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**PERA**

Public Employees  
Retirement Association  
of New Mexico

**INVESTED IN TOMORROW.**

**New Mexico Judicial Retirement Fund  
Annual Actuarial Valuation  
as of June 30, 2021**





# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

October 28, 2021

The Retirement Board  
Public Employees Retirement Association  
Santa Fe, New Mexico

Members of the Board:

We have conducted the annual actuarial valuation of the New Mexico Judicial Retirement Fund as of June 30, 2021; the results of the valuation are contained in the following report. The annual valuation is used to determine the sufficiency of the statutory contribution rates and, if necessary, the amount required to fund the annual normal cost and fully amortize the unfunded actuarial accrued liability with annual payments over a 25-year period. The results of this valuation apply to the fiscal year beginning July 1, 2021 and ending June 30, 2022 (FY 2022). Information contained in our report for plan years ending prior to June 30, 2010 is based upon valuations performed by the Fund's prior actuary.

In performing the valuation, we relied on data supplied by the Public Employees Retirement Association (PERA) and performed limited tests on the data for consistency and reasonableness. In determining the Fund's liabilities, future events, such as investment returns, deaths, retirements, etc., are anticipated based upon the set of actuarial assumptions as approved by the Board. There were no assumption changes since the last valuation. The valuation reflects the passage of Senate Bill 122, which provides for a monthly distribution of \$100,000 to the Fund until achieving 100% funded status.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: fund experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

This actuarial valuation was performed to determine the adequacy of statutory contributions to fund the plan. The asset values used to determine unfunded liabilities and funded ratios are not market values but less volatile market related values. A smoothing technique is applied to market values to determine the market related values. The unfunded liability amounts and funded ratios using the market value of assets would be different. The interest rate used for determining liabilities is based on the expected return on assets. Therefore, liability amounts in this report cannot be used to assess a settlement of the obligation.



Measuring pension obligations and actuarially determined contributions requires the use of assumptions regarding future economic and demographic experience. Whenever assumptions are made about future events, there is risk that actual experience will differ from expected. Appendix D of this report provides a discussion of the risk considerations for the Fund in compliance with the guidance provided under Actuarial Standard of Practice Number 51, *Assessment and Disclosure of Risk in Measuring Pension Obligations*, (ASOP 51).

Annual actuarial valuations are performed for the Fund which re-measure the assets and liabilities and compute a new actuarially determined contribution. The Fund also has experience studies performed every four to five years to analyze the discrepancies between actuarial assumptions and actual experience and determine if the actuarial assumptions need to be changed. Annual actuarial valuations and periodic experience studies are practical ways to monitor and reassess risk.

In order to prepare the results in this report, we have utilized appropriate actuarial models that were developed for this purpose. These models use assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

We note that as we are preparing this report, the world is in the midst of a pandemic. We have considered available information but do not believe that there is yet sufficient data to warrant the modification of any of our assumptions. We will continue to monitor the situation and advise in the future of any adjustments that we believe would be appropriate

This is to certify that the undersigned are members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the Fund.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'John J. Garrett'.

John J. Garrett, ASA, FCA, MAAA  
Principal and Consulting Actuary

A handwritten signature in blue ink, appearing to read 'Bryan Hoge'.

Bryan Hoge, FSA, EA, FCA, MAAA  
Consulting Actuary



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## Section I: Board Summary

The table below summarizes the results of the June 30, 2021 actuarial valuation as compared with the prior year.

**Table I-1: Comparative Summary of Principal Results**

Valuation Date	June 30, 2021	June 30, 2020
Total Annual Payroll	\$ 17,165,992	\$ 16,490,136
Total Valuation Payroll	\$ 17,680,972	\$ 16,984,840
Actuarial Accrued Liability (AAL)		
Active and Deferred Vested Members	\$ 45,975,720	\$ 48,544,753
Retired Members and Survivors	<u>130,559,770</u>	<u>122,210,894</u>
Total	\$ 176,535,490	\$ 170,755,647
Actuarial Value of Assets (AVA)	\$ 94,024,914	\$ 91,269,164
Funded Ratio	53.3 %	53.5 %
Unfunded Actuarial Accrued Liability (UAAL) (AAL - AVA)	\$ 82,510,576	\$ 79,486,483
<b>Calculation of Required Contribution (Fiscal Year Ending)</b>	<b>June 30, 2022</b>	<b>June 30, 2021</b>
Normal Cost		
Retirement	16.23 %	16.76 %
Termination	3.40 %	3.56 %
Pre-Retirement Survivors	0.99 %	1.03 %
Disability	<u>0.00 %</u>	<u>0.00 %</u>
Total Normal Cost	20.62 %	21.35 %
Administrative Expenses	0.50 %	0.50 %
UAAL 25-Year Amortization Rate	30.13 %	30.21 %
Reduction for SB122 Distribution	<u>(6.79)%</u>	<u>(7.07)%</u>
Actuarially Determined Contribution Rate	44.46 %	44.99 %
Actuarially Determined Contribution Amount	\$ 7,861,005	\$ 7,641,728
Statutory Contribution Rates		
Employer Contribution Rate	15.00 %	15.00 %
Expected Docket Fees	14.85 %	14.71 %
Member Contribution Rate	<u>10.50 %</u>	<u>10.50 %</u>
Total Statutory Rate	40.35 %	40.21 %
Expected Statutory Amount	\$ 7,134,272	\$ 6,829,604
Amortization Period Based on Statutory Rates*	41	44
Deficiency in Statutory Rate	4.11%	4.78%
Deficiency in Expected Statutory Amount	\$ 726,733	\$ 812,124

\*The June 30, 2020 Amortization Period was 44 including SB122 amounts and infinite excluding SB122 amounts.



## Section I: Board Summary

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### Summary of Key Findings

The funding policy for the Fund determines the employer contribution required to satisfy the annual normal cost plus an amount to fully amortize the unfunded actuarial accrued liability (UAAL) over a period not to exceed 25 years. This resulting contribution amount is compared to the expected statutory contribution amount to assess the sufficiency of the statutory contribution. The actuarially determined contribution rate for the Fund in the fiscal year ending June 30, 2022 (FY 2022) is 44.46% of covered payroll. This is a decrease of 0.53% of payroll from the total contribution requirement of 44.99% of covered payroll from the prior valuation.

