	4.03%	1.65%
9. Amortization Period	0 years	0 years	32 years	34 years

Table 1
Development of Employer Cost (cont.)

	Municipal Police Division		*Municipal Fire Division*	
	June 30, 2022	June 30, 2021	June 30, 2022	June 30, 2021
1. Payroll				
a. Annual Payroll	$ 229,103,348	$ 229,410,194	$ 156,156,285	$ 140,174,634
b. Valuation Payroll	235,976,448	236,292,500	160,840,973	144,379,873
2. Actuarial Accrued Liability for Active Members				
a. Present value of future benefits for active members	$ 1,283,524,162	$ 1,287,424,486	$ 996,000,899	$ 914,746,246
b. Less: present value of future normal costs	(377,960,209)	(399,540,548)	(319,616,859)	(302,643,456)
c. Actuarial accrued liability	$ 905,563,953	$ 887,883,938	$ 676,384,040	$ 612,102,790
3. Total Actuarial Accrued Liability for:				
a. Retirees and beneficiaries	$ 2,249,228,296	$ 2,082,684,309	$ 1,247,071,881	$ 1,151,286,741
b. Inactive members	25,569,879	25,356,356	13,016,024	12,063,353
c. Active members (Item 2c)	905,563,953	887,883,938	676,384,040	612,102,790
d. Total	$ 3,180,362,128	$ 2,995,924,603	$ 1,936,471,945	$ 1,775,452,884
4. Actuarial Value of Assets	$ 2,335,040,372	$ 2,283,030,585	$ 1,113,393,538	$ 1,081,479,512
5. Unfunded Actuarial Accrued Liability (UAAL) (Item 3d - Item 4)	$ 845,321,756	$ 712,894,018	$ 823,078,407	$ 693,973,372
6. Actuarially Determined Contribution (ADC)				
a. Gross normal cost rate	23.31%	22.49%	25.71%	25.36%
b. Administrative expenses	0.50%	0.50%	0.50%	0.50%
c. 25-Year Amortization of UAAL	23.12%	19.48%	33.02%	31.03%
d. Total ADC Rate (Items 6a+6b+6c)	46.93%	42.47%	59.23%	56.89%
e. Total ADC Amount (Item 1b * 6d)	$ 110,743,747	$ 100,339,892	$ 95,266,108	$ 82,142,303
7. Statutory and Appropriated Contributions				
a. Employer Contribution Rate (Current)	19.47%	18.96%	22.26%	21.79%
b. Member Contribution Rate (Current)	17.83%	17.30%	19.53%	17.57%
c. Additional Annual Appropriation	0	0	0	0
d. Total Anticipated Contribution Amount	88,019,215	85,679,661	67,215,443	56,827,918
8. ADC Comparison to Anticipated Contributions				
a. (Excess)/Deficiency of Anticipated Contributions	$ 22,724,532	$ 14,660,231	$ 28,050,665	$ 25,314,385
b. (Excess)/Deficiency in Contribution Rate	9.63%	6.21%	17.44%	17.53%
9. Amortization Period	59 years	59 years	N/A	N/A

Table 2
Analysis of Normal Cost

	All PERA Divisions	State General	State Police	Municipal General	Municipal Police	Municipal Fire
Gross Normal Cost Rate						
a. Service Retirement	11.58%	10.51%	13.53%	9.04%	18.37%	21.53%
b. Disability Benefits	0.92%	1.05%	2.12%	0.76%	0.57%	0.58%
c. Death Before Retirement	0.89%	0.88%	0.70%	1.00%	0.68%	0.73%
d. Termination	4.39%	4.08%	5.21%	5.06%	3.69%	2.87%
e. Total	17.78%	16.52%	21.56%	15.86%	23.31%	25.71%
Administrative Expenses	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Total Normal Cost	18.28%	17.02%	22.06%	16.36%	23.81%	26.21%
Less: Member Rate	12.99%	10.42%	9.01%	13.97%	17.83%	19.53%
Employer Normal Cost Rate	5.29%	6.60%	13.05%	2.39%	5.98%	6.68%

Table 3
Reconciliation of Plan Net Assets
Total PERA with Legislative Division

		Year Ending June 30, 2022 (1)	Year Ending June 30, 2021 (2)
1.	Market value of assets at beginning of year	$ 17,813,948,280	$ 14,691,984,206
2.	Revenue for the year		
	a. Contributions for the year		
	i. Member Contributions	$ 314,280,368	$ 298,572,637
	ii. Employer Contributions	395,408,293	379,184,992
	iii. State Appropriations	2,414,400	0
	iv. Service Purchases	12,439,944	10,979,261
	v. Total	$ 724,543,005	$ 688,736,890
	b. Net investment income	$ (742,505,048)	$ 3,801,131,377
	c. Total revenue	$ (17,962,043)	$ 4,489,868,267
3.	Disbursements for the year		
	a. Benefit payments	$ 1,367,737,863	$ 1,314,819,963
	b. Refunds of member contributions	57,591,001	40,353,832
	c. Administrative expenses	16,010,498	12,730,398
	d. Total expenditures	$ 1,441,339,362	$ 1,367,904,193
4.	Increase in net assets (Item 2c - Item 3d)	$ (1,459,301,405)	$ 3,121,964,074
5.	Market value of assets at end of year (Item 1 + Item 4)	$ 16,354,646,875	$ 17,813,948,280
6.	Estimated Rate of Return on Market Value of Assets	-4.3%	26.5%

Table 4
Development of Actuarial Value of Assets
Total PERA with Legislative Division

		Year Ending June 30, 2022
1.	Actuarial value of assets at beginning of year	$ 16,506,391,337
2.	Net new investments	
	a. Contributions for the year (Table 5: Item 2a.v)	$ 724,543,005
	b. Disbursements for the year (Table 5: Item 3d)	(1,441,339,362)
	c. Subtotal	(716,796,357)
3.	Assumed investment return rate for fiscal year	7.25%
4.	Expected return on Actuarial value	$ 1,170,729,504
5.	Expected Actuarial value of assets (Item 1 + Item 2c + Item 4)	$ 16,960,324,484
6.	Actual net earnings on Market value (Table 5: Item 2b)	$ (742,505,048)
7.	Excess return (Item 6 - Item 4)	$ (1,913,234,552)
8.	Development of amounts to be recognized as of June 30, 2022:	

Fiscal Year End	Original Deferrals of Excess (Shortfall) of Investment Income (1)	Portion Recognized (2)	Recognized for this valuation (3) = (1) * (2)
2019	$ (150,214,662)	25%	$ (37,553,666)
2020	(1,328,985,588)	25%	(332,246,397)
2021	2,679,471,206	25%	669,867,802
2022	(1,913,234,552)	25%	(478,308,638)
Total			$ (178,240,899)

