



# Administrative Committee Meeting Agenda

Wednesday, October 23, 2024

10:00 A.M.

- I. 2025 Board & Committee Meetings Schedule  
*(Intended Outcome – Approval)*
- II. State Employee Representative Election Results  
*(Intended Outcome – Approval)*
- III. Actuarial Valuation and Projection  
*(Intended Outcome – Accept Reports)*
- IV. Additional Independent Actuarial Assessment  
*(Intended Outcome – Accept Report)*
- V. **Other**

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**Administrative  
Committee Members:**

Mr. Bill Benson, *Committee Chair*  
Mr. Chris Graham  
Dr. Jay Smith  
State Treasurer David McRae

Mr. Kelly Breland, *Board Chair*

# PERS Board & Committee Schedules | 2025

## Board & Committee Meetings | 2025 Schedule

Board meetings held fourth Wednesday of February, April, June, August, and October and third Wednesday of December.

<b>February 25</b> <i>Tuesday</i>	Defined Contribution & Investment Committee Meetings
<b>February 26</b> <i>Wednesday</i>	Board Meeting & Other Committee Meetings
<b>April 22</b> <i>Tuesday</i>	Defined Contribution & Investment Committee Meetings
<b>April 23</b> <i>Wednesday</i>	Board Meeting & Other Committee Meetings
<b>June 24</b> <i>Tuesday</i>	Defined Contribution & Investment Committee Meetings
<b>June 25</b> <i>Wednesday</i>	Board Meeting & Other Committee Meetings
<b>August 26</b> <i>Tuesday</i>	Defined Contribution & Investment Committee Meetings
<b>August 27</b> <i>Wednesday</i>	Board Meeting & Other Committee Meetings
<b>October 21</b> <i>Tuesday</i>	Defined Contribution & Investment Committee Meetings
<b>October 22</b> <i>Wednesday</i>	Board Meeting & Other Committee Meetings
<b>December 16</b> <i>Tuesday</i>	Defined Contribution & Investment Committee Meetings
<b>December 17</b> <i>Wednesday</i>	Board Meeting & Other Committee Meetings

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## Investment Committee Presentations | 2025 Schedule

Meetings held only when investment finalists' presentations become necessary.  
*Held the Tuesday two weeks prior to the board meeting, contingent/subject to Board discretion and availability.*

<b>Tuesday, February 11</b>	<b>Tuesday, August 12</b>
<b>Tuesday, April 8</b>	<b>Tuesday, October 7</b>
<b>Tuesday, June 10</b>	<b>Tuesday, December 2</b>

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## Claims Committee Presentations | 2025 Schedule

Meetings held only when claims hearings become necessary.  
*Held the fourth Tuesday of every other month that are **not** board meeting months.*

<b>Tuesday, January 28</b>	<b>Tuesday, July 22</b>
<b>Tuesday, March 25</b>	<b>Tuesday, September 23</b>
<b>Tuesday, May 27</b>	<b>Tuesday, November 25</b>



October 17, 2024

Public Employees Retirement System of Mississippi  
429 Mississippi Street  
Jackson, MS 39201

Dear Davetta Lee:

The attached report contains the results from the election for the 2024 PERS of MS State Employee Representative Runoff Election for the Public Employees Retirement System of Mississippi.

Thank you. It has been a pleasure working with you.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Chris Backert".

Chris Backert  
CEO  
YesElections

1775 I St NW  
Suite 1150  
Washington, DC 20006

155 Mineola Blvd.  
Suite 102  
Mineola, NY 11501

4275 Executive Sq.  
Suite 200  
San Diego, CA 92037

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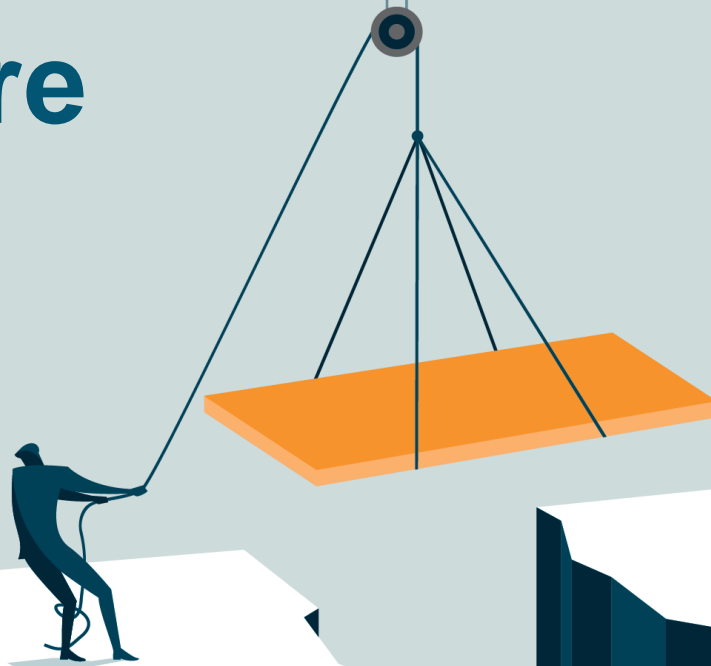
Results

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Race	Candidate/Choice	Votes
State Employee Representative Runoff	Terrance D. Yarbrough	1,071
	Allan D. Cooper	973

# NAVIGATING

## Your Future



### Mississippi PERS Valuation and Projection Results as of June 30, 2024



- **Fixed Contribution Rate (FCR) phasing-in to 19.90% of payroll**

- Passed by Legislature in 2024 Session
- For the past few fiscal years, the employer fixed contribution rate has been 17.40% of payroll
- Beginning July 1, 2024, the employer contribution rate is expected to increase on a phase-in basis based on the following schedule:

Fiscal Year Ending	Statutory Contribution Rate*
June 30, 2025	17.90%
June 30, 2026	18.40%
June 30, 2027	18.90%
June 30, 2028	19.40%
June 30, 2029+	19.90%

\* Since Statutory Contribution Rate is not in Funding Policy, we will continue to refer to this as the FCR

- An additional \$110 million was contributed by the State that is included in the valuation and projection results.

- **Net Market Value of Return for the 2024 FYE was approximately 10.4% (assuming mid-year cash flow)**
  - Last year was around 7.4% (assuming mid-year cash flow)
  - On an actuarial value basis, the return was 7.3% (last year was 6.9%) due to 5-year smoothing method
- **Funded Ratio went from 56.1% to 55.9%**
- **Amortization period using phased-in FCR of 19.90% of payroll is 44.9 years**
  - Last year was 32.2 years using an FCR of 22.40% of annual compensation
  - Increase mainly due to the change in the phased-in FCR to 19.90% of annual compensation (Board adopted rate was 22.40%)
- **Actuarially Determined Contribution (ADC) is 25.92% using funding policy methods**
  - ADC/FCR ratio is 130.3% using an FCR of 19.90%
  - Last year ratio was 112.4% using an FCR of 22.40%

## • Short-Term Projection

Valuation Year	UAAL (\$ in Millions)	Funded Ratio	Cash Flow %	ADC/FCR Ratio*
2024	\$26,498	55.9%	(4.7)%	130.3%
2025	\$26,611	56.6%	(4.8)%	133.1%
2026	\$28,059	55.1%	(4.9)%	141.0%
2027	\$28,368	55.5%	(5.0)%	144.2%
2028	\$28,643	55.8%	(5.1)%	147.3%
2029	\$29,096	55.8%	(5.3)%	151.3%

## • Long-Term Projection

Metric	2024 Baseline Projection	2024 Status
Funding Ratio in 2047	53.7%	Red
Cash Flow as a Percentage of Assets	(6.3)%	Yellow
ADC/FCR Ratio from 2024 Valuation*	130.3%	Red
ADC/FCR Ratio from 2025 Valuation*	133.1%	Red