The total normal cost contribution as a percent of valuation payroll decreased from 21.35% to 20.62%. The UAAL increased from \$79.5 million to \$82.5 million and the annual amortization amount decreased from 30.21% to 30.13% of payroll. The funded ratio of the Fund has decreased from 53.5% to 53.3%. The UAAL and funded ratio are reconciled in Table IV-3. We note the following key findings:

- The Fund experienced an actuarial gain on Fund assets of \$1,470,954 for the plan year related to the 7.25% expected investment return on the actuarial value of assets. This represents a 0.9% increase to the funded ratio. Table III-3 provides the calculation of the investment loss for this year.
- In addition, the Fund experienced a net increase of \$2,637,037 in liabilities due to non-investment related experience losses. The majority of this increase was due to granting a 2% COLA for the prior year.
- The Fund received \$183,582 less in contributions than expected. This represents a 0.1% decrease to the funded ratio.
- Senate Bill 122 provides for a monthly distribution of \$100,000 to the Fund until 100% funded. These changes resulted in a decrease of 6.79% to the actuarially determined contribution rate.

Section II of the report provides summarized information on the membership data used in the valuation. Section III covers the Fund's assets and Section IV covers the Fund's liabilities. The results of the valuation are provided in Section V and the accounting information is in Section VI. The appendices provide additional information on A) the Fund members, B) the actuarial assumptions and methods, and C) the summary of the benefit provisions of the Fund. It is important to note that all information contained in this report for periods prior to June 30, 2010 were produced by a prior actuarial consulting firm.



## Section II: Membership Data

Data regarding the membership of the Fund for use in the valuation were furnished by PERA. The following tables summarize the membership data as of June 30, 2021 compared with that reported for the prior year.

**Table II-1: Summary of Membership Data as of June 30, 2021**

Group	June 30, 2021	June 30, 2020
<b>Total Active Members</b>	<b>128</b>	<b>123</b>
<b>Inactive Members</b>		
Deferred Vested	28	25
Other	<u>1</u>	<u>2</u>
<b>Total Inactive Members</b>	<b>29</b>	<b>27</b>
<b>Retirees</b>		
Service*	155	146
Disabled	2	2
Beneficiaries	<u>45</u>	<u>45</u>
<b>Total Retirees</b>	<b>202</b>	<b>193</b>
<b>Totals</b>	<b>359</b>	<b>343</b>

\*Includes 12 Co-Payees as of June 30, 2021 and 10 Co-Payees as of June 30, 2020.

**Table II-2: Historical Summary of Active Membership Valuation Data**

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Change in Average Pay
6/30/2021	128	\$ 17,165,992	\$ 134,109	0.03 %
6/30/2020	123	16,490,136	134,066	6.42 %
6/30/2019	124	15,621,802	125,982	(0.44)%
6/30/2018	125	15,817,424	126,539	6.59 %
6/30/2017	124	14,721,304	118,720	(0.01)%
6/30/2016	127	15,078,274	118,727	(0.04)%



## Section II: Membership Data

**Table II-3: Deferred Members, Retired Members and Beneficiaries as of June 30, 2021**

<b>Group</b>	<b>Number</b>	<b>Total Annual Benefits</b>	<b>Average Annual Benefits</b>	<b>Average Age</b>
<b>Deferred Vested</b>	<b>28</b>	<b>\$ 1,008,349</b>	<b>\$ 36,012</b>	<b>57.43</b>
<b>Retirees</b>				
Service*	155	10,504,669	67,772	72.02
Disability	2	74,659	37,330	70.00
Survivors	45	2,166,289	48,140	76.18
<b>Retiree Totals</b>	<b>202</b>	<b>\$ 12,745,617</b>	<b>\$ 63,097</b>	<b>72.93</b>
<b>Total</b>	<b>230</b>	<b>\$ 13,753,966</b>	<b>\$ 59,800</b>	<b>71.03</b>

\*Includes 12 Co-Payees as of June 30, 2021.





### Section III: Fund Assets

The following tables provide information on the Fund's assets at market value and the development of the actuarial value of assets.

**Table III-1: Market Value Reconciliation**

	June 30, 2021	June 30, 2020
Beginning of Year Market Value	\$ 84,870,503	\$ 91,759,352
Audit Adjustment	-	-
Revised Beginning of Year Market Value	\$ 84,870,503	\$ 91,759,352
Revenues:		
Member Contributions	1,838,186	1,783,295
Appropriations	1,200,000	-
Docket Fees	2,625,987	2,499,127
Employer Contributions	1,800,395	2,184,003
Purchase of Service	-	-
Investment Income		
Interest, dividends, etc.	2,290,459	1,737,006
Realized/Unrealized gains (losses)	19,682,168	(2,636,746)
Security lending	11,409	17,761
Other Income	-	-
Settlement Award	-	-
Total Revenues	\$ 29,448,604	\$ 5,584,446
Expenditures:		
Benefit Payments	12,538,013	12,013,293
Refunds of Member Contributions	1,273	7,599
Investment Expenses	482,282	370,497
Administrative Expenses	70,969	81,906
Total Expenditures	\$ 13,092,537	\$ 12,473,295
End of Year Market Value	\$ 101,226,570	\$ 84,870,503

The market value rate of return for the plan year is 26.13%. The Fund's cash flow is -5.53% as a percentage of average market value compared to -6.38% last year.



### Section III: Fund Assets

The actuarial value of assets represents a "smoothed" value developed with the purpose of dampening the impact of market volatility on the assets used in determining valuation results. The actuarial value of assets has been calculated by spreading the recognition of unexpected investment income over four years. The amount of unexpected investment income in each year is the difference between expected actuarial value investment income and actual market value investment income. Table III-2 below provides the calculation of the actuarial value of assets.

**Table III-2: Development of Actuarial Value of Assets as of June 30, 2021**

1. Actuarial Value Beginning of Year		\$	91,269,164
2. Market Value End of Year			101,226,570
3. Market Value Beginning of Year			84,870,503
4. Cash Flow			
a. Contributions		\$	6,264,568
b. Appropriations			1,200,000
c. Service Purchases			-
d. Benefit Payments and Refunds			(12,539,286)
e. Administrative Expenses			(70,969)
f. Other			-
g. Net		\$	(5,145,687)
5. Investment Income			
a. Market Total (2 - 3 - 4g)		\$	21,501,754
b. Assumed Rate			7.25 %
c. Amount for Immediate Recognition			6,430,483
d. Amount for Phased-In Recognition			15,071,271
6. Phased-In Recognition of Investment Income			
a. Current Year: 0.25 * 5d		\$	3,767,818
b. First Prior Year (2019/2020)	\$ (7,724,043) x 25%		(1,931,011)
c. Second Prior Year (2018/2019)	\$ (959,114) x 25%		(239,779)
d. Third Prior Year (2017/2018)	\$ (504,294) x 25%		(126,074)
e. Total Recognized Investment Gain		\$	1,470,954
7. Audit Adjustment		\$	-
<b>8. Actuarial Value End of Year (1 + 4g + 5c + 6e + 7)</b>		\$	94,024,914
9. Difference Between Market & Actuarial Values (2 - 8)		\$	7,201,656
<b>10. Rate of Return on Actuarial Value</b>			<b>8.91 %</b>
<b>11. Actuarial Value of Assets as a % of Market Value of Assets</b>			<b>92.9 %</b>



### Section III: Fund Assets

The actuarial valuation assumes the rate of investment return on the assets of the Fund is 7.25% annually. This assumption is based upon the reasonable long-term expected return on the assets. In each year, the Fund will experience actuarial gains and losses due to the actual investment return of the assets. Table III-3 provides the calculation of the gain or loss due to the investment experience on the actuarial value of assets for the year ended June 30, 2021.