9.	Actuarial value of assets as of June 30, 2022 (Item 5 + Item 8, Column 3)	$ 16,782,083,585
10.	Market value of assets as of June 30, 2022 (Table 5: Item 5)	$ 16,354,646,875
11.	Ratio of actuarial value to market value	102.6%

Table 5
Allocation of Assets Across Divisions

Division	Market Value of Assets	Actuarial Value of Assets	Approximate % of Total Fund Balance
State General	$ 5,844,306,805	$ 5,997,050,627	35.7%
State Police	1,463,947,696	1,502,208,686	9.0%
Municipal General	5,640,385,468	5,787,799,706	34.6%
Municipal Police	2,275,567,305	2,335,040,372	14.0%
Municipal Fire	1,085,035,601	1,113,393,538	6.7%
All PERA Divisions (w/o Legislative)	**$16,309,242,875**	**$16,735,492,929**	**100.0%**
Legislative	45,404,000	46,590,656	
All PERA Divisions (w/ Legislative)	**$16,354,646,875**	**$16,782,083,585**	

Table 6
History of Investment Return Rates
Total PERA with Legislative Division

Year Ending June 30 of	Market	Actuarial
(1)	(2)	(3)
2011	22.5%	-1.2%
2012	-0.9%	0.4%
2013	12.9%	10.5%
2014	17.1%	11.9%
2015	1.7%	7.6%
2016	0.4%	7.7%
2017	11.1%	7.0%
2018	6.9%	4.9%
2019	6.3%	5.9%
2020	-1.5%	5.5%
2021	26.5%	9.1%
2022	-4.3%	6.1%
Average Returns		
Last Five Years:	6.3%	6.3%
Last Ten Years:	7.4%	7.6%

Table 7
History of Cash Flow
Total PERA with Legislative Division

Year Ending June 30,	Contributions	Distributions and Expenditures: Benefit Payments and Refunds	Distributions and Expenditures: Administrative Expenses	Distributions and Expenditures: Total	External Cash Flow for the Year	Market Value of Assets	External Cash Flow as Percent of Market Value
(1)	(2)	(3)	(5)	(6)	(7)	(8)	(9)
2013	$ 520.9	$ (887.8)	$ (8.6)	$ (896.4)	$ (375.5)	$ 12,708	-3.0%
2014	548.5	(952.7)	(10.3)	(963.0)	(414.5)	14,429	-2.9%
2015	576.1	(1,012.2)	(9.9)	(1,022.1)	(446.0)	14,256	-3.1%
2016	590.3	(1,069.3)	(10.8)	(1,080.1)	(489.8)	13,827	-3.5%
2017	605.3	(1,129.2)	(11.5)	(1,140.7)	(535.4)	14,799	-3.6%
2018	602.3	(1,183.7)	(12.7)	(1,196.4)	(594.1)	15,210	-3.9%
2019	621.3	(1,248.3)	(13.6)	(1,261.9)	(640.6)	15,508	-4.1%
2020	720.6	(1,299.9)	(14.3)	(1,314.2)	(593.6)	14,692	-4.0%
2021	688.7	(1,355.2)	(12.7)	(1,367.9)	(679.2)	17,814	-3.8%
2022	724.5	(1,425.3)	(16.0)	(1,441.3)	(716.8)	16,355	-4.4%

Amounts in millions

Table 8
Total Experience Gain or Loss

Item	All PERA Divisions	State General	State Police	Municipal General	Municipal Police	Municipal Fire
A. Calculation of total actuarial gain or loss						
1. Unfunded actuarial accrued liability (UAAL), previous year	$ 6,582,259,271	$ 3,896,934,320	$ (323,336,058)	$ 1,601,793,619	$ 712,894,018	$ 693,973,372
2. Normal cost (incl. admin) for the previous year	$ 415,498,296	$ 159,458,571	$ 28,884,418	$ 134,163,375	$ 55,369,866	$ 37,676,939
3. Less: expected contributions for the year	$ (692,292,945)	$ (287,084,936)	$ (41,640,252)	$ (221,199,791)	$ (85,679,661)	$ (56,827,918)
4. Interest at 7.25%						
a. On UAAL	$ 477,213,797	$ 282,527,738	$ (23,441,864)	$ 116,130,037	$ 51,684,816	$ 50,313,069
b. On normal cost	15,061,813	5,780,373	1,047,060	4,863,422	2,007,158	1,365,789
c. On contributions	(25,095,619)	(10,406,829)	(1,509,459)	(8,018,492)	(3,105,888)	(2,060,012)
d. Total	$ 467,179,991	$ 277,901,282	$ (23,904,263)	$ 112,974,967	$ 50,586,086	$ 49,618,846
5. Expected UAAL (Sum of Items 1 - 4)	$ 6,772,644,613	$ 4,047,209,237	$ (359,996,155)	$ 1,627,732,170	$ 733,170,309	$ 724,441,239
6. Actual UAAL	$ 7,188,990,833	$ 4,005,307,998	$ (319,989,129)	$ 1,835,271,800	$ 845,321,756	$ 823,078,407
7. Total gain (loss) for the year (Item 5 - Item 6)	$ (416,346,220)	$ 41,901,239	$ (40,007,026)	$ (207,539,630)	$ (112,151,447)	$ (98,637,168)
B. Source of gains and (losses)						
8. Contribution (Shortfall)/Surplus with interest	$ 33,315,292	$ 6,821,357	$ 3,457,946	$ 5,611,671	$ 7,606,329	$ 9,673,316
9. Asset gain (loss) for the year	(177,762,359)	(59,887,348)	(17,933,292)	(62,066,095)	(25,425,923)	(12,449,701)
10. Liability experience gain (loss) for the year	(271,899,153)	94,967,230	(25,531,680)	(151,085,206)	(94,331,853)	(95,860,783)
11. Assumption change	0	0	0	0	0	0
12. Benefit change	0	0	0	0	0	0
13. Total	$ (416,346,220)	$ 41,901,239	$ (40,007,026)	$ (207,539,630)	$ (112,151,447)	$ (98,637,168)

Table 9
Solvency Test
As of June 30, 2022

	Actuarial Liability For					Cumulative portion of AAL covered		
Division	Total Active Member Contributions	Retirees, Beneficiaries and Inactive Members	Active Members (Employer Financed)	Total Actuarial Liability (AAL)	Actuarial Value of Assets	Total Active Member Contributions	Retirees, Beneficiaries and Inactive Members	Active Members (Employer Financed)
State General	$ 988,538,507	$ 7,213,269,547	$1,800,550,571	$10,002,358,625	$ 5,997,050,627	100%	69%	0%
State Police	77,133,221	767,641,435	337,444,901	1,182,219,557	1,502,208,686	100%	100%	100%
Municipal General	1,265,376,864	5,224,918,127	1,132,776,515	7,623,071,506	5,787,799,706	100%	87%	0%
Municipal Police	342,930,119	2,274,798,175	562,633,834	3,180,362,128	2,335,040,372	100%	88%	0%
Municipal Fire	249,494,664	1,260,087,905	426,889,376	1,936,471,945	1,113,393,538	100%	69%	0%
All PERA Divisions	**$ 2,923,473,375**	**$16,740,715,190**	**$4,260,295,197**	**$23,924,483,762**	**$16,735,492,929**	**100%**	**83%**	**0%**