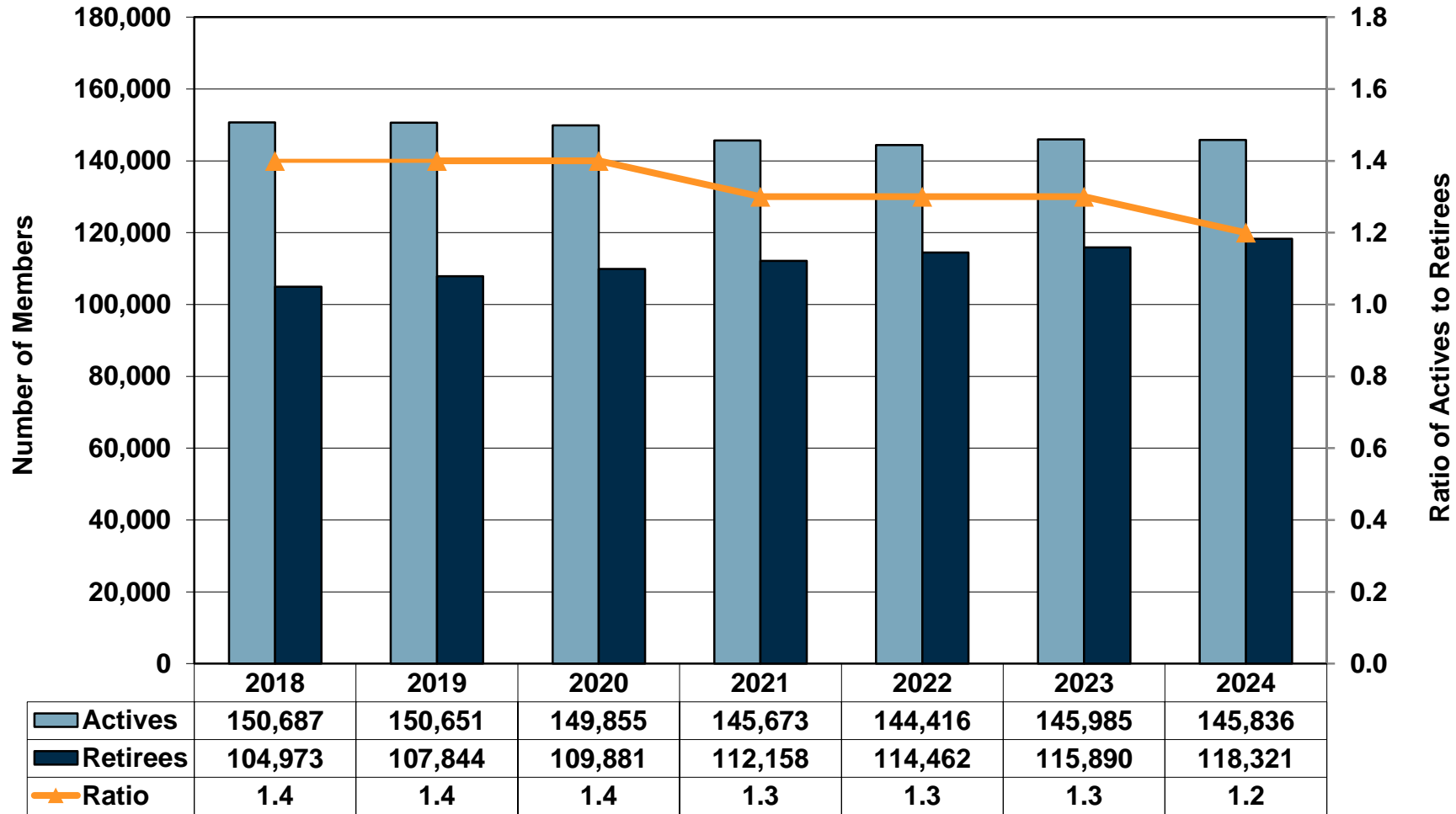
\* These ratios are based on the FCR of 19.90% of annual compensation but cash flow utilizes the phase-in of the adopted contribution schedule.