**Table III-3: Actuarial Investment Gain (Loss) for the Year Ended June 30, 2021**

1. Beginning of Year Actuarial Value of Assets (AVA)	\$ 91,269,164
2. Employee and Employer Contributions	6,264,568
3. Appropriations	1,200,000
4. Benefit Payments	(12,539,286)
5. Administrative Expenses	(70,969)
6. Other	-
7. Interest [1 x 7.25% + (2 + 3 + 4 + 5 + 6) x 7.25% x 0.5]	6,430,483
8. Expected End of Year AVA	92,553,960
9. Actual End of Year AVA	94,024,914
<b>10. Actuarial Investment Gain (Loss) (9 - 8)</b>	<b>\$ 1,470,954</b>



## Section IV: Fund Liabilities

The total actuarial present value of benefits is the value as of the valuation date of all future benefits expected to be paid to current members of the Fund. An actuarial cost method allocates each individual's present value of benefits to past and future years of service. The actuarial accrued liability includes the portion of the active member present value of benefits allocated to past service as well as the entire present value of benefits for retirees, beneficiaries and inactive members. The portion of the actuarial present value allocated to the future service of active members is called the present value of future normal costs. Table IV-1 presents the calculation and allocation of the actuarial present value of benefits.

**Table IV-1: Allocation of the Actuarial Present Value of Benefits as of June 30, 2021**

	Actuarial Accrued Liability	Present Value of Future Normal Cost	Actuarial Present Value of Benefits
<b>Active Members</b>			
Service Retirement	\$ 35,121,180	\$ 19,422,893	\$ 54,544,073
Termination Benefits	1,516,540	4,572,399	6,088,939
Survivor Benefits	1,169,607	1,211,925	2,381,532
Disability Retirement	-	-	-
Total for Active Members	\$ 37,807,327	\$ 25,207,217	\$ 63,014,544
<b>Inactive Members</b>	\$ 8,168,393		\$ 8,168,393
<b>Retirees and Beneficiaries</b>			
Service Retirements	\$ 113,369,360		\$ 113,369,360
Beneficiaries	16,346,939		16,346,939
Disability Retirements	843,471		843,471
Total for Retirees and Beneficiaries	\$ 130,559,770		\$ 130,559,770
<b>Total</b>	<b>\$176,535,490</b>	<b>\$ 25,207,217</b>	<b>\$ 201,742,707</b>



## Section IV: Fund Liabilities

Under the valuation funding method, an unfunded actuarial accrued liability (UAAL) exists to the extent that the actuarial accrued liability exceeds the actuarial value of assets as presented in Section III. The calculation of the UAAL as of the valuation date is shown in Table IV-2.

**Table IV-2: Calculation of the Unfunded Actuarial Accrued Liability and Funded Ratio**

	June 30, 2021	June 30, 2020
1. Actuarial Accrued Liability	176,535,490	170,755,647
2. Actuarial Value of Assets	94,024,914	91,269,164
3. Unfunded Actuarial Accrued Liability (1 - 2)	82,510,576	79,486,483
Funded Ratio (2 / 1)	53.3%	53.5%

Although the terminology used to describe the excess of the Fund’s actuarial accrued liability over the Fund’s actuarial value of assets is call the “unfunded” actuarial accrued liability, the actuarially determined contribution in the valuation includes an annual amortization payment required to fully amortize the UAAL within 25 years.

The funded ratio is the ratio of the actuarial value of assets to the actuarial accrued liability (Table IV-1) as of the valuation date. As of June 30, 2021, the funded ratio of the Fund is 53.3% as compared to a ratio of 53.5% as of June 30, 2020. The ratio is a commonly used measure of the funding progress and can be useful in reviewing the historical trend of a Fund’s funding progress. Such a review should also consider the impact to this measure over the historical period due to changes to fund benefits, changes to the actuarial assumptions and methods, and the significant impact that investment experience can have on the ratio over short-term periods. We caution that no single “point in time” measure can provide a universal basis for comparing one plan’s funded status to another.



## Section IV: Fund Liabilities

The calculation of the Fund's actuarial assets and liabilities requires the use of several assumptions concerning the future experience of the Fund and its members. In each annual valuation, the latest year of actual experience is compared to that expected by the prior valuation. The differences are actuarial gains and losses which decrease or increase the UAAL. Table IV-3 provides the reconciliation of the UAAL.

**Table IV-3: Reconciliation of the UAAL**

	UAAL	Funded Ratio
<b>1. Beginning of Year</b>	<b>\$ 79,486,483</b>	<b>53.5 %</b>
2. Normal Cost	3,625,435	
3. Expected Contributions	(7,641,728)	
4. Other Income/Expense	70,969	
5. Interest [ (1 x 7.25%) + (2 + 3 + 4) x 7.25% x 0.5 ]	5,619,752	
6. Expected End of Year	\$ 81,160,911	53.3 %
7. Actuarial Experience (Gain) / Loss		
Contribution Shortfall/(Surplus) (with interest)	\$ 183,582	(0.1)%
Investment Experience	(1,470,954)	0.9 %
Liability Experience	2,637,037	(0.8)%
Total Actuarial Experience (Gain) / Loss	\$ 1,349,665	
8. End of Year Prior to Plan/Assumption Changes (6 + 7)	\$ 82,510,576	0.0 %
9. Plan Changes	-	
10. Change in Actuarial Assumptions	-	0.0 %
<b>11. Actual End of Year (8 + 9 + 10)</b>	<b>\$ 82,510,576</b>	<b>53.3 %</b>



## Section V: Actuarial Funding Calculation

Section IV of this report presented the Fund's actuarial accrued liability as the portion of the present value of benefits allocated to past years of service. The portion of the active members' present value of benefits allocated to future years of service is funded through annual normal cost contributions comprised of both active member and employer contributions.