SECTION D

RISKS ASSOCIATED WITH MEASURING THE ACCRUED LIABILITY AND ACTUARIALLY DETERMINED CONTRIBUTION

Risks Associated with Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

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 due to changing conditions; 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.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. **Longevity risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
6. **Other demographic risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise, if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The ADC developed on Table 1 may be considered as a minimum contribution that complies with the Board's funding policy and State statute. The timely receipt of the ADC is critical to support the financial health of the System. Users of this report should be aware that contributions made consistent with the ADC do not necessarily guarantee benefit security.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
Ratio of the market value of assets to total payroll	6.6	7.5	6.1	6.8	6.8	6.7	6.5	6.3	6.9	6.2
Ratio of actuarial accrued liability to payroll	9.7	9.6	9.3	9.8	9.6	9.2	9.1	8.4	8.5	8.3
Ratio of actives to retirees and beneficiaries	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.4	1.5	1.6
Ratio of net cash flow to market value of assets	-4.4%	-3.8%	-4.0%	-4.1%	-3.9%	-3.6%	-3.5%	-3.1%	-2.9%	-3.0%
Duration of the actuarial accrued liability*	10.1	10.2								

*Duration measure not available before 2021

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Duration of Actuarial Accrued Liability

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the actuarial accrued liability would increase approximately 10% if the assumed rate of return were lowered 1%.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

SECTION E

SUMMARY OF PLAN PROVISIONS

Summary of Plan Provisions for
Public Employees Retirement Association of New Mexico

Benefit Tier

Effective July 1, 2013, Senate Bill 27 establishes two tiers of benefits under each PERA coverage plan:

Tier 1

- Current active members employed by a PERA affiliate on June 30, 2013
- Inactive members who did not receive a refund and have employee contributions on account on June 30, 2013
- Currently retired or will retire on or before June 30, 2013

Note: State and Municipal General members hired between July 1, 2010 and June 30, 2013 are grandfathered into Tier 1 coverage plans.

Tier 2

- Active members first hired on or after July 1, 2013
- Members who received a refund of employee contributions on or before June 30, 2013 and return to work for a PEBA affiliate on or after July 1, 2013

Normal Retirement Eligibility Conditions

Tier 1

Applicable to all members:

- Any age with 25 or more years of credited service; or
- Age 60 or older with 20 or more years of credited service; or
- Age 61 or older with 17 or more years of credited service; or
- Age 62 or older with 14 or more years of credited service; or
- Age 63 or older with 11 or more years of credited services or
- Age 64 or older with 8 or more years of credited service; or
- Age 65 or older with 5 or more years of credited service.

Applicable to Municipal Police (Plans 3, 4, & 5) and Municipal Fire (Plans 3, 4, &5) members:

- Any age with 20 or more years of credited service.

Tier 2

Applicable to State General and Municipal General (Plans 1-4) members:

- Age 65 or older with 5 or more years of credited service; or
- Any age if the sum of the member's age and years of credited service equals at least 85, provided member has at least 5 years of credited service.

Applicable to State Police Officers, Adult Correctional Officers, Peace Officers, Juvenile Correctional Officers, Municipal Police, Municipal Fire, and Municipal Detention Officers:

- Age 60 or older with 5 or more years of credited service; or
- Any age with 25 or more years of credited service.

Normal Retirement Pension Amount

The amount of normal retirement pension is based on:

- Final average salary:
  - For Tier 1 members, the average of salary for the 36 consecutive months of credited service producing the largest average;
  - For Tier 2 members, the average of salary for the 60 consecutive months of credited service producing the largest average;
- Credited service (years and months; and the
- Coverage plan.

The pension accrual factor and maximum pension, as a percent of final average salary, under each coverage plan are shown below:

Coverage Plan	Pension Factor Per Year of Credited Service		Maximum Pension as Percent of Final Average Salary
	Tier 1	**Tier 2**	**Tier 1 & Tier 2**
State General Member Coverage Plan 3	3.0%	2.5%	90%
Peace Officers Coverage Plan 3	3.0	3.0	90
State Police and Adult Corrections Officers Member Coverage Plan 1	3.0	3.0	90
Hazardous Duty (Juvenile Corrections Officer) Coverage Plan 2	3.0	3.0	90
Municipal General Member			
Coverage Plan 1	2.0	2.0	90
Coverage Plan 2	2.5	2.0	90
Coverage Plan 3	3.0	2.5	90
Coverage Plan 4	3.0	2.5	90
Municipal Detention Officer Coverage Plan 1	3.0	3.0	90
Municipal Police Member			
Coverage Plan 1	2.0	2.0	90
Coverage Plan 2	2.5	2.0	90
Coverage Plan 3	2.5	2.0	90
Coverage Plan 4	3.0	2.5	90
Coverage Plan 5	3.5	3.0	90
Municipal Fire Member			
Coverage Plan 1	2.0	2.0	90
Coverage Plan 2	2.5	2.0	90
Coverage Plan 3	2.5	2.0	90
Coverage Plan 4	3.0	2.5	90
Coverage Plan 5	3.5	3.0	90

Vested Termination of Membership (Employment)

Termination of employment and membership with at least 5 years of credited service. Accumulated member contributions must be left on deposit. Payment of the pension is available upon eligibility for normal retirement. In addition, certain disability and survivor pension provisions apply.

Normal and Optional Forms of Payment

The normal form of payment is for life. Optional contingent survivor beneficiary forms of payment are available on an actuarial equivalent basis. Total pension payments can never be less than the member's accumulated contributions.

Survivor Pensions – Death in the Line of Duty

Pensions are paid to the eligible spouse and eligible children if survivor coverage has not been elected under the Elective Survivor Pension Beneficiary provision. The amount of pension payable for life to an eligible spouse is the greater of 1) 50% of final average salary or 2) the accrued normal retirement pension reduced for option B election. The amount of pension payable to each eligible child is an equal share of 25% of final average salary. If there is not an eligible spouse or the eligible spouse dies, and if there are 2 or more eligible children, the amount of pension payable to each eligible child is an equal share of 50% of final average salary. An eligible child is an unmarried natural or adopted child who is under age 18. A child's pension terminates upon death, marriage or reaching age 18. The pension of any remaining eligible children is recalculated whenever a child's pension is terminated.