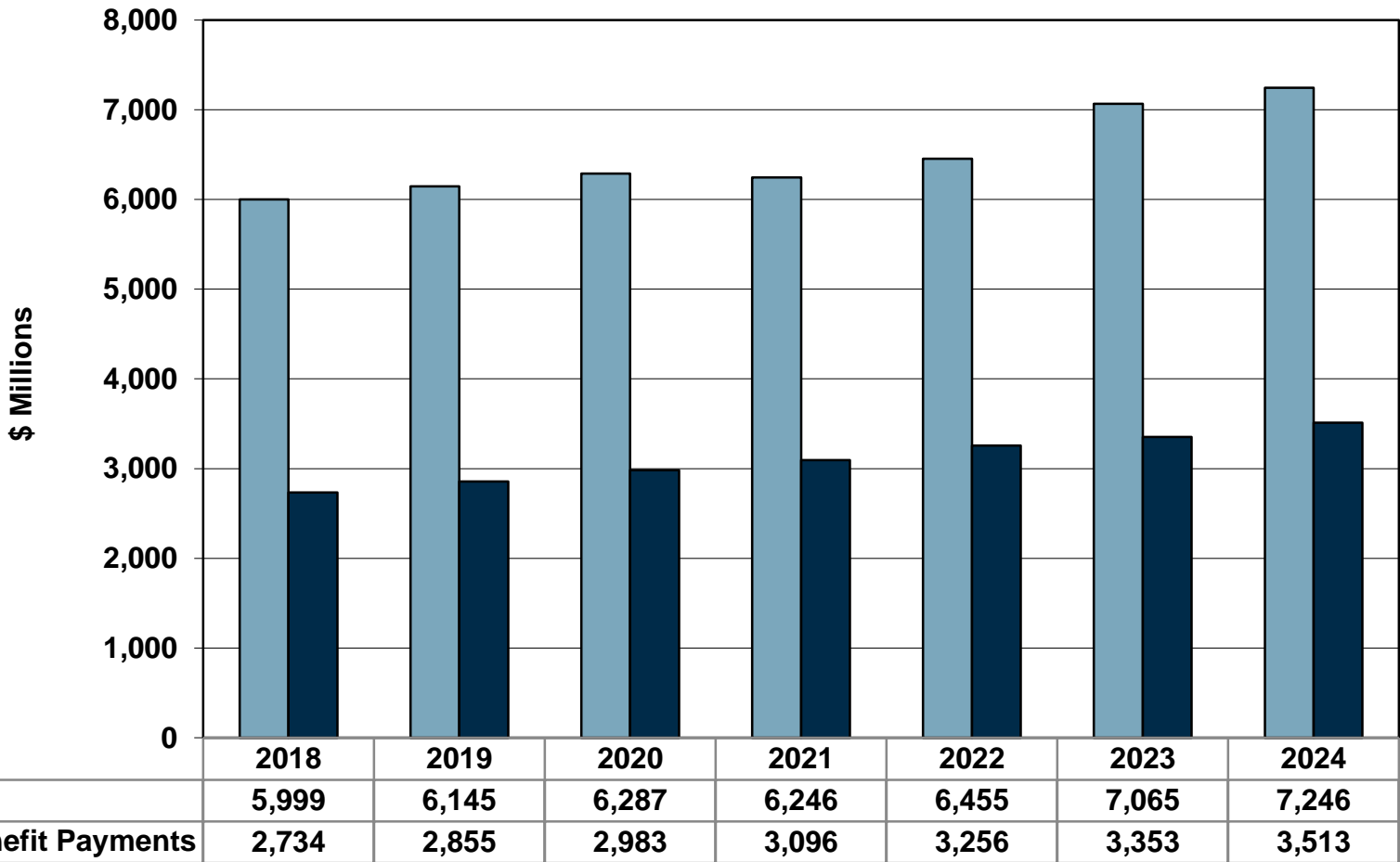
# PERS Valuation Results



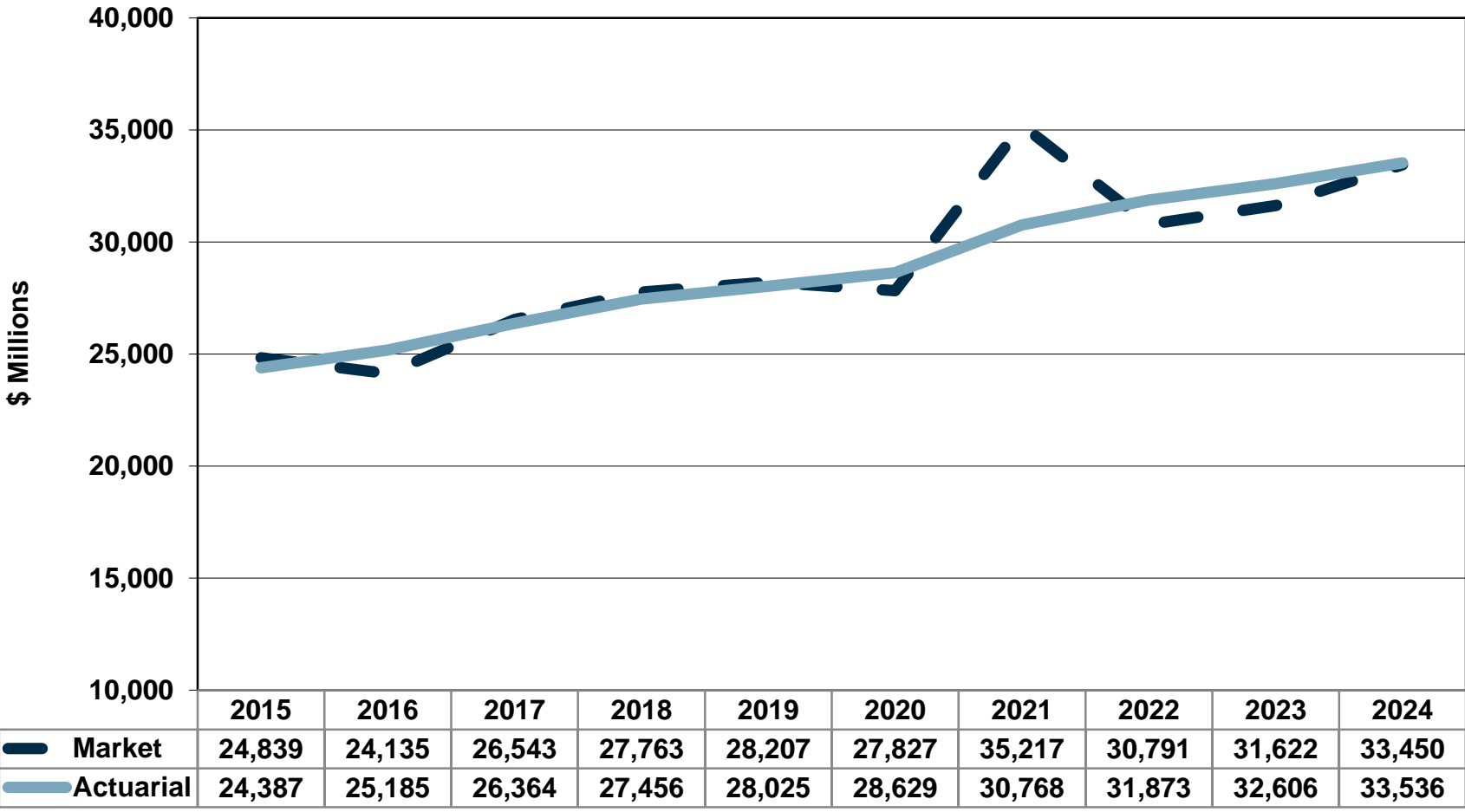
# PERS Census Data – June 30



# PERS Census Data – June 30



# History of PERS Asset Values



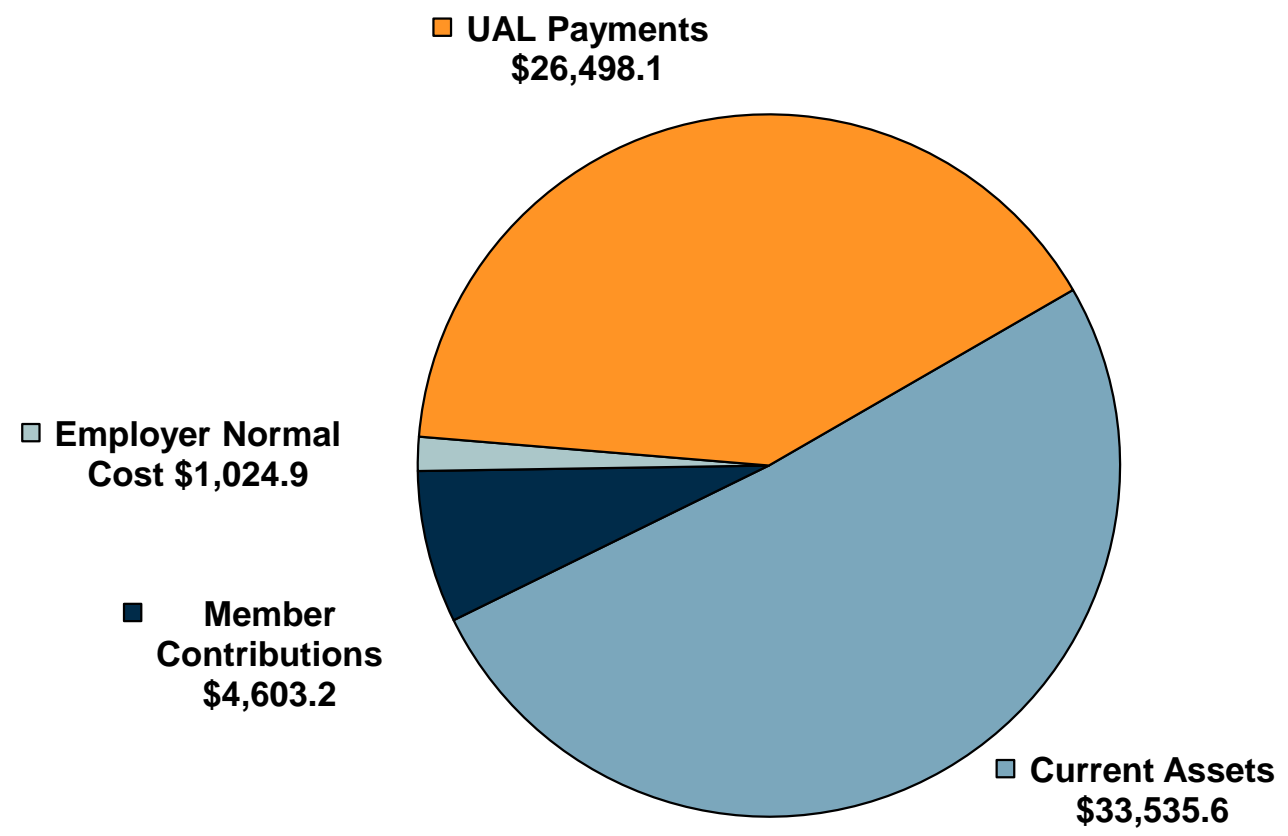
The actuarial value return is not the 5-year average of net market value returns. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected market value of assets based on the assumed rate of return each year. The amount recognized each year is 20% and is accumulated for 5 years to develop the gain or loss over the assumed rate of return for that particular year. This methodology is the most popular among public sector retirement systems and is an approved methodology under ASOP 44.

### \$ in Thousands

Period Ending June 30	Net Market Value Returns*	Assumed Rate of Return	Corresponding Market Experience in Dollars	20% of Experience	Actuarial Value Return*
2020	3.1%	7.75%	\$(1,281,145)	\$(256,229)	
2021	32.2%	7.75%	\$6,632,230	\$1,326,446	
2022	(8.6)%	7.55%	\$(5,584,610)	\$(1,116,922)	
2023	7.4%	7.55%	\$(37,380)	\$(7,476)	
2024	10.4%	7.00%	\$1,055,060	\$211,012	
Total Recognized for 2024 (Sum of 2020 – 2024)				\$156,831	7.3%
2025 (Hypothetical)	7.0%	7.00%	\$0	\$0	
Total Recognized for 2025 (Sum of 2021 – 2025)				\$413,060	8.2%

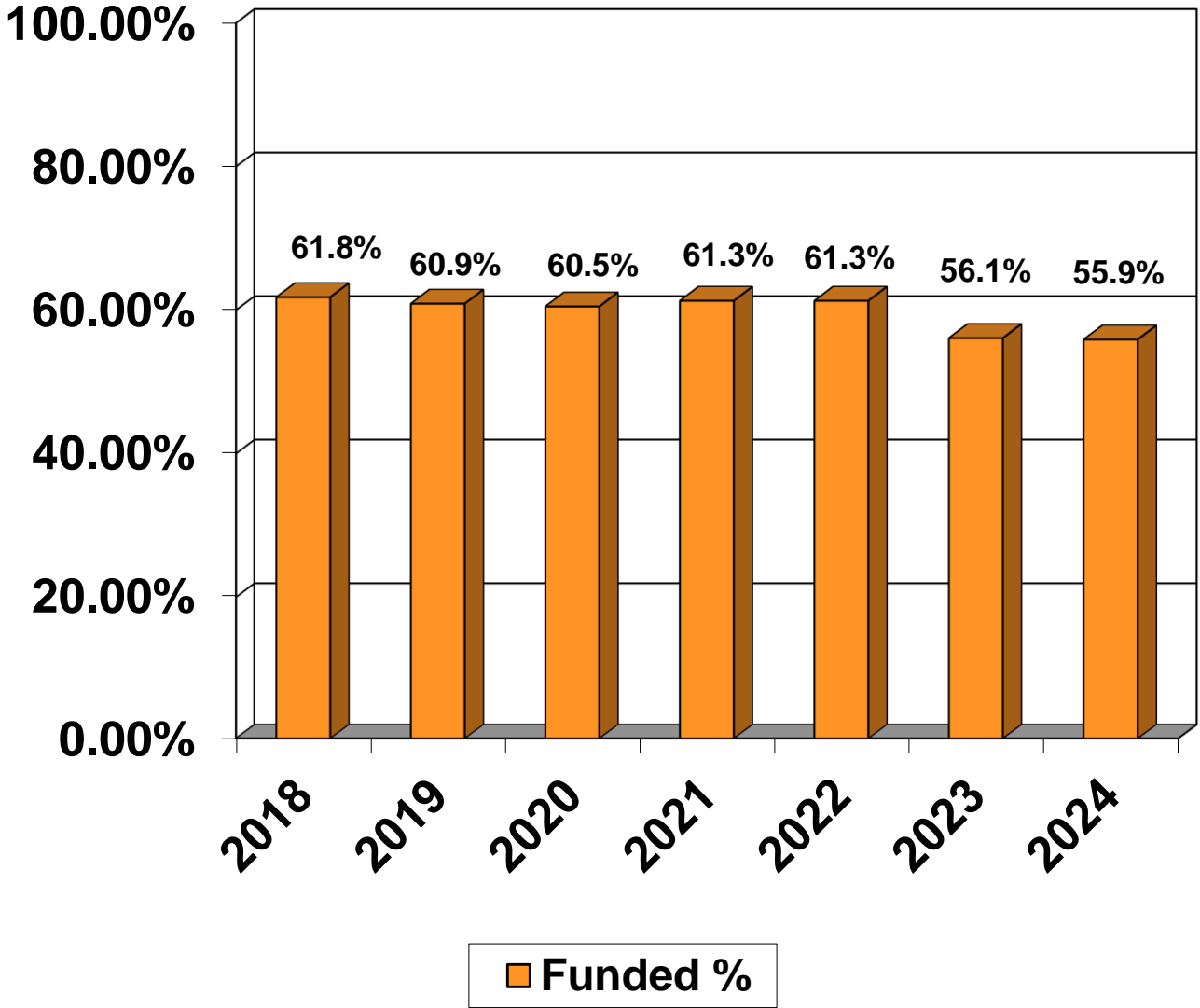
\* Market Value and Actuarial Value returns assume middle of year cash flow experience