The actuarially determined contribution rate is the percentage of valuation payroll necessary to fund the annual normal cost of the Fund and fully amortize the UAAL over 25 years. The amount calculated is expected to remain constant over the remaining amortization period and is provided in Table V-1.

**Table V-1: Calculation of Actuarially Determined Contribution Rate**

	June 30, 2021	June 30, 2020
1. Total Valuation Payroll	\$ 17,680,972	\$ 16,984,840
2. Present Value of Future Benefits	201,742,707	195,064,751
3. Present Value of Future Normal Costs	25,207,217	24,309,104
4. Actuarial Accrued Liability (2 - 3)	\$ 176,535,490	\$ 170,755,647
5. Actuarial Value of Assets	94,024,914	91,269,164
6. Unfunded Actuarial Accrued Liability (UAAL) (4 - 5)	\$ 82,510,576	\$ 79,486,483
7. UAAL Amortization Payment (25 year funding)	\$ 5,326,594	\$ 5,131,369
a. Amortization Payment as a Percent of Payroll (7 / 1)	30.13%	30.21%
8. Total Normal Cost	\$ 3,646,006	\$ 3,625,435
a. Normal Cost as a Percent of Payroll (8 / 1)	20.62%	21.35%
9. Expected Administrative Expenses	\$ 88,405	\$ 84,924
a. Administrative Expense as a Percent of Payroll (9 / 1)	0.50%	0.50%
10. Reduction for SB122 Distribution	\$ 1,200,000	\$ 1,200,000
a. as a Percent of Payroll (10 / 1)	6.79%	7.07%
11. Actuarially Determined Contribution (ADC)	\$ 7,861,005	\$ 7,641,728
a. ADC Rate (7a + 8a + 9a - 10a)	44.46%	44.99%
12. Expected Statutory Contribution Rates		
a. Employer Contribution Rate	15.00%	15.00%
b. Expected Docket Fees as a Percent of Payroll	14.85%	14.71%
c. Member Contribution Rate	10.50%	10.50%
d. Total Statutory Contribution Rate (a + b + c)	40.35%	40.21%
13. (Excess)/Shortfall of Statutory Rates (11a - 12d)	4.11%	4.78%



## Section VI: Additional Disclosure Information

The tables provided in this section present information relevant for the annual financial reporting of the Fund. GASB Statement No. 67 required disclosure information will be provided in a separate supplemental report. Additional disclosure information is provided below.

**Table VI-1: Schedule of Funding Progress**

Actuarial Valuation Date	Actuarial Value of Plan Assets (a)	Actuarial Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Annual Payroll (c)	UAAL as a Percentage of Annual Payroll ((b - a) / c)
6/30/2021	\$ 94,024,914	\$ 176,535,490	\$82,510,576	53.3 %	\$17,165,992	480.7 %
6/30/2020	91,269,164	170,755,647	79,486,483	53.5 %	16,490,136	482.0 %
6/30/2019	92,081,178	167,198,535	75,117,357	55.1 %	15,621,802	480.8 %
6/30/2018	92,022,272	163,383,292	71,361,020	56.3 %	15,817,424	451.2 %
6/30/2017	92,137,316	149,412,786	57,275,470	61.7 %	14,721,304	389.1 %
6/30/2016	90,471,110	146,934,910	56,463,800	61.6 %	15,078,274	374.5 %
6/30/2015	88,249,418	141,281,155	53,031,737	62.5 %	15,084,263	351.6 %
6/30/2014	85,577,431	133,346,415	47,768,984	64.2 %	13,163,305	362.9 %
6/30/2013	80,007,287	143,745,971	63,738,684	55.7 %	13,226,142	481.9 %
6/30/2012	75,506,702	147,922,843	72,416,141	51.0 %	12,690,503	570.6 %

**Table VI-2: Solvency Test**

Valuation Date	Aggregate Accrued Liabilities For			Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Actuarial Value of Assets		
	(1) Active Member Contributions	(2) Retirees, Survivors and Inactive Members	(3) Active Members (Employer Financed Portion)		(1)	(2)	(3)
6/30/2021	\$ 12,643,172	\$ 138,728,163	\$ 25,164,155	\$ 94,024,914	100.00%	58.66%	0.00%
6/30/2020	12,600,961	129,838,667	28,316,019	91,269,164	100.00	60.59	0.00
6/30/2019	11,618,040	125,839,968	29,740,527	92,081,178	100.00	63.94	0.00
6/30/2018	12,916,868	116,119,124	34,347,300	92,022,272	100.00	68.12	0.00
6/30/2017	12,589,634	106,164,363	30,658,789	92,137,316	100.00	74.93	0.00



## Section VI: Additional Disclosure Information



**Table VI-3: Schedule of Retirants Added to and Removed from Rolls**

Valuation Date	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase in Annual Allowances	Average Annual Allowances
	Number Added	Annual Allowances	Number Removed	Annual Allowances	Number	Annual Allowances		
6/30/2021	14	\$ 936,811	5	\$ 319,857	202	\$ 12,745,617	5.09%	\$ 63,097
6/30/2020	11	580,112	4	166,902	193	12,128,663	3.53%	62,843
6/30/2019	24	1,758,836	12	814,665	186	11,715,453	8.77%	62,986
6/30/2018	14	890,836	3	261,534	174	10,771,282	6.20%	61,904
6/30/2017	7	504,314	4	242,548	163	10,141,980	2.65%	62,221

**Table VI-4: Summary of Actuarial Methods and Assumptions**

Valuation Date	June 30, 2021
Actuarial cost method	Entry Age Normal
Amortization method	Level Percent of Payroll, Open
Payroll Growth Rate	3.00%
Remaining amortization period	25 years
Asset valuation method	4-year Smoothed Market
Actuarial assumptions:	
Investment rate of return*	7.25%
Administrative expenses	0.50% of payroll
Projected salary increases*	3.25% Annually
Post-Retirement Benefit Increases:	0.67% compounded annually
* Includes inflation at 2.50%	