Survivor Pensions – Death Not in the Line of Duty

Requires 5 years of credited service. Benefit applies to members and vested former members who have not elected coverage under the Elective Survivor Pension Beneficiary provision. Pensions are paid to an eligible spouse OR eligible children. The amount of pension payable for the life of an eligible spouse is the greater of 1) 30% of final average salary or 2) accrued normal retirement pension reduced for option B election. An eligible child pension is paid if there is not an eligible spouse or following the death of an eligible spouse. The pension is payable to each child in equal shares. An eligible child is an unmarried natural or adopted child who is under age 18. A child's pension terminates upon death, marriage or reaching age 18. The pension of any remaining eligible children is recalculated whenever a child's pension is terminated.

Elective Survivor Beneficiary Pension

Applicable to members with 5 years of credited service. Also applicable to vested former members who have elected option B and designated a survivor pension beneficiary who has an insurable interest. The amount of pension is the amount of accrued normal retirement pension under optional form of payment B (100% continuation to beneficiary).

Disability Retirement

Applicable to members with 5 years of credited service. Also applicable to vested former members. The credited service requirement is waived if the disability is incurred in line of duty. The amount of disability pension is the accrued normal retirement pension at time of disability retirement. If the disability is in line of duty, the credited service used is the amount that would have been acquired when first eligible for normal retirement.

Cost of Living Increases

Effective July 1, 2020, there will be no COLA increases for fiscal years 2021, 2022, and 2023 (July 1, 2020, July 1, 2021, and July 1, 2022). In lieu of these COLAs, an annual non-compounding additional payment equal to 2% of annual benefit as of June 30, 2020 (inclusive of all past COLAs) will be payable.

Beginning July 1, 2023 and each July 1 thereafter, the COLA increase will be determined as an amount equal to the smoothed investment rate of return on the actuarial value of assets on June 30 of the preceding calendar year, less the COLA "hurdle rate"*, multiplied by the funded ratio on June 30 of the preceding calendar year; or 0.5%, whichever is greater, subject to the following:

- If the funded ratio of the fund is less than 100% on June 30 of the preceding calendar year, the COLA amount shall not exceed 3.0%.
- If the funded ratio of the fund is greater than or equal to 100% on June 30 of the preceding calendar year, the COLA amount shall not exceed 5.0%.
- The minimum COLA amount for any year will be 0.5%.

* The COLA "hurdle rate" is the investment rate of return required to fund a COLA in excess of 0.5% as determined by the fund's actuaries.

Pensions are increased by the COLA amount determined above each July 1 subject to the following eligibility periods:

- Retirees who have been retired for at least 2 full calendar years.
- Retirees who attained at least age 65 and have been retired for at least 1 full calendar year.
- Disabled retirees who have been retired for at least 1 full calendar year.
- Survivor beneficiaries who have received a survivor pension for at least 2 full calendar years.
- Survivor beneficiaries of a deceased retiree who otherwise would have been retired for at least 2 full calendar years.

For certain retirees, pensions are increased each July 1 by 2.5% subject to the eligibility periods listed above, provided the conditions below are met:

- Retirees who retired with at least 25 years of service and whose annual pension is $25,000 or less.
- Disabled retirees whose annual pension is $25,000 or less.
- Retirees and survivor beneficiaries who attained at least age 75 prior to July 1, 2021.

Service Credit

Tier 1 Members in the State Police and Adult Corrections Officers Coverage Plan and members in the Municipal Detention Officers Coverage Plan receive 1.2 years of credited service for each year of service rendered. All other members receive 1.0 year of credited service for each year of service rendered.

Contributions by Members and Employers

Contributions by members and affiliated public employers are at the following rates shown below. The table reflects the changes resulting from the passage of Senate Bill 72 (2020) and Senate Bill 90 (2021).

Coverage Plan	Employee Contribution Percentage	Employer Contribution Percentage
State Division		
State General Member Coverage Plan 3[1]	10.42%	18.74%
State Police Officer, Adult Correctional Officer, and Probation and Parole Officer Coverage Plan 1[2]	9.10	25.50
Juvenile Correctional Officer Coverage Plan 2[1]	7.78	27.87
Municipal Division[3,4]		
Municipal General Member Coverage Plan 1	9.00%	8.15%
Municipal General Member Coverage Plan 2	11.15	10.30
Municipal General Member Coverage Plan 3	15.15	10.30
Municipal General Member Coverage Plan 4	17.65	12.80
Municipal Detention Officer Member Coverage Plan 1	18.65	17.80
Municipal Police Member Coverage Plan 1	9.00	11.15
Municipal Police Member Coverage Plan 2	9.00	16.15
Municipal Police Member Coverage Plan 3	9.00	19.65
Municipal Police Member Coverage Plan 4	14.35	19.65
Municipal Police Member Coverage Plan 5	18.30	19.65
Municipal Fire Member Coverage Plan 1	11.50	12.15
Municipal Fire Member Coverage Plan 2	11.50	18.65
Municipal Fire Member Coverage Plan 3	11.50	22.40
Municipal Fire Member Coverage Plan 4	16.30	22.40
Municipal Fire Member Coverage Plan 5	19.70	22.40

Interest is credited to member contributions on each June 30 at the rates set annually by the Retirement Board. Effective July 1, 2012, the interest crediting rate for member contributions is 2%.

[1]For employees whose annual salary is $25,000 or less, the employee contribution rates are reduced by 3.0%. Employee and employer rates will increase by 0.5% of payroll effective July 1, 2023.

[2] For employees whose annual salary is $25,000 or less, the employee contribution rates are reduced by 1.5%.

[3]For employees whose annual salary is $25,000 or less, the employee contribution rates are reduced by 2.50% (3.5% for the Fire Coverage Plans).

[4]For all Municipal Coverage Plans, employee and employer rates will increase by 0.5% of payroll effective July 1, 2023, July 1, 2024, and July 1, 2025.

SECTION F

ACTUARIAL ASSUMPTIONS AND METHODS

Summary of Actuarial Assumptions and Methods

The assumptions and methods applied in this actuarial valuation were adopted by the Board of Trustees based on the experience investigation that covered the four-year period from July 1, 2015 through June 30, 2019.

I. Valuation Date

The valuation date is June 30 of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

II. Actuarial Cost Method

The actuarial valuation is used to determine the adequacy of the employer contribution rate, the member contribution rate, and any fixed appropriations and to describe the current financial condition of PERA.

The actuarial valuation uses the Entry Age Normal actuarial cost method. Under this method, the first step is to determine the contribution rate (level as a percentage of pay) required to provide the benefits to each member, or the normal cost rate. The normal cost rate consists of two pieces: (i) the member's contribution rate, and (ii) the remaining portion of the normal cost rate which is the employer's normal cost rate. The total normal cost rate is based on the benefits payable to each individual active member.