# PERS Financing of Retirement Benefit Promises (\$ millions)



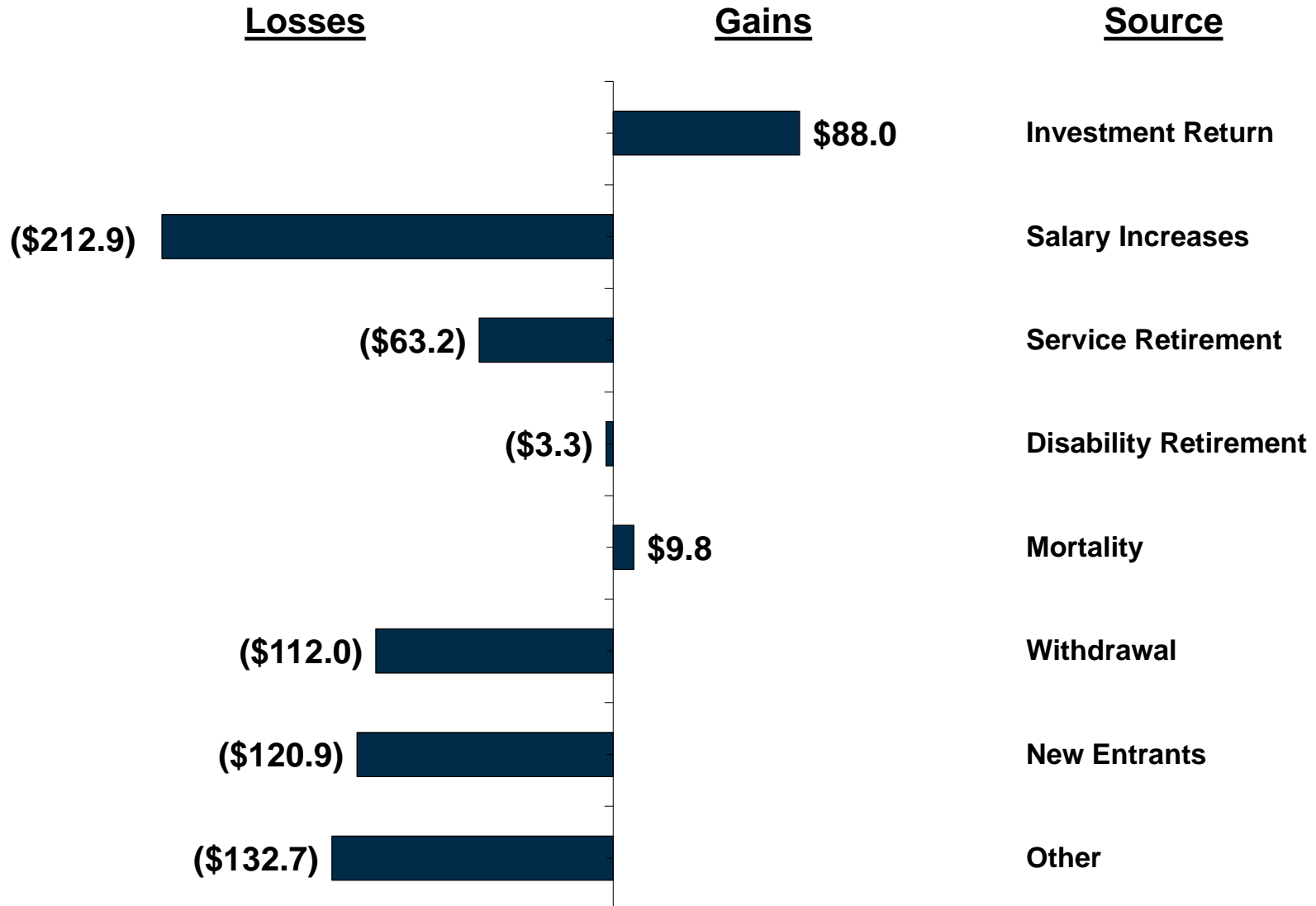
**Total - \$65,661.8**

# PERS Funded Ratio



# PERS Actuarial Gain/Loss Analysis

(\$ millions)





# PERS Allocation of Fixed Contribution Rate

Valuation Year	Member Rate	Employer Rate			Total Rate
		Normal*	UAL	Total	
2020	9.00%	1.34%	16.06%	17.40%	26.40%
2021	9.00%	1.77%	15.63%	17.40%	26.40%
2022	9.00%	1.60%	15.80%	17.40%	26.40%
2023	9.00%	2.62%	19.78%	22.40%	31.40%
2024	9.00%	2.57%	17.33%	19.90%	28.90%

\* Budgeted administrative expenses is included in the normal cost of the contribution rates.

# Actuarially Determined Contribution (ADC) - UAAL Portion

(\$ in thousands)



Date Established	Original UAAL Balance	Remaining UAAL Balance	Remaining Amortization Period	Amortization Payment
June 30, 2018	\$16,940,459	\$17,879,676	24 years	\$1,192,200
June 30, 2019	784,879	791,331	20 years	59,005
June 30, 2020	524,319	528,690	21 years	38,220
June 30, 2021	506,599	509,805	22 years	35,808
June 30, 2022	561,966	564,969	23 years	38,630
June 30, 2023	5,309,730	5,323,698	24 years	354,979
June 30, 2024	899,931	<u>899,931</u>	25 years	<u>58,611</u>
Total		\$26,498,100		\$1,777,453
Estimated Payroll				\$7,611,848
UAAL Amortization Contribution Rate				23.35%

Valuation Year	2023	2024
Employer Normal Cost	2.62%	2.57%
Actuarial Accrued liability	22.55%	23.35%
Total ADC	25.17%	25.92%
ADC/FCR Ratio*	112.4%	130.3%
Metric Status	<b>Red</b>	<b>Red</b>