## Appendix A: Additional Membership Data

**Table A-1: Schedule of Active Participant Data as of June 30, 2021**

Nearest Age	Completed Years of Service							Total	Payroll
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+		
30 to 34	0	1	0	0	0	0	0	1	\$ 127,067
35 to 39	5	1	0	0	0	0	0	6	\$ 802,922
40 to 44	9	4	1	0	0	0	0	14	\$ 1,868,464
45 to 49	10	7	5	0	0	0	0	22	\$ 2,935,463
50 to 54	8	7	3	1	4	0	0	23	\$ 3,107,333
55 to 59	3	2	2	8	0	3	0	18	\$ 2,395,037
60	1	1	2	1	0	0	0	5	\$ 668,824
61	0	0	0	0	1	0	0	1	\$ 127,067
62	3	0	0	0	2	0	0	5	\$ 685,048
63	0	2	4	1	0	0	0	7	\$ 941,720
64	2	0	1	2	0	0	0	5	\$ 672,402
65	1	1	1	0	0	0	0	3	\$ 401,294
66	2	0	0	0	0	0	0	2	\$ 274,560
67	0	1	0	0	0	0	0	1	\$ 133,765
68	1	0	2	0	0	0	0	3	\$ 401,294
69	0	2	0	1	0	0	0	3	\$ 403,083
70	0	0	1	2	0	0	0	3	\$ 417,727
71	0	0	0	0	0	0	0	0	\$ -
72	1	0	0	0	0	0	0	1	\$ 140,795
73	0	0	0	1	0	0	0	1	\$ -
74	0	1	2	1	0	0	0	4	\$ -
75	0	0	0	0	0	0	0	0	\$ -
76	0	0	0	0	0	0	0	0	\$ -
77	0	0	0	0	0	0	0	0	\$ -
78	0	0	0	0	0	0	0	0	\$ -
79	0	0	0	0	0	0	0	0	\$ -
80 & Over	0	0	0	0	0	0	0	0	\$ -
Total	46	30	24	18	7	3	0	128	\$17,165,992

Average Age: 54.73

Average Service: 9.05



## Appendix A: Additional Membership Data

**Table A-2: Number of Annual Retirement Allowances of Benefit Recipients  
as of June 30, 2021**

Type of Pension	Number	Total Annual Benefits	Average Annual Pension
<b>Normal Retirement Pensions</b>			
Two Life 75% Survivor Pension:			
Retired Member Recipient	143	\$ 10,186,346	\$ 71,233
Survivor Recipient	39	\$ 1,859,345	\$ 47,676
Co-Payee Recipient	12	\$ 318,324	\$ 26,527
<b>Total Normal Retirement Pensions</b>	<b>194</b>	<b>\$ 12,364,015</b>	<b>\$ 63,732</b>
<b>Disability Retirement Pensions</b>			
Duty Disability	2	\$ 74,659	\$ 37,330
Non-Duty Disability	0	N/A	N/A
Survivor Recipient	0	N/A	N/A
Co-Payee Recipient	0	N/A	N/A
<b>Total Disability Retirement Pensions</b>	<b>2</b>	<b>\$ 74,659</b>	<b>\$ 37,330</b>
<b>Pre-Retirement Survivor Pensions</b>			
Survivor Spouse Recipient	6	\$ 306,943	\$ 51,157
Survivor Child Recipient	0	N/A	N/A
<b>Total Pre-Retirement Survivor Pensions</b>	<b>6</b>	<b>\$ 306,943</b>	<b>\$ 51,157</b>
<b>Total Pensions Being Paid</b>	<b>202</b>	<b>\$ 12,745,617</b>	<b>\$ 63,097</b>



## Appendix A: Additional Membership Data

**Table A-3: Distribution of Participants Receiving Benefits as of June 30, 2021**

Attained Age	Retired Member*		Disabled Member		Survivor Beneficiaries		Totals	
	Number	Annual Pensions	Number	Annual Pensions	Number	Annual Pensions	Number	Annual Pensions
Under 40	0	\$ 0	0	\$ 0	2	\$ 9,726	2	\$ 9,726
40 to 44	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	0
55 to 59	7	417,250	0	0	1	67,965	8	485,215
60 to 64	13	874,010	0	0	0	0	13	874,010
65 to 69	40	2,566,245	1	42,226	8	419,446	49	3,027,917
70 to 74	50	3,466,256	1	32,433	6	199,458	57	3,698,147
75 to 79	20	1,351,873	0	0	9	455,381	29	1,807,254
80 to 84	15	1,127,792	0	0	9	477,963	24	1,605,755
85 to 89	5	409,662	0	0	6	360,803	11	770,465
90 to 94	5	291,581	0	0	2	87,310	7	378,891
95 to 99	0	0	0	0	1	56,603	1	56,603
100 & Over	0	0	0	0	1	31,634	1	31,634
<b>Total</b>	<b>155</b>	<b>\$ 10,504,669</b>	<b>2</b>	<b>\$ 74,659</b>	<b>45</b>	<b>\$ 2,166,289</b>	<b>202</b>	<b>\$ 12,745,617</b>

\*Includes 12 Co-Payees.

**Table A-4: Distribution of Retirees by Years of Service at Retirement (not including Disabled Members, Beneficiaries, and Co-Payees)**

	Years of Credited Service at Retirement							Total
	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+	
Average Monthly Benefit	\$ 2,500	\$3,454	\$ 5,395	\$ 6,984	\$ 7,030	\$ 6,223	\$7,267	\$5,936
Average Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Retirees	8	17	31	48	18	11	10	143

**Table A-5: Distribution of Recent Retiree Ages at Retirement (not including Disabled Members, Beneficiaries, and Co-Payees)**

	2016-17 Retirees	2017-18 Retirees	2018-19 Retirees	2019-20 Retirees	2020-21 Retirees	All Current Retirees
Number	4	8	16	6	10	143
Average Monthly Benefit at Retirement	\$ 8,285	\$ 7,808	\$ 6,833	\$ 5,928	\$ 6,266	\$ 5,912
Average Age at Retirement	65.65	65.55	64.97	65.14	63.84	62.70



## Appendix A: Additional Membership Data

**Table A-6: Status Reconciliation**

	Active Members	Terminated Members *	Pension Recipients			Total
			Service Retired**	Disability Retired	All Beneficiaries	
<b>June 30, 2020</b>	<b>123</b>	<b>27</b>	<b>146</b>	<b>2</b>	<b>45</b>	<b>343</b>
Increase (Decrease) From:						
Service Retirement	(8)	(2)	10			
Disability Retirement						
Deaths	(1)		(3)		(2)	(6)
Survivors					2	2
Co-Payee			2			2
Other Terminations						
Vested Terminations	(4)	4				
Refund of Contributions						
New Entrants/Rehires	18					18
Data Adjustments						
<b>June 30, 2021</b>	<b>128</b>	<b>29</b>	<b>155</b>	<b>2</b>	<b>45</b>	<b>359</b>

\* Includes 28 deferred vested members and 1 inactive members at June 30, 2021.