The Unfunded Actuarial Accrued Liability (UAAL) is the liability for future benefits which is in excess of (i) the actuarial value of assets, and (ii) the present value of future normal costs. The employer contribution provided in excess of the employer normal cost is applied to amortize the UAAL.

The funding period is calculated as the number of years required to fully amortize the UAAL, assuming that: (a) future market earnings, net of investment-related expenses, will equal 7.25% per year, (b) there will be no liability gains/losses or changes in assumptions, (c) the other active members who leave employment will be replaced by new entrants each year, (d) the total normal cost rate is based on the benefits payable to each individual active member, and (e) employer and member contributions will be paid in accordance with current statutes, including scheduled increases.

The Entry Age actuarial cost method is an "immediate gain" method (i.e., experience gains and losses are separately identified as part of the UAAL). However, they are amortized over the same period applied to all other components of the UAAL.

III. Actuarial Value of Assets

The actuarial value of assets is derived as follows: prior year actuarial value of assets is increased by contributions and expected income and reduced by refunds, benefit payments and expenses. To this amount, 25% of the difference between the expected investment income of the actuarial value and actual investment income on the market value for each of the previous four years is added. The returns are computed net of investment-related expenses.

IV. Actuarial Assumptions

Investment Return: 7.25% per year, net of investment-related expenses (composed of an assumed 2.50% inflation rate and a 4.75% real rate of return)

Administrative Expenses: 0.50% of valuation payroll per year

Annual Post-Retirement Cost of Living Adjustment Rate: 1.60% per year beginning July 1, 2023

Salary Increases: All pay increases are assumed to occur at the beginning of the year. The components of the annual increases are:

Attributable to:	Annual Rates of Salary Increases for Sample Years of Service				
	1	5	10	15	20
General Increase in Wage Level Due to:					
Inflation	2.50%	2.50%	2.50%	2.50%	2.50%
Other Factors	0.75	0.75	0.75	0.75	0.75
Increase Due to Merit/Longevity:					
State General	5.00	1.25	0.50	0.00	0.00
State Police	10.25	5.75	1.25	1.25	1.25
State Corrections	9.75	3.50	2.00	1.50	1.50
Municipal General *	2.50	1.50	0.50	0.00	0.00
Municipal Police	7.75	2.75	1.50	0.75	0.75
Municipal Fire	7.75	2.75	1.50	1.25	1.25

* Includes Municipal Detention Officers

Payroll Growth: 3.00% per year, compounded annually.

Decrement Timing: All decrements – mortality, service retirement, disability retirement, and termination of employment for reasons other than death or retirement – are assumed to occur at the beginning of the valuation year.

Mortality Decrements:

The mortality assumptions are based on the RPH-2014 Blue Collar mortality tables with female ages set forward one year. Future improvement in mortality rates is assumed using 60% of the MP-2017 projection scale generationally. For non-public safety group, 25% of in-service deaths are assumed to be duty related and 35% are assumed to be duty-related for public safety groups.

Rates are shown for sample ages in the following schedule. Note that gender distinct mortality rates are used solely for determining the funded status and contribution rate adequacy. All benefit amounts are based on merged gender mortality rates.

Sample Mortality Rates (Base Rates)								
Pre-Commencement			Post-Commencement			Post-Commencement		
Age	Male	Female	Age	Male	Female	Age	Male	Female
25	0.000733	0.000244	35	0.001793	0.001169	80	0.053460	0.042932
30	0.000717	0.000317	40	0.002156	0.001611	85	0.088524	0.072752
35	0.000797	0.000417	45	0.003275	0.002671	90	0.146859	0.125111
40	0.000958	0.000598	50	0.005604	0.004235	95	0.223428	0.197901
45	0.001455	0.001013	55	0.007342	0.005165	100	0.313988	0.291040
50	0.002490	0.001685	60	0.009893	0.006890	105	Disabled retirees use the same assumption as healthy lives.	
55	0.004071	0.002510	65	0.014089	0.010092	110		
60	0.006743	0.003606	70	0.021101	0.016038	115		
65	0.011612	0.005456	75	0.032952	0.026199	120		

Rates of Retirement

First Eligibility Rates: These rates are used to measure the probability of members retiring in the first year eligible for retirement at the indicated ages.

Sample Percent Retiring at First Eligibility by Age									
	State General		State Police		State	Municipal General		Municipal	Municipal
Ages	Male	Female	Tier 1	Tier 2	Corrections	Male	Female	Police	Fire
40	25%	25%	25%	40%	40%	20%	25%	30%	30%
45	25	25	25	40	40	20	25	30	25
50	25	25	25	40	40	20	25	30	20
55	25	25	25	40	40	20	25	30	25
60	30	25	50	40	35	15	25	30	20
65	25	25	100	100	35	15	25	30	20
70	25	20			100	20	15	100	100
75	25	20				20	15		
80	100	100				100	100		

***Subsequent Eligibility Rates*:** These rates are used to measure the probability of members retiring after the first year eligible for retirement at the indicated ages.

Sample Percent Retiring at First Eligibility by Age*										
	State General		State Police**		State	Municipal General		Municipal Police ***		Municipal
Ages	Male	Female	Tier 1	Tier 2	Corrections	Male	Female	Tier 1	Tier 2	Fire
40	25%	25%	35%	20%	20%	20%	25%	35%	40%	30%
45	25	25	35	20	20	20	25	35	40	25
50	25	25	35	20	20	20	25	35	40	20
55	25	25	35	20	20	20	25	35	40	25
60	20	35	50	20	20	15	15	35	30	20
65	30	35	100	100	20	15	10	30	30	20
70	25	20			100	20	15	100	100	100
75	25	20				20	15			
80	100	100				100	100			

* Rates are 70% at 30 years of service for all ages except State General and Municipal General Tier 2 uses 75% at 36 years of service and Municipal Police Tier 1 uses 75% at 26 years of service.

** Rates for State Police Tier 1 are 45% at 27 years of service, 55% at 28 years of service, and 65% at 29 years of service.

*** Rates for Municipal Police Tier 1 are 35% at 21 years of service, 40% at 22 years of service, and 45% at 23 years of service, 55% at 24 years of service, and 65% at 25 years of service.

*** Rates for Municipal Police Tier 2 are 35% at 25 years of service, 40% at 26 years of service, and 45% at 27 years of service, 55% at 28 years of service, and 65% at 29 years of service.

Rates of Withdrawal from Active Membership

The rates are used to measure probabilities of active members terminating for a reason other than disability or death. The rates do not apply to members who are within the retirement rate range. Assumptions for State General and Municipal General are gender distinct and both based on age and service. Assumptions for all other plans are not gender distinct and are service related only; these rates do not vary by age.