\* The FCR was 22.40% in 2023 and 19.90% in 2024

# PERS Projections

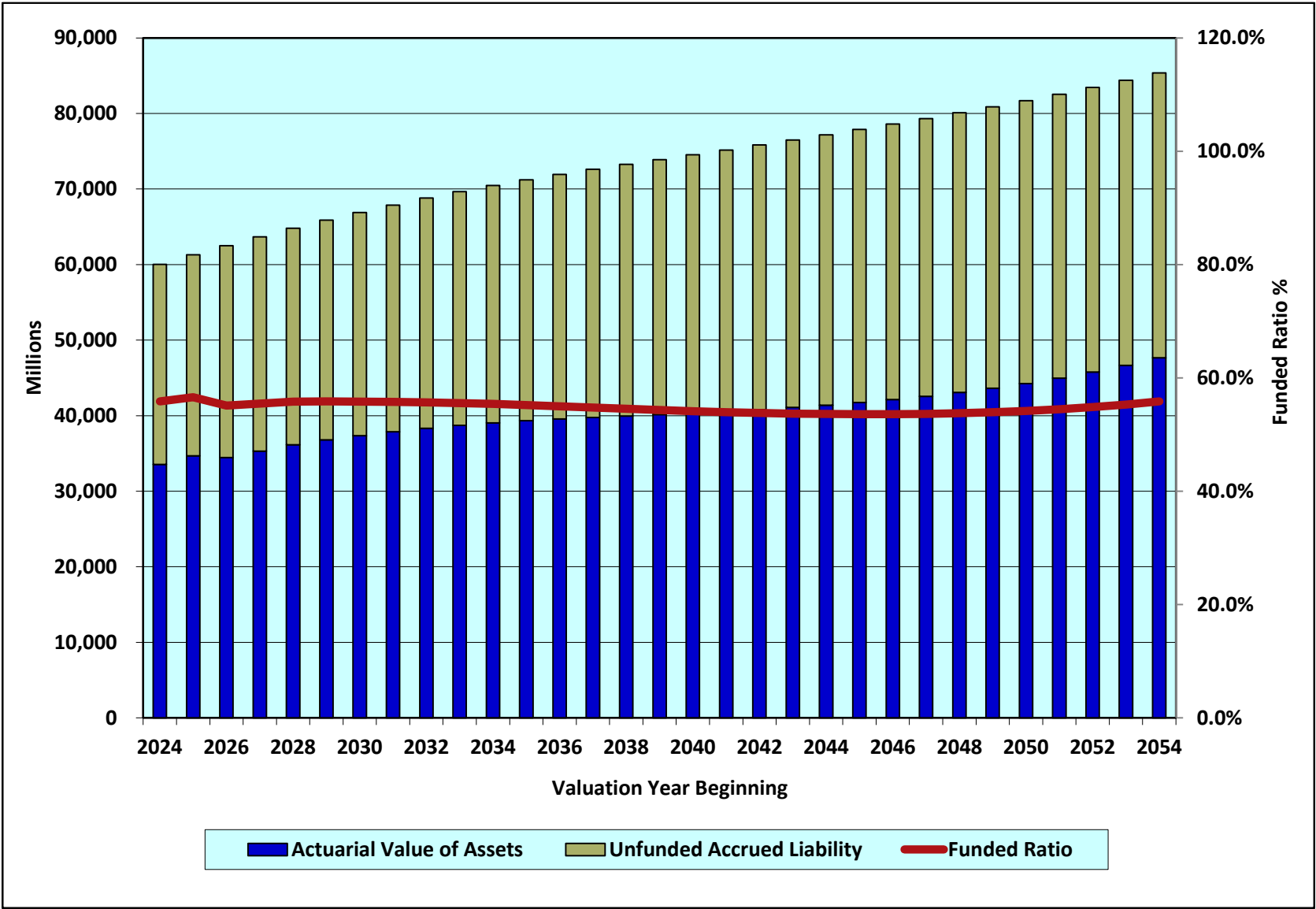


- Baseline Results at 7.00% (Phased-In to 19.90% Rate)

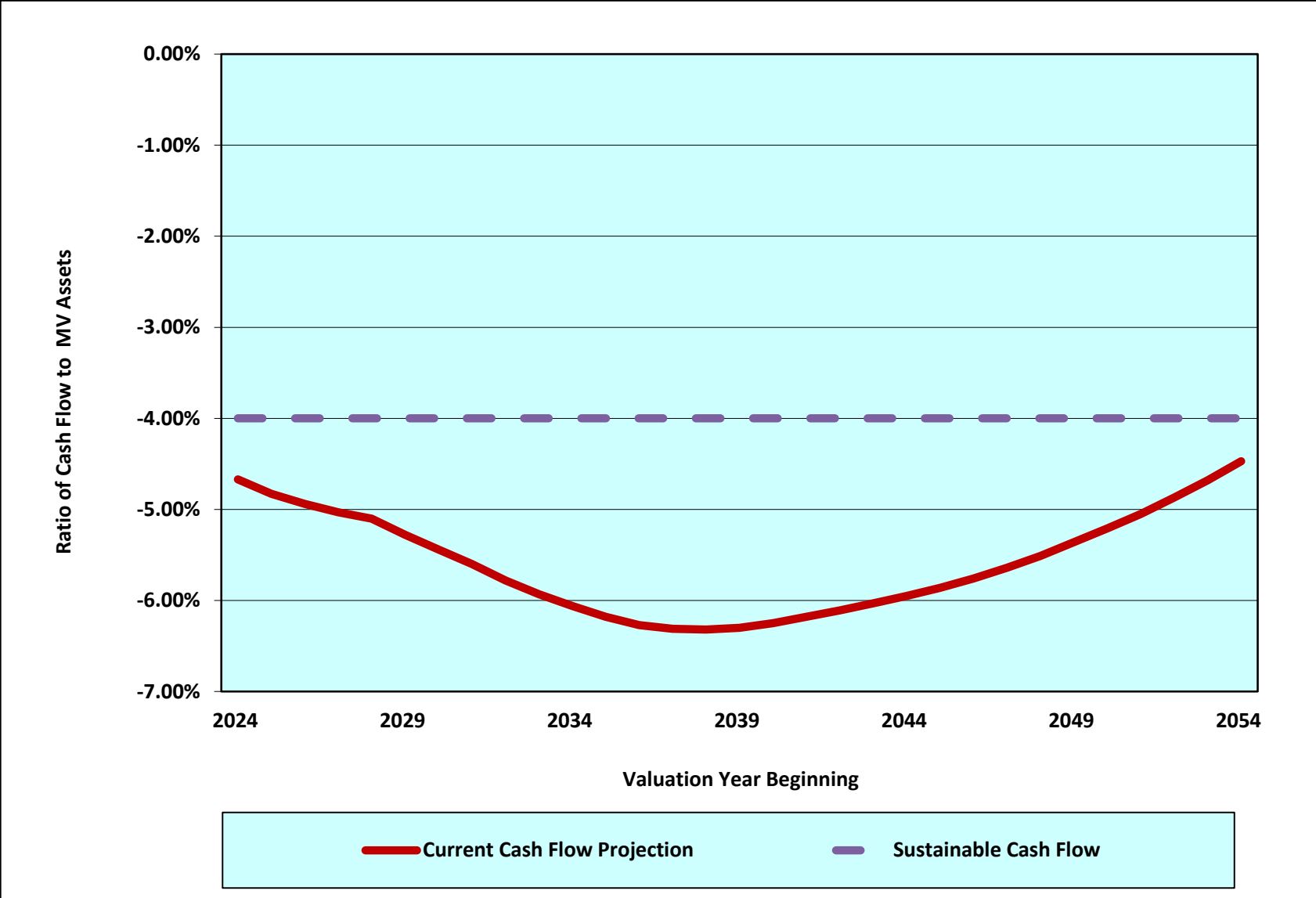
	2024	2029	2034	2044	2047	2054
Total Payroll	\$7,245,824	\$8,011,634	\$8,777,303	\$10,971,519	\$11,794,080	\$14,052,147
UAL	\$26,498,100	\$29,096,171	\$31,426,966	\$35,787,973	\$36,758,119	\$37,698,010
Normal Cost Rate	2.57%	2.70%	2.84%	3.05%	3.12%	3.26%
UAL Rate	15.33%	17.20%	17.06%	16.85%	16.78%	16.64%
FCR Rate	17.90%	19.90%	19.90%	19.90%	19.90%	19.90%
Funded Ratio	55.9%	55.8%	55.4%	53.6%	53.7%	55.8%
Amortization Period	45 years	52 years	50 years	39 years	36 years	27 years
ADC	25.92%	30.11%	34.80%	47.84%	51.92%	27.80%
ADC/FCR Ratio	130.3%	151.3%	174.9%	240.4%	260.9%	139.7%
Cash Flow Percentage	(4.7)%	(5.3)%	(6.1)%	(6.0)%	(5.6)%	(4.5)%