\*\*Includes 12 Co-Payees at June 30, 2021



## **Appendix B: Summary of Actuarial Assumptions and Methods**

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### **Actuarial Cost Methods Used for the Valuation**

An actuarial cost method is a procedure for allocating the actuarial present value of benefits and expenses to time periods. The method used for this valuation is known as the individual entry-age actuarial cost method and has the following characteristics:

- (i) The annual normal costs for each individual active judge are sufficient to accumulate the value of the judge's pension at time of retirement.
- (ii) Each annual normal cost is a constant percentage of the judge's year-by-year projected pensionable compensation.

The individual entry-age actuarial cost method allocates the actuarial present value of each judge's projected benefits on a level basis over the judge's pensionable compensation between the entry age of the judge and the expected exit ages. Normal cost for each judge is based on the benefits payable to that judge. Expected administrative expenses of 0.50% of payroll is included in the calculation of the annual contribution requirement.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called the actuarial accrued liability. Deducting the actuarial value of assets from the actuarial accrued liability determines the unfunded actuarial accrued liability. Unfunded actuarial accrued liability was amortized as a level percent of payroll over 25 years to determine the computed contribution rate. This period is consistent with the policy established by the Retirement Board in October 1996.

Active judge payroll was projected to increase 3.00% per year for the purpose of determining the contribution needed to amortize the unfunded actuarial accrued liability.

The actuarial value of assets used for funding purposes is derived as follows: prior year actuarial value of assets is increased by contributions and expected investment income and reduced by refunds, benefit payments and expenses. To this amount 25% of the difference between expected and actual investment income for each of the previous four years is added. As of June 30, 2012, the actuarial value is no longer limited in the degree it can vary from market value by use of a 20% corridor. This change was recommended in the latest experience study and is consistent with the asset valuation method used in the other PERA plans.



## Appendix B: Summary of Actuarial Assumptions and Methods

### Actuarial Assumptions Used for the Valuation

#### Economic Assumptions (effective with June 30, 2018 valuation, unless otherwise noted)

**Assumed Rate of Investment Return.** 7.25%, net of investment expenses.

**Price Inflation.** 2.50% per annum, compounded annually.

**Real Investment Return.** 4.75% per annum compounded annually.

**Payroll Growth.** 3.00% per year.

**Salary Increases (effective with June 30, 2020 valuation).** Annual salaries of active members are assumed to increase at an annual rate of 3.25%.

**Administrative Expenses.** 0.50% of payroll.

#### Demographic Assumptions

**Rates of Retirement.** These rates are used to measure the probability of an eligible judge retiring at the indicated ages.

Sample Ages	Percent Retiring During Year Following Attainment of Indicated Ages
50-54	15%
55-61	20
62	25
63-74	20
75+	100

A judge was assumed to be eligible for retirement after satisfying the following conditions:

	Pre 7/2005 Hire Date	Post 7/2005 Hire Date	Post 7/2014 Hire Date
<b>Early Retirement Eligibility</b>	Age 50 with 18 years of service	N/A	N/A
<b>Normal Retirement Eligibility</b>	Age 60 with 15 years of service; or age 65 with 5 years of service	Age 55 with 16 years of service; or age 65 with 5 years of service	Age 60 with 15 years of service; or age 65 with 8 years of service



## Appendix B: Summary of Actuarial Assumptions and Methods

**Rates of Disability.** Beginning with the June 30, 2008 valuation, there are assumed to be no future disabled retirees.

**Rates of Separation from Active Membership (effective with June 30, 2017 valuation).** The rates are used to measure probabilities of active members terminating that status for a reason other than disability or death. The rates do not apply to judges who are eligible for retirement.

Sample Ages	Percent of Active Judges Separating Within the Next Year
20-34	1.00 %
37	2.00
42	2.50
47	3.00
52	3.50
57	4.00
62	4.50
65	4.50

**Mortality Assumption (effective with June 30, 2018 valuation).** RPH-2014 Blue Collar mortality table with female ages set forward one year. Future improvement in mortality rates is assumed using 60% of the MP-2017 projection scale generationally.

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		





## **Appendix B: Summary of Actuarial Assumptions and Methods**

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### **Miscellaneous and Technical Assumptions**

<b>Marriage Assumption:</b>	All members are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses. At retirement 86% of members are assumed to be married for purposes of valuing death after retirement benefits.
<b>Pay Increase Timing:</b>	Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
<b>Decrement Timing:</b>	Decrements of all types are assumed to occur at the beginning of the 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>	Neither disability nor withdrawal decrements operate during retirement eligibility.
<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>Benefit Service:</b>	Exact fractional service is used to determine the amount of benefit payable.



## **Appendix B: Summary of Actuarial Assumptions and Methods**

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### **Definitions of Technical Terms**

***Accrued Service.*** Service credited under the system which was rendered before the date of the actuarial valuation.

***Actuarial Accrued Liability.*** The difference between the actuarial present value of future benefit payments and the actuarial present value of future normal costs.

***Actuarial Cost Method.*** A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future benefit payments” between future normal cost and actuarial accrued liability.

***Actuarial Present Value.*** The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.

***Amortization.*** Paying off an amount with periodic payments of interest and principal – as opposed to paying off with a lump sum payment.

***Experience Gain (Loss).*** The difference between actual actuarial costs and anticipated actuarial costs – during the period between two valuation dates.

***Normal Cost.*** The actuarial cost allocated to the current year by the actuarial cost method.

***Unfunded Actuarial Accrued Liability.*** The difference between the actuarial accrued liability and the funding value of assets. Sometimes referred to as the “unfunded accrued liability.”



## Appendix C: Summary of Plan Provisions

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### Membership

Includes Metropolitan judges and all judges of district courts and justices of the Supreme Court and Court of Appeals. Judges in office on or before July 1, 1980 had the opportunity to choose coverage under the post July 1, 1980 plan upon filing of an irrevocable election prior to December 1, 1980.

### Voluntary Retirement

A judge may voluntarily retire:

- 1) At age 65 with 5 or more years of service.
- 2) At age 60 with 15 or more years of service.

For members hired after July 1, 2005:

- 1) At age 65 with 5 or more years of service.
- 2) At age 55 with 16 or more years of service.

For members hired after June 30, 2014:

- 1) At age 65 with 8 or more years of service.
- 2) At age 60 with 15 or more years of service.

### Retirement Pension

**Pre 7-1-80 plan:** 37.5% of one-year final average salary plus 7.5% of one-year final average salary for each year of service in excess of 5 years. Maximum is 75% of one-year final average salary (10 or more years of service). For service credit earned on or after July 1, 2014, 3.5% of five-year final average salary with a maximum of 85% of five-year final average salary.

**Post 7-1-80 plan:** 75% of one-year final average salary x 5% x (years of service prior to 7/1/2014 (not exceeding 15) plus 5). Maximum is 75% of one-year final average salary (15 or more years of service). For service credit earned on or after July 1, 2014, 3.5% of five-year final average salary with a maximum of 85% of five-year final average salary.