State General Males					
Rates of Active Members Terminating During Year					
Sample Ages	Sample Service (Yr):				
	2	4	6	8	10+
20	18.76%	10.86%	8.21%	7.78%	5.11%
25	17.72	11.06	8.10	7.07	4.65
30	16.45	11.27	7.97	6.18	4.13
35	15.31	10.81	7.59	5.58	3.89
40	14.30	9.97	7.08	5.40	3.86
45	13.55	9.06	6.63	5.40	3.86
50	13.26	8.45	6.49	5.40	3.86
55	13.26	8.37	6.49	5.40	3.86
60	13.26	8.37	6.49	5.40	3.86
65	13.26	8.37			
70	13.26	8.37			

State General Females					
Rates of Active Members Terminating During Year					
Sample Ages	Sample Service (Yr):				
	2	4	6	8	10+
20	18.13%	11.95%	8.22%	6.05%	4.83%
25	17.76	11.95	8.02	5.81	4.25
30	17.28	11.89	7.81	5.54	3.55
35	16.34	11.23	7.45	5.28	3.46
40	15.22	10.24	6.99	5.06	3.46
45	14.19	9.20	6.58	4.95	3.46
50	13.52	8.55	6.45	4.80	3.46
55	13.37	8.50	6.45	4.70	3.46
60	13.37	8.50	6.45	4.70	3.46
65	13.37	8.50			
70	13.37	8.50			

Rates of Withdrawal from Active Membership (Continued)

Municipal General Males					
Rates of Active Members Terminating During Year					
Sample Ages	Sample Service (Yr):				
	2	4	6	8	10+
20	21.70%	14.59%	11.29%	8.93%	8.54%
25	20.00	13.52	10.26	8.05	7.32
30	17.73	12.04	8.96	6.94	5.69
35	15.77	10.65	8.01	6.20	4.61
40	14.06	9.37	7.29	5.73	3.92
45	12.80	8.39	6.87	5.58	3.65
50	12.20	8.01	6.79	5.58	3.65
55	12.18	8.01	6.79	5.58	3.65
60	12.18	8.01	6.79	5.58	3.65
65	12.18	8.01			
70	12.18	8.01			

Municipal General Females					
Rates of Active Members Terminating During Year					
Sample Ages	Sample Service (Yr):				
	2	4	6	8	10+
20	24.40%	17.77%	14.41%	11.94%	7.51%
25	21.96	16.06	12.80	10.32	6.38
30	18.85	13.77	10.63	8.16	4.94
35	16.69	11.96	9.08	6.70	4.09
40	15.16	10.49	7.84	5.74	3.67
45	14.28	9.49	6.50	5.31	3.62
50	14.01	9.14	6.50	5.30	3.62
55	14.01	9.14	6.50	5.30	3.62
60	14.01	9.14	6.50	5.30	3.62
65	14.01	9.14			
70	14.01	9.14			

Service Based Rates of Active Members Terminating During Year					
All Ages	Sample Service (Yr):				
	1	3	5	7	8+
State Police	8.00%	7.00%	4.00%	4.00%	4.00%
State Corrections	20.00	16.00	9.00	8.00	5.75
Municipal Detention	22.00	16.00	10.00	10.00	6.00
Municipal Police	14.00	9.50	6.80	5.15	3.50
Municipal Fire	10.00	7.50	5.00	3.30	2.75

Rates of Disability

The rates are used to measure the probabilities of active members becoming disabled. Rates for sample ages follow. For non-public safety groups, 25% disabilities are assumed to be duty related and 35% are assumed to be duty-related for public safety groups.

Rates Becoming Disabled at Indicated Ages (State Division)				
Sample Ages	State General		State	State
	Male	Female	Police	Corrections
25	0.02%	0.02%	0.03%	0.14%
30	0.04	0.03	0.06	0.16
35	0.08	0.06	0.08	0.21
40	0.13	0.12	0.21	0.27
45	0.24	0.20	0.25	0.46
50	0.41	0.39	0.41	0.90
55	0.57	0.61	0.95	1.40
60	0.74	0.73	1.39	1.88
65	0.75	0.73	1.39	1.88

Rates Becoming Disabled at Indicated Ages (Municipal Division)					
Sample Ages	Municipal General		Municipal	Municipal	Municipal
	Male	Female	Detention	Police	Fire
25	0.03%	0.04%	0.06%	0.01%	0.02%
30	0.06	0.04	0.10	0.01	0.02
35	0.09	0.04	0.15	0.05	0.02
40	0.13	0.06	0.22	0.11	0.08
45	0.18	0.14	0.32	0.18	0.08
50	0.30	0.25	0.51	0.28	0.33
55	0.49	0.39	0.85	0.46	0.33
60	0.60	0.51	1.04	0.74	1.17
65	0.62	0.59	1.07	1.08	1.17

Marriage Assumption: All members are assumed to be married for purposes of death-in-service benefits. Spouses are assumed to have no eligible children for death-in-service benefits.

Beneficiary Characteristics: Males are assumed to be three years older than females.

Pop-Up Load: Retiree liabilities were increased by 1% to account for the pop-up provision.

Data Changes: For missing dates of birth for active members, it is assumed they enter the system at the average entry age.

Census Data and Assets

- The valuation was based on members of PERA as of June 30, 2022 and does not take into account future members, with the exception of determining the funding period.
- All census data was supplied by PERA and was subject to reasonable consistency checks.
- There were data elements that were modified for some members as part of the valuation in order to make the data complete. However, the number of missing data items was immaterial.
- Asset data was supplied by PERA.

Other Actuarial Valuation Procedures

- No provision was made in this actuarial valuation for the limitations of Internal Revenue Code Sections 415 or 401(a)17.

Actuarial Model

This report was prepared using ProVal's valuation model, a software product of Winklevoss Technologies. We are relying on the ProVal model. We performed tests of the ProVal model with this assignment and made a reasonable attempt to understand the developer's intended purpose of, general operation of, major sensitivities and dependencies within, and key strengths and limitations of the ProVal model. In our professional judgment, the ProVal valuation model has the capability to provide results that are consistent with the purposes of the valuation.