- Under the current baseline projection, the funded ratio is 53.7% in 2047

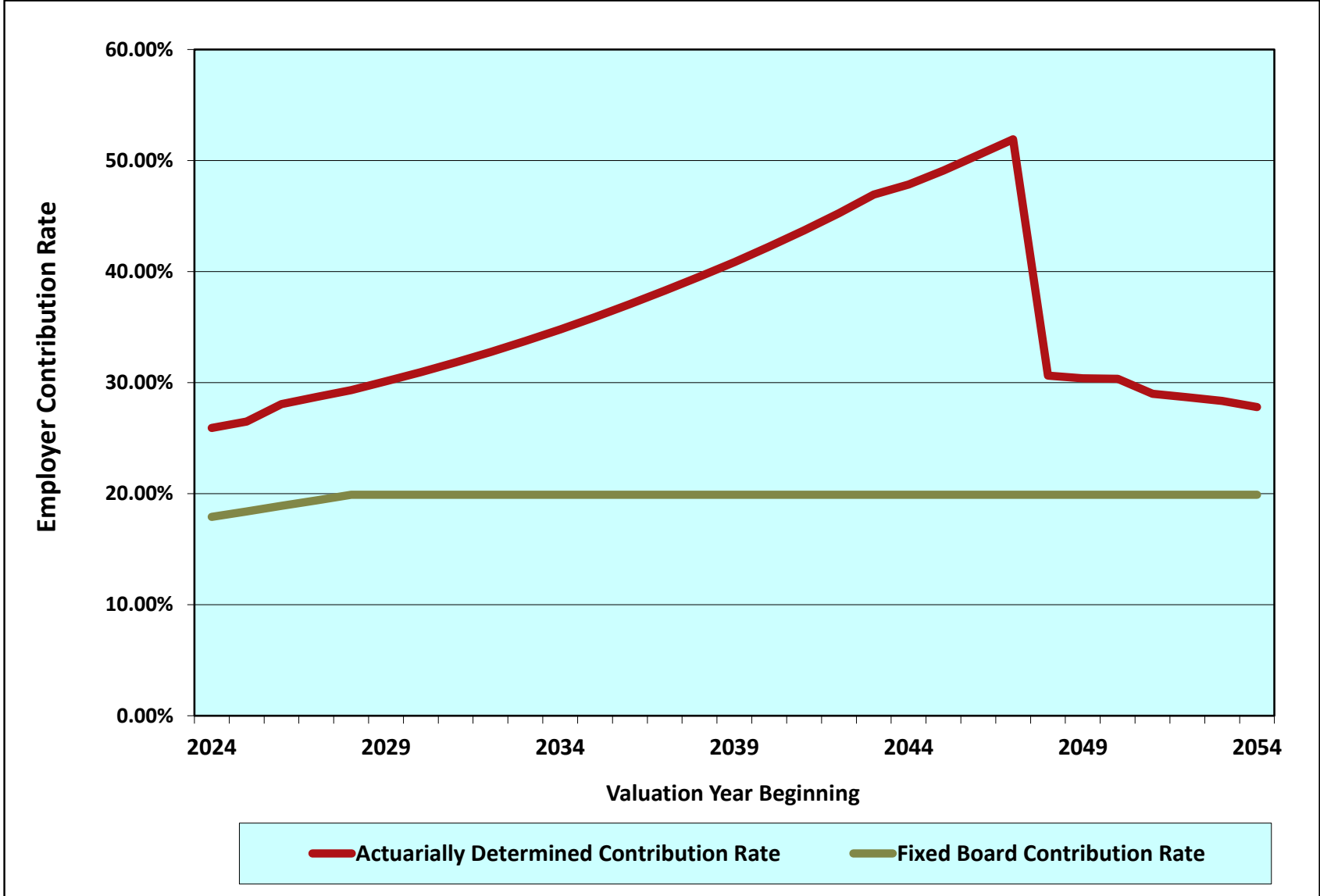
# 30-Year Projection of Funded Ratio Based on June 30, 2024 Valuation Results - PERS



# 30-Year Projection of Negative Cash Flow Based on June 30, 2024 Valuation Results - PERS



# 30-Year Projection of ADC and FCR Based on June 30, 2024 Valuation Results - PERS





Metric	2024 Baseline Projection	Status
Funding Ratio in 2047	53.7%	Red
Cash Flow as a Percentage of Assets	(6.3)%	Yellow
ADC/FCR Ratio from 2024 Valuation	130.3%	Red
ADC/FCR Ratio from 2025 Valuation	133.1%	Red

Two of the three metrics are in the “Red Status” for the 2024 valuation and per the Funding Policy, the actuary should recommend an increase in the FCR.

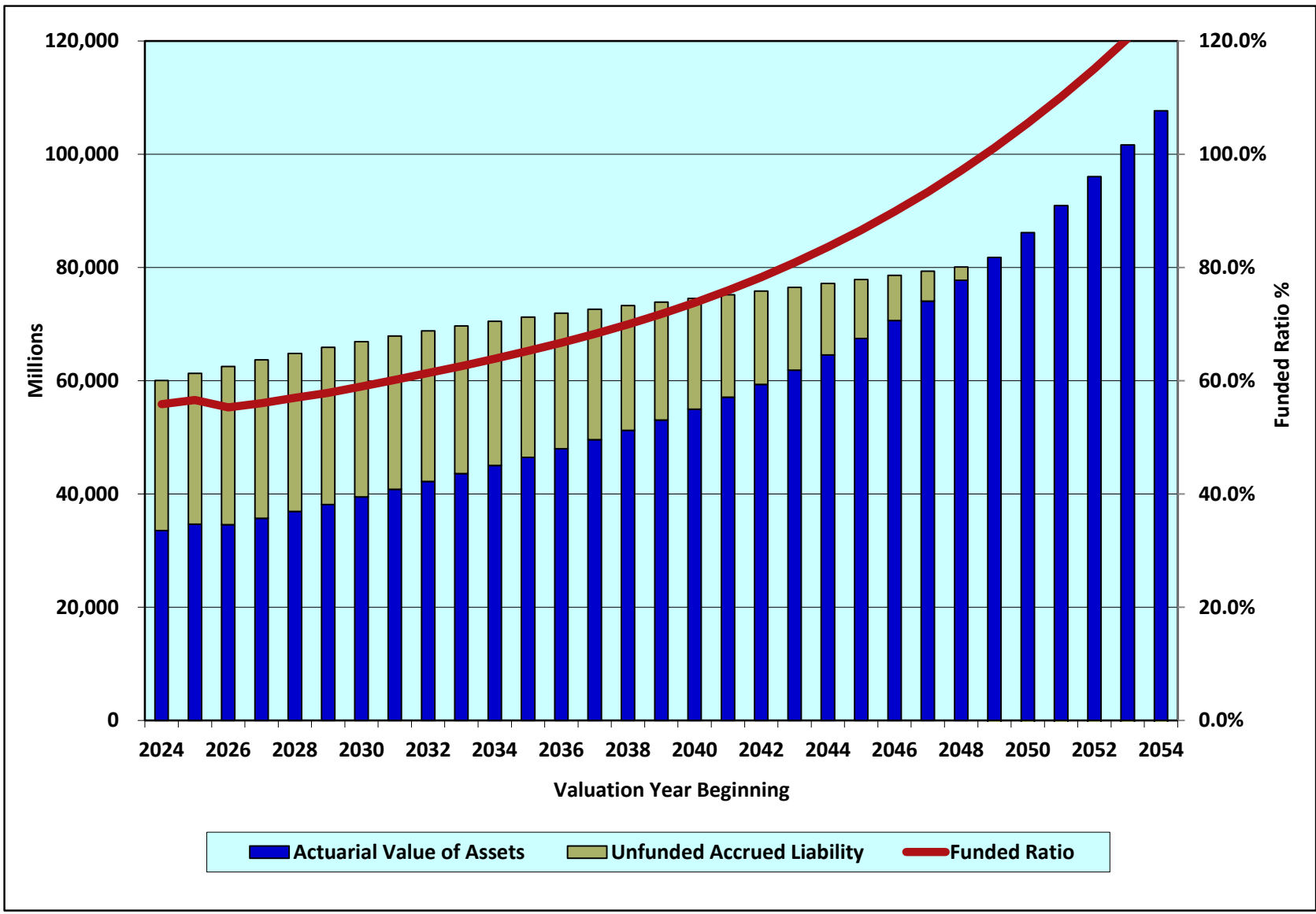
During the 2024 legislative session, the Legislature altered the PERS Board adopted phased-in approach to the FCR beginning July 1, 2024, by increasing the current FCR by 0.50% of annual compensation each year.

CavMac recommends the Board and Legislature consider a funding change to either pay the full ADC of 25.92% of annual compensation beginning July 1, 2026, or continue the phased-in approach for five consecutive fiscal years, however, increase the FCR by 2% each year until it reaches 27.90% of annual compensation.