**Post 7-1-05 plan:** 3.75% of one-year final average salary for each year of service. Maximum is 75% of one-year final average salary (20 or more years of service). For service credit earned on or after July 1, 2014, 3.5% of five-year final average salary with a maximum of 85% of five-year final average salary.

**Post 7-1-14 plan:** 3.25% of five-year final average salary for each year of service. Maximum is 85% of five-year final average salary.

Total benefit is limited to 85% of five-year final average salary.



## **Appendix C: Summary of Plan Provisions**

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### **Early Retirement Pension**

Applicable to judges between the ages of 50 and 60 with 18 or more years of service. The pension is equal to 70% of FAS plus  $\frac{1}{2}\%$  of FAS multiplied by the number of complete years the age at retirement exceeds age 50. Members hired after July 1, 2005 are not eligible for early retirement.

### **Final Average Salary**

For service credit earned before June 30, 2014, the salary received during the last one year in office prior to retirement. For service credit earned on or after July 1, 2014, the average salary received for the highest five-year consecutive period.

### **Deferred Retirement Pension**

If judicial service terminates after 5 years of such service, the judge and spouse retain entitlement to benefits of the Fund. Five-year service requirement is waived if the result of a duty-related disability.

**Pre 7-1-80 plan:** 37.5% of one-year final average salary plus 7.5% of one-year final average salary for each year of service in excess of 5 years. Maximum is 75% of one-year final average salary (10 or more years of service). For service credit earned on or after July 1, 2014, 3.5% of five-year final average salary with a maximum of 85% of five-year final average salary.

**Post 7-1-80 plan:** 75% of one-year final average salary x 5% x (years of service prior to 7/1/2014 (not exceeding 15) plus 5). Maximum is 75% of one-year final average salary (15 or more years of service). For service credit earned on or after July 1, 2014, 3.5% of five-year final average salary with a maximum of 85% of five-year final average salary.

**Post 7-1-05 plan:** 3.75% of one-year final average salary for each year of service. Maximum is 75% of one-year final average salary (20 or more years of service). For service credit earned on or after July 1, 2014, 3.5% of five-year final average salary with a maximum of 85% of five-year final average salary.

**Post 7-1-14 plan:** 3.25% of five-year final average salary for each year of service. Maximum is 85% of five-year final average salary.

Total benefit is limited to 85% of five-year final average salary.

Payment of the judge's pension commences upon reaching the age and service requirement for voluntary retirement.



## **Appendix C: Summary of Plan Provisions**

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### **Survivor's Pension – Retired Judges**

The surviving spouse of a retired judge hired prior to July 1, 2014 receives a pension of 75% of the judge's retirement pension until death. Pension is payable to deceased judge's minor and dependent children if there is no eligible surviving spouse. For a judge hired on or after July 1, 2014, any benefit the surviving spouse receives depends on the payment form elected by the judge at retirement.

### **Survivor's Pension – Active Judges**

Applicable if judge had 5 (8 if hired after June 30, 2014) or more years of service. The surviving spouse of a judge hired prior to July 1, 2014 would receive 75% of the judge's vested pension until death. The surviving spouse of a judge hired after June 30, 2014 would receive the greater of 30% of final average salary or the accrued normal retirement pension under the 100% joint and survivor payment form. Pension is payable to deceased judge's minor and dependent children if there is no eligible surviving spouse.

### **Disability**

Applicable if judge has 5 (8 if hired after June 30, 2014) or more years of service and becomes incapacitated to perform duties of office. The amount of the disability pension is equal to the judge's accrued vested benefit.

### **Cost-of-Living Increases**

Effective July 1, 2014, there will be no COLA increases for 2014 and 2015. Starting July 1, 2016, annual 2% COLA increases will be subject to PERA's certification based on the Fund's current year and projected next year funded ratio being equal to or greater than 100%. At a minimum, a 2% COLA increase will be granted every third year. COLA increases are subject to the following eligibility periods:

- If member retires prior to July 1, 2014, COLA is payable after retirement has been in effect for at least 2 full calendar years.
- If member retires on or after July 1, 2014 but prior to July 1, 2015, COLA is payable after retirement has been in effect for at least 3 full calendar years.
- If member retires on or after July 1, 2015 but prior to July 1, 2016, COLA is payable after retirement has been in effect for at least 4 full calendar years.
- If member retires on or after July 1, 2016, COLA is payable after retirement has been in effect for at least 7 full calendar years.



## **Appendix C: Summary of Plan Provisions**

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If retired on account of disability or if at least age 65, the above waiting period is reduced to 1 full calendar year.

### **Judge's Contributions**

Members contribute 10.5% of salary.

### **Refund of Judge's Contributions**

If a judge leaves service or dies and no pension becomes payable, the accumulated contributions are refunded or paid to the designated beneficiary.

### **Public Payments**

Payroll based contributions: 15.0% of salary. Dollar Contributions: \$38.00 from each civil case docket fee paid in the district court (increased from \$27.25 effective June 19, 1987) plus \$25.00 from each civil case docket fee and \$10.00 from each civil action jury fee paid in the metropolitan courts.

### **Other Service**

PERA, MRA and ERA service may be combined with Judicial service for purposes of satisfying age and service requirements once a member has attained one month of Judicial service. When combining service, members may retire under the JRA after satisfying either the JRA or PERA age and service requirements for immediate benefits.



## Appendix D: Risk Considerations

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Actuarial Standards of Practice are issued by the Actuarial Standards Board and are binding on credentialed actuaries practicing in the United States. These standards generally identify what the actuary should consider, document and disclose when performing an actuarial assignment. In September, 2017, Actuarial Standard of Practice Number 51, *Assessment and Disclosure of Risk in Measuring Pension Obligations*, (ASOP 51) was issued as final with application to measurement dates on or after November 1, 2018. This ASOP, which applies to funding valuations, actuarial projections, and actuarial cost studies of proposed plan changes, was first applicable for the June 30, 2019 actuarial valuation.

A typical retirement plan faces many different risks, but the greatest risk is the inability to make benefit payments when due. The term “risk” is most commonly associated with an outcome with undesirable results. However, in the actuarial world, risk can be translated as uncertainty. The actuarial valuation process uses many actuarial assumptions to project how future contributions and investment returns will meet the cash flow needs for future benefit payments. Of course, we know that actual experience will not unfold exactly as anticipated by the assumptions and that uncertainty, whether favorable or unfavorable, creates risk. ASOP 51 defines risk as the potential of actual future measurements to deviate from expected results due to actual experience that is different than the actuarial assumptions.