SECTION G

DETAILED SUMMARIES OF MEMBERSHIP DATA

Table A

Summary of Membership Data

	All PERA Divisions	State General	State Police	Municipal General	Municipal Police	Municipal Fire
Actives						
a. Number	46,901	18,330	2,273	20,196	3,608	2,494
b. Total annual payroll	$ 2,463,218,413	$ 1,006,972,042	$ 121,017,701	$ 949,969,039	$ 229,103,348	$ 156,156,285
c. Average salary	$ 52,520	$ 54,936	$ 53,241	$ 47,037	$ 63,499	$ 62,613
d. Average age	43.6	45.3	38.7	44.5	37.2	37.3
e. Average service	9.0	9.1	10.4	8.6	9.5	10.1
Vested inactive members						
a. Number	6,973	3,534	165	2,783	329	162
b. Average Age	50.1	50.5	46.2	51.1	42.6	45.1
c. Total annualized deferred monthly benefits	$ 94,694,981	$ 51,069,811	$ 2,179,506	$ 33,388,382	$ 5,484,570	$ 2,572,712
d. Average annualized deferred monthly benefit	$ 13,580	$ 14,451	$ 13,209	$ 11,997	$ 16,670	$ 15,881
Nonvested inactive members						
a. Number	19,873	7,624	605	10,667	700	277
b. Refunds due	$ 109,460,502	$ 44,667,722	$ 2,317,826	$ 53,371,758	$ 6,743,989	$ 2,359,207
c. Average refund due	$ 5,508	$ 5,859	$ 3,831	$ 5,003	$ 9,634	$ 8,517
Service retirees*						
a. Number	37,002	17,234	1,467	12,726	3,616	1,959
b. Average Age	68.8	70.8	64.0	69.7	61.3	62.9
c. Total annualized monthly benefits	$ 1,216,994,709	$ 547,973,558	$ 52,643,096	$ 372,348,157	$ 155,206,538	$ 88,823,359
d. Average annualized monthly benefit	$ 32,890	$ 31,796	$ 35,885	$ 29,259	$ 42,922	$ 45,341
Disabled retirees						
a. Number	1,492	732	52	605	73	30
b. Average Age	60.0	61.2	60.5	59.8	53.2	50.3
c. Total annualized monthly benefits	$ 28,658,805	$ 13,642,101	$ 1,039,693	$ 10,964,106	$ 2,139,227	$ 873,679
d. Average annualized monthly benefit	$ 19,208	$ 18,637	$ 19,994	$ 18,122	$ 29,304	$ 29,123
Beneficiaries						
a. Number	5,621	2,486	235	2,249	424	227
b. Average Age	70.0	70.6	69.3	69.9	66.3	72.9
c. Total annualized monthly benefits	$ 121,751,334	$ 51,405,622	$ 6,138,203	$ 43,462,653	$ 12,856,778	$ 7,888,079
d. Average annualized monthly benefit	$ 21,660	$ 20,678	$ 26,120	$ 19,325	$ 30,323	$ 34,749

*Counts include co-payees as follows:

State General - 398
State Police - 123
Municipal General - 393
Municipal Police - 305
Municipal Fire - 180

Table B

Active Members – All PERA Members

Distribution by Age and Service

	Years of Credited Service at Retirement							
Nearest Age	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+	Total
Under 20	248							248
20 to 24	2,166	19						2,185
25 to 29	3,517	899	26					4,442
30 to 34	3,196	1,998	650	52				5,896
35 to 39	2,446	1,741	1,341	812	45			6,385
40 to 44	1,836	1,337	1,163	1,402	550	18		6,306
45 to 49	1,505	1,104	826	1,140	913	125	3	5,616
50 to 54	1,392	1,061	795	995	908	275	23	5,449
55 to 59	1,165	901	705	863	724	249	53	4,660
60 & Over	1,393	1,273	985	987	686	267	123	5,714
Total	18,864	10,333	6,491	6,251	3,826	934	202	46,901

Table C

Number of Annual Retirement Allowances of Benefit Recipients

Type of Pension	Number	Total Annual Benefits	Average Annual Pension
Service Retirement Pensions			
Single Life Pension Terminating Upon Death*	17,228	551,518,293	$ 32,013
Two Life 100% Survivor Pension			
Retired Member Recipient*	14,237	469,311,899	$ 32,964
Survivor Recipient	2,919	76,515,315	$ 26,213
Two Life 50% Survivor Pension			
Retired Member Recipient*	5,379	189,266,055	$ 35,186
Survivor Recipient	1,073	15,643,189	$ 14,579
Single Life with Temporary Child Survivor Pension			
Retired Member Recipient*	197	8,315,501	$ 42,211
Child Recipient	8	270,321	$ 33,790
Total Service Retirement Pensions	41,041	$ 1,310,840,573	$ 31,940
Disability Retirement Pensions			
Single Life Pension Terminating Upon Death*	507	9,517,224	$ 18,772
Two Life 100% Survivor Pension			
Retired Member Recipient*	791	14,902,789	$ 18,840
Survivor Recipient	230	3,758,760	$ 16,342
Two Life 50% Survivor Pension			
Retired Member Recipient*	196	4,139,922	$ 21,122
Survivor Recipient	28	253,500	$ 9,054
Single Life with Temporary Child Survivor Pension			
Retired Member Recipient*	11	184,140	$ 16,740
Child Recipient	0	0	$ 0
Total Disability Retirement Pensions	1,763	$ 32,756,334	$ 18,580
Pre-Retirement Survivor Pensions			
Spouse Recipient	1,271	23,395,235	$ 18,407
Child Recipient	40	412,705	$ 10,318
Total Pre-Retirement Survivor Pensions	1,311	$ 23,807,941	$ 18,160
Total Pensions Being Paid	44,115	$ 1,367,404,848	$ 30,996

**Includes Co-Payees*

Table D

Schedule of Retirants Added to and Removed from Rolls

Division	Number Added	Increase Annual Allowance	Number Removed	Decrease Annual Allowance	Net Change Annual Allowance	Total Retirees & Beneficiarie	Annual Allowance	Increase in Annual Allowance	Average Annual Allowance	% Change in Average Allowance
State General	918	$ 21,507,826	466	$ 11,643,445	$ 9,864,381	20,452	$ 613,021,280	1.64%	$ 29,974	1.25%
State Police	122	5,722,132	27	784,008	4,938,124	1,754	59,820,992	9.00%	34,105	0.98%
Municipal General	909	30,222,197	328	8,035,183	22,187,014	15,580	426,774,916	5.48%	27,392	0.21%
Municipal Police	243	14,539,322	89	3,391,924	11,147,398	4,113	170,202,543	7.01%	41,382	0.53%
Municipal Fire	114	7,547,909	24	823,055	6,724,854	2,216	97,585,117	7.40%	44,037	0.76%
All PERA Divisions	2,306	$ 79,539,386	934	$ 24,677,615	$54,861,771	44,115	$1,367,404,848	4.18%	$ 30,996	0.94%