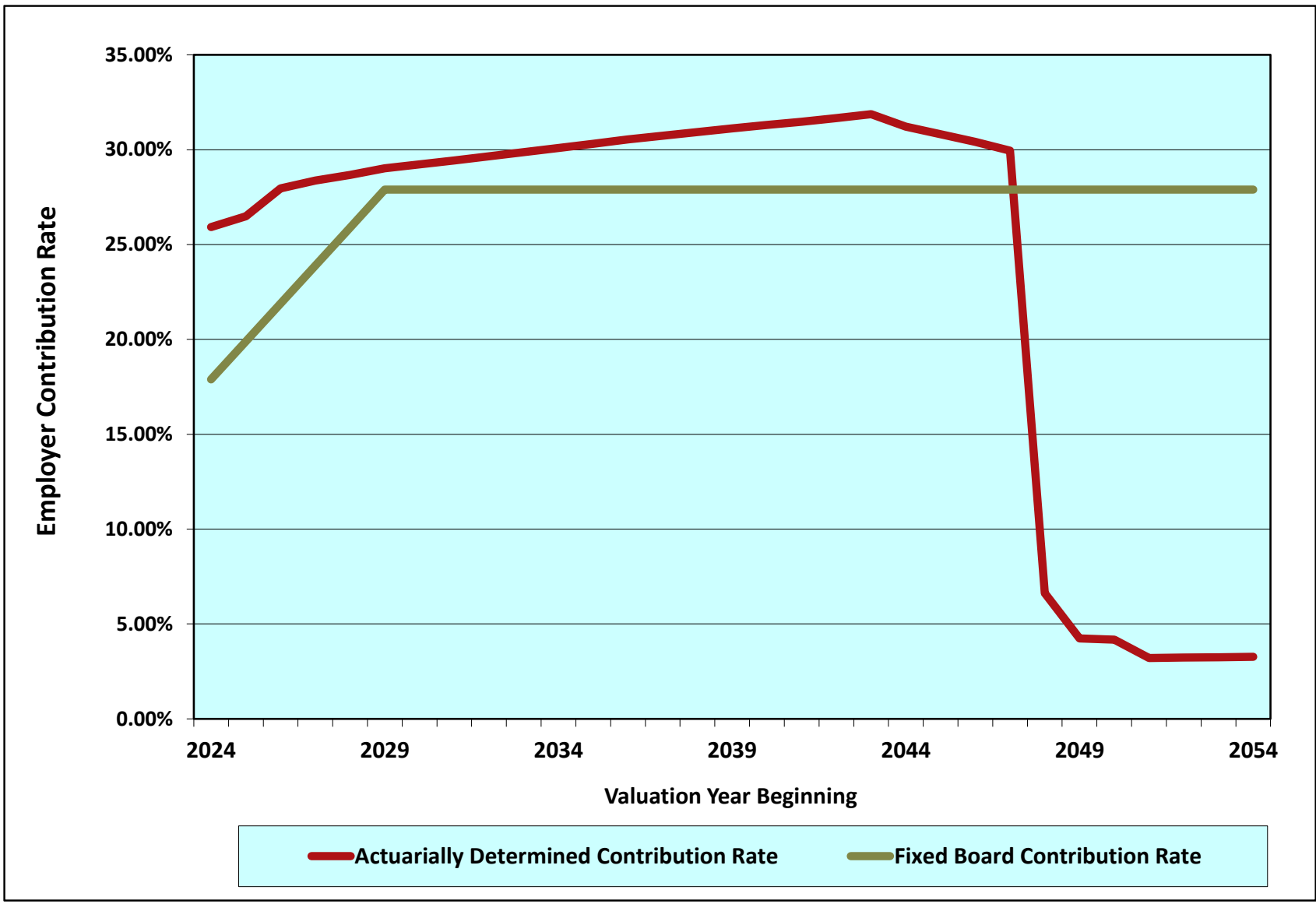
Metric	2024 Projection with FCR of 27.90%	Status
Funding Ratio in 2047	93.3%	Green
Cash Flow as a Percentage of Assets	(4.7)%	Green
ADC/FCR Ratio from 2024 Valuation*	92.9%	Green
ADC/FCR Ratio from 2025 Valuation*	94.9%	Green

\* This ratio is based on an FCR of 27.90% of annual compensation.

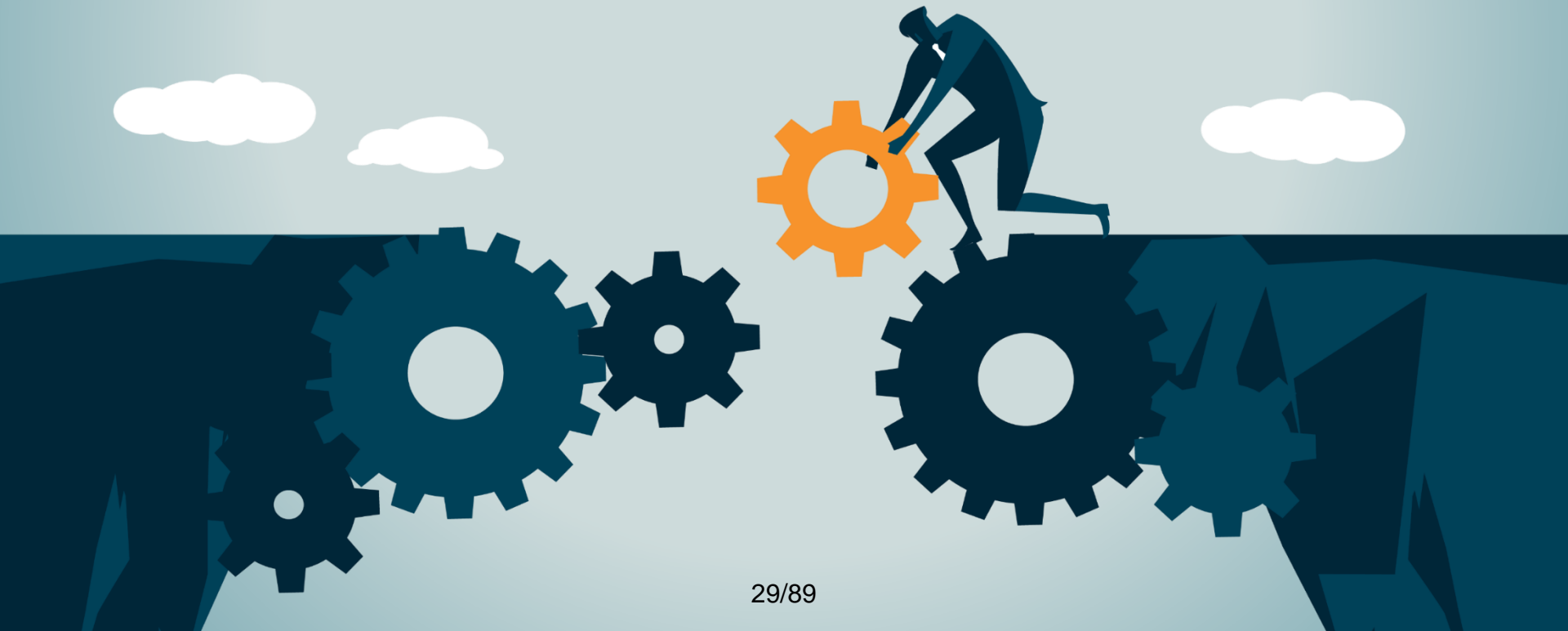
# 30-Year Projection of Funded Ratio Based on Phase-in to 27.90% - PERS



# 30-Year Projection of ADC and FCR Based on Phase-in to 27.90% - PERS



# ASOP 51 – Risk Assessment



- Actuary is to identify risks that may affect the System's future financial condition
  
- Examples in ASOP 51 that are relevant for most public plans
  - **Investment risk**
    - potential that return will be different than expected
  - **Longevity risk**
    - potential that mortality experience will be different than expected
  - **Covered payroll risk**
    - potential that covered payroll will not increase as assumed (especially important if UAL is amortized as level percent of payroll)
  - **Active Population risk**
    - potential for number of active members to decline or plan closed to new entrants
  - **Contribution rate risk**
    - potential for contribution rates to be too high for the plan sponsor/employer to pay

## • Projected Funded Ratios

Single Year Event	PERS	HSPRS	SLRP
Projection Year	2047	2047	2047
▪ 1.00% in 2025	42.7%		
▪ 3.00% in 2025	46.4%		
▪ 5.00% in 2025	50.0%		
▪ <b>7.00% in 2025 (Baseline)</b>	<b>53.7%</b>		
▪ 9.00% in 2025	57.3%		
▪ 11.00% in 2025	61.0%		
▪ 13.00% in 2025	64.6%		
▪ Negative 5% in 2025	31.8%		
▪ Simulate 2008 loss using Negative 15% in 2025	13.5%		
<b>Average Returns over next 10-Year Period (Simulated returns using mean and standard deviations from PERS' Investment Consultant's Capital Market Assumptions)</b>			
▪ 6.00%	39.3%		
▪ 7.00%	53.9%		
▪ 8.00%	73.5%		

- Projected Funded Ratios**

Active Membership Growth	PERS	HSPRS	SLRP
Projection Year	2047	2047	2047
• Increase 0.50% each year	59.1%		N/A
• Increase 0.25% each year	56.4%		N/A
• <b>Static Population (Baseline Assumption)</b>	<b>53.7%</b>		
• Decrease 0.25% each year	51.0%		N/A
• Decrease 0.50% each year	48.4%		N/A

Active population is currently 145,836



- Projected Funded Ratios

Projection Year				2047	2047	2047
Scenario	Price Inflation	Discount Rate	Wage Inflation	PERS	HSPRS	SLRP
1 - Baseline	2.40%	7.00%	2.65%	53.7%		
2	2.40%	6.75%	2.65%	46.2%		
3	2.10%	6.75%	2.35%	45.0%		