There are a number of risks inherent in the funding of a defined benefit plan. These include:

- economic risks, such as investment return and price inflation;
- demographic risks such as mortality, payroll growth, aging population including impact of baby boomers, and retirement ages;
- external risks such as the regulatory and political environment.

The various risk factors for a given plan can have a significant impact – positive or negative – on the actuarial projection of liability and contribution rates. The following discussion includes a few exhibits which summarize some historical information to help indicate how certain key risk metrics have changed over time. Many are due to the maturing of the retirement system.

The investment return on assets is the most obvious risk – and usually the primary risk – to funding a pension plan. To illustrate the magnitude of this risk, the following chart shows the Asset Volatility Ratio (AVR), defined as the fair value of assets divided by covered payroll.



## Appendix D: Risk Considerations

### HISTORICAL ASSET VOLATILITY RATIOS

As a retirement system matures, the size of the market value of assets increases relative to the covered payroll of active members, on which the System is funded. The size of the plan assets relative to covered payroll, sometimes referred to as the asset volatility ratio, is an important indicator of the contribution risk for the System. The higher this ratio, the more sensitive a plan's contribution rate is to investment return volatility. In other words, it will be harder to recover from investment losses with increased contributions.

<b>Actuarial Valuation Date</b>	<b>Market Value of Assets</b>	<b>Covered Payroll</b>	<b>Asset Volatility Ratio</b>	<b>Increase in ACR with a Return 10% Lower than Assumed*</b>
6/30/2011	\$ 78,825,550	\$ 12,266,852	6.43	4.15%
6/30/2012	\$ 75,359,934	\$ 12,690,503	5.94	3.83%
6/30/2013	\$ 81,518,628	\$ 13,226,142	6.16	3.98%
6/30/2014	\$ 91,141,300	\$ 13,163,305	6.92	4.47%
6/30/2015	\$ 88,988,252	\$ 15,084,263	5.90	3.81%
6/30/2016	\$ 84,932,021	\$ 15,078,274	5.63	3.63%
6/30/2017	\$ 89,616,194	\$ 14,721,304	6.09	3.93%
6/30/2018	\$ 91,330,642	\$ 15,817,424	5.77	3.72%
6/30/2019	\$ 91,759,352	\$ 15,621,802	5.87	3.79%
6/30/2020	\$ 84,870,503	\$ 16,490,136	5.15	3.32%
6/30/2021	\$ 101,226,570	\$ 17,165,992	5.90	3.81%

\*The impact of asset smoothing is not reflected in the impact on the Actuarial Contribution Rate (ACR). Current year assumptions are used for all years shown.

The assets as of June 30, 2021 are about 5.9 times the amount of covered payroll. Consequently, underperforming the investment return assumption by 10.00% (i.e., earn -2.75% for one year) is equivalent to about 59% of payroll. While the actual impact of this experience in the first year is mitigated by the asset smoothing method and amortization of the UAL, this table illustrates the risk associated with volatile investment returns. Such an event in one year would be expected to increase the actuarial contribution rate by 3.81% of payroll.





## Appendix D: Risk Considerations

### HISTORICAL CASH FLOWS

Plans with negative cash flows will experience increased sensitivity to investment return volatility. Cash flows, for this purpose, are measured as contributions less benefit payments. If the System has negative cash flows and then experiences returns below the assumed rate, there are fewer assets to be reinvested to earn the higher returns that typically follow. While any negative cash flow will produce such a result, it is typically a negative cash flow of more than 5% of MVA that may cause significant concerns. This is a metric the investment consultants usually focus on when evaluating the asset allocation. The maturity of the system is the main contributor to the situation.

<b>Actuarial Valuation Date</b>	<b>Market Value of Assets</b>	<b>Contributions</b>	<b>Benefit Payments and Expenses</b>	<b>Net Cash Flow</b>	<b>Net Cash Flow as a Percent of MVA</b>
6/30/2011	\$ 78,825,550	5,142,469	7,141,608	(1,999,139)	-2.54%
6/30/2012	\$ 75,359,934	4,630,650	7,665,824	(3,035,174)	-4.03%
6/30/2013	\$ 81,518,628	4,967,040	8,277,164	(3,310,124)	-4.06%
6/30/2014	\$ 91,141,300	4,826,417	8,886,349	(4,059,932)	-4.45%
6/30/2015	\$ 88,988,252	5,775,456	9,440,162	(3,664,706)	-4.12%
6/30/2016	\$ 84,932,021	5,819,109	9,851,030	(4,031,921)	-4.75%
6/30/2017	\$ 89,616,194	6,159,844	10,175,837	(4,015,993)	-4.48%
6/30/2018	\$ 91,330,642	6,355,087	10,660,239	(4,305,152)	-4.71%
6/30/2019	\$ 91,759,352	6,422,329	11,521,283	(5,098,954)	-5.56%
6/30/2020	\$ 84,870,503	6,466,425	12,102,798	(5,636,373)	-6.64%
6/30/2021	\$ 101,226,570	7,464,568	12,610,255	(5,145,687)	-5.08%



## **Appendix D: Risk Considerations**

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There is a direct correlation between healthy, well-funded retirement plans and consistent contributions equal to the full actuarial contribution rate each year. Historically, the Fund has been funded with fixed contribution rates by both employees and the employer. In 2020, Senate Bill 122 implemented a monthly distribution of \$100,000 to the Fund until achieving 100% funded status. However, the combined statutory contribution rates have failed to meet the actuarial required contribution in each of the past ten years, when looking to fund the System over 25 years. We would note that with the adoption of SB 122 the Fund is expected to be fully funded in the future, if all assumptions are met.

Funding a retirement system with fixed contribution rates creates some unique funding challenges. Given the extreme volatility associated with the underlying investments of the portfolio, wide variations in the actual return on the market value of assets is expected. However, when it occurs it can change the long-term funding outlook from positive to negative or vice versa. By the time a trend has been identified, it is possible for the funded status of the System to have seriously declined, requiring more substantive resources to compensate for the investment losses

A key demographic risk for all retirement systems is improvements in mortality (longevity) greater than anticipated. While the actuarial assumptions reflect small, continuous improvements in mortality experience over time and these assumptions are refined every experience study, the risk arises because there is a possibility of some sudden shift, perhaps from a significant medical breakthrough that could quickly increase liabilities. Likewise, there is some possibility of a significant public health crisis that could result in a significant number of additional deaths in a short time period, as experienced with the COVID-19 pandemic. This type of event is also significant, although more easily absorbed. While either of these events could happen, it represents a small probability and thus represents much less risk than the volatility associated with investment returns.