Table E

Distribution of Retirees by Years of Service at Retirement

Division	Years of Credited Service at Retirement*							
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+	Total
State General								
Average Monthly Benefit	$ 1,896	$ 911	$ 1,550	$ 2,261	$ 3,040	$ 3,595	$ 3,763	$ 2,687
Number of Retirees	1,421	1,927	1,975	1,879	2,260	6,811	560	16,833
State Police/Corrections								
Average Monthly Benefit	$ 2,841	$ 1,471	$ 1,754	$ 2,356	$ 2,957	$ 3,557	$ 4,163	$ 3,163
Number of Retirees	103	53	52	75	337	657	67	1,344
Municipal General								
Average Monthly Benefit	$ 1,739	$ 769	$ 1,303	$ 2,007	$ 2,844	$ 3,423	$ 3,755	$ 2,484
Number of Retirees	879	1,437	1,585	1,494	1,686	4,756	495	12,332
Municipal Police								
Average Monthly Benefit	$ 3,275	$ 1,605	$ 2,177	$ 3,405	$ 3,931	$ 4,768	$ 4,642	$ 3,795
Number of Retirees	188	63	90	389	2,352	186	41	3,309
Municipal Fire								
Average Monthly Benefit	$ 3,878	$ 2,182	$ 2,712	$ 3,611	$ 4,087	$ 5,130	$ 3,968	$ 4,023
Number of Retirees	106	23	37	167	1,318	84	44	1,779
Totals for All Divisions								
Average Monthly Benefit	$ 2,055	$ 882	$ 1,475	$ 2,336	$ 3,432	$ 3,556	$ 3,819	$ 2,804
Number of Retirees	2,697	3,503	3,739	4,004	7,953	12,494	1,207	35,597

*Does not include retirees missing years of service at retirement (3 State General, 1 Municipal General, and 2 Municipal Police)

Table F

Distribution of Recent Retiree Ages at Retirement

Division	2021-22 Retirees	All Current Retirees
State General		
Number	720	16,836
Average Monthly Benefit at Retirement	$ 2,867	$ 2,687
Average Age at Retirement	61.39	57.94
State Police/Corrections		
Number	98	1,344
Average Monthly Benefit at Retirement	$ 3,450	$ 3,163
Average Age at Retirement	51.74	50.96
Municipal General		
Number	695	12,333
Average Monthly Benefit at Retirement	$ 2,334	$ 2,484
Average Age at Retirement	61.60	58.47
Municipal Police		
Number	192	3,311
Average Monthly Benefit at Retirement	$ 4,282	$ 3,795
Average Age at Retirement	50.12	48.00
Municipal Fire		
Number	89	1,779
Average Monthly Benefit at Retirement	$ 4,801	$ 4,023
Average Age at Retirement	48.96	48.04
Totals for All Current Retirees		
Number	1,794	35,603
Average Monthly Benefit at Retirement	$ 2,940	$ 2,804
Average Age at Retirement	59.12	56.44

SECTION H

GLOSSARY

Glossary

Actuarial Accrued Liability (AAL): That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Plan Benefits which is not provided for by future Normal Costs. It is equal to the Actuarial Present Value of Future Plan Benefits minus the actuarial present value of future Normal Costs.

Actuarial Assumptions: Assumptions as to future experience under the Fund. These include assumptions about the occurrence of future events affecting costs or liabilities, such as:

- mortality, withdrawal, disablement, and retirement;
- future increases in salary;
- future rates of investment earnings and future investment and administrative expenses;
- characteristics of members not specified in the data, such as marital status;
- characteristics of future members;
- future elections made by members; and
- other relevant items.

Actuarial Cost Method or ***Funding Method:*** A procedure for allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability. These items are used to determine the ADC.

Actuarial Gain or ***Actuarial Loss:*** 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. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the Fund's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.

Actuarially Equivalent: Of equal actuarial present value, determined as of a given date and based on a given set of Actuarial Assumptions.

Actuarial Present Value (APV): The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:

a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.),
b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned, and
c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Plan Benefits: The Actuarial Present Value of those benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits. The Actuarial Present Value of Future Plan Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive, nonretired members either entitled to a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would be provide sufficient assets to pay all projected benefits and expenses when due.

Actuarial Valuation: The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan. An Actuarial valuation for a governmental retirement system typically also includes calculations of items needed for compliance with GASB.

Actuarial Value of Assets or ***Valuation Assets:*** The value of the Fund's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly actuaries use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the ADC.

Actuarially Determined: Values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.

Amortization Method: A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the Amortization payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the UAAL. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.

Amortization Payment: That portion of the pension plan contribution or ADC which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

Actuarially Determined Contribution (ADC) or ***Annual Required Contribution (ARC):*** A calculated contribution for a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the calculated contribution has a normal cost payment and an amortization payment.

Closed Amortization Period: A specific number of years that is counted down by one each year and therefore declines to zero with the passage of time. For example if the amortization period is initially set at 30 years, it is 29 years at the end of one year, 28 years at the end of two years, etc. See Funding Period and Open Amortization Period.

Decrements: Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or termination.

Defined Benefit Plan: An employer-sponsored retirement benefit that provides workers, upon attainment of designated age and service thresholds, with a monthly benefit based on the employee's salary and length of service. The value of a benefit from a defined benefit plan is generally not affected by the return on the assets that are invested to fund the benefit.

Defined Contribution Plan: A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, and the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.

Employer Normal Cost: The portion of the Normal Cost to be paid by the employers. This is equal to the Normal Cost less expected member contributions.

Experience Study: A periodic review and analysis of the actual experience of the Fund which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.

Funded Ratio: The ratio of the actuarial value of assets (AVA) to the actuarial accrued liability (AAL). Plans sometimes calculate a market funded ratio, using the market value of assets (MVA), rather than the AVA.

Funding Period or ***Amortization Period:*** The term "Funding Period" is used it two ways. In the first sense, it is the period used in calculating the Amortization Payment as a component of the ADC. This funding period is chosen by the Board of Trustees. In the second sense, it is a calculated item: the number of years in the future that will theoretically be required to amortize (i.e., pay off or eliminate) the Unfunded Actuarial Accrued Liability, based on the statutory employer contribution rate, and assuming no future actuarial gains or losses.

GASB: The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.

Normal Cost: That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method. Any payment in respect of an Unfunded Actuarial Accrued Liability is not part of Normal Cost (see Amortization Payment). For pension plan benefits which are provided in part by employee contributions, Normal Cost refers to the total of employee contributions and employer Normal Cost unless otherwise specifically stated. Under the entry age normal cost method, the Normal Cost is intended to be the level cost (when expressed as a percentage of pay) needed to fund the benefits of a member from hire until ultimate termination, death, disability or retirement.

Open Amortization Period: An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. In other words, if the initial period is set as 30 years, the same 30-year period is used in determining the Amortization Period each year. In theory, if an Open Amortization Period is used to amortize the Unfunded Actuarial Accrued Liability, the UAAL will never completely disappear, but will become smaller each year, either as a dollar amount or in relation to covered payroll.

Unfunded Actuarial Accrued Liability: The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus.

Valuation Date or ***Actuarial Valuation Date:*** The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Plan Benefits is determined. The expected benefits to be paid in the future are discounted to this date