- Projected Funded Ratios**

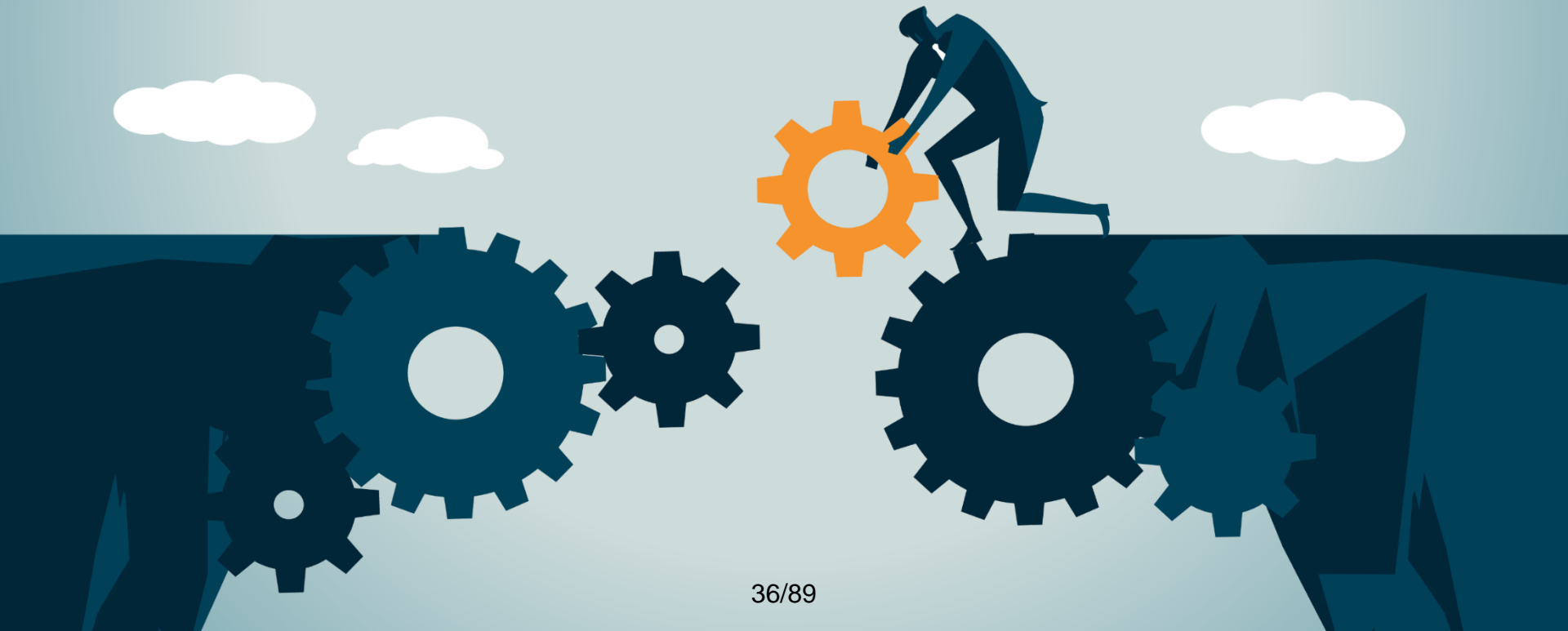
Projected to:	2047	2047	2047
Change in Fixed Contribution Rate (FCR)	PERS	HSPRS	SLRP
• <b>Baseline*</b>	<b>53.7%</b>		
• 1.00% increase in FCR	58.9%		
• 1.00% decrease in FCR	48.5%		

\* Baseline FCR is currently 19.90%



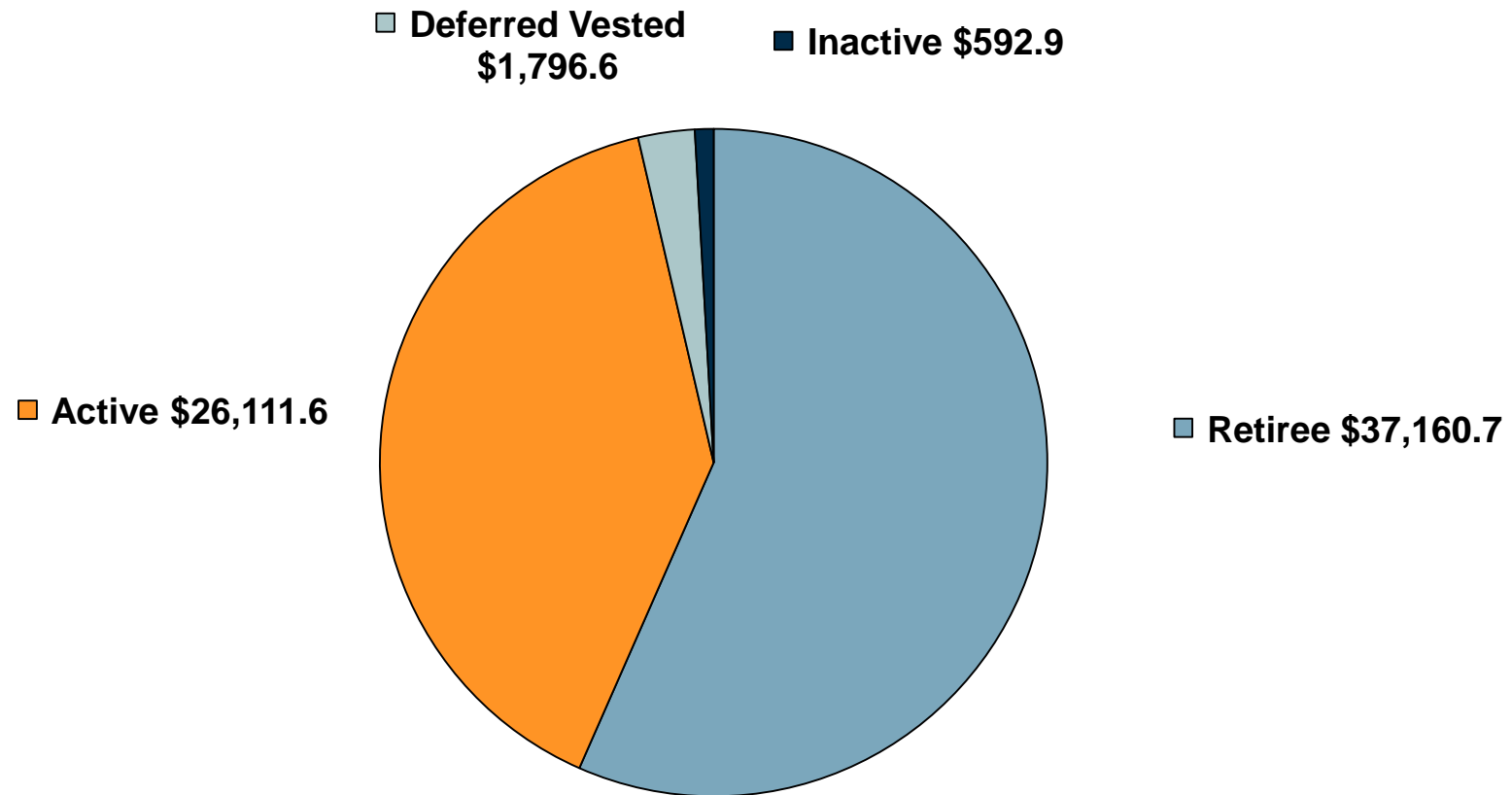
THANK  
YOU

# Appendix



# PERS Value of Future Benefits

(\$ millions)



**Total - \$65,661.8**

37/89

**Mississippi PERS**  
**30-year Open Group Projection of Cash Flow**  
**PERS Plan**  
**Based on June 30, 2024 Valuation Results**

**Projection of Cash Flow**

Contribution Methodology:  
 Investment Return Methodology:

**Employee and Employer Contributions**  
**As Programmed**

Valuation Year Beginning July 1	Expected Short-term Investment Return	Valuation Annual Payroll	Market Value of Assets July 1	Total Contributions	Projected Benefit Payments	Ratio of Cash Flow to MVA	Expected Investment Return	Net Cash Flow	Market Value of Assets June 30	Valuation Year Ending June 30
2024	7.00%	7,611,848,275	33,449,843,000	2,088,538,930	(3,649,482,001)	-4.67%	2,287,780,013	726,836,942	34,176,679,942	2025
2025	7.00%	7,663,421,707	34,176,679,942	2,141,773,099	(3,793,483,882)	-4.83%	2,335,535,460	683,824,676	34,860,504,618	2026
2026	7.00%	7,765,313,272	34,860,504,618	2,209,852,851	(3,930,544,207)	-4.94%	2,381,029,701	660,338,345	35,520,842,963	2027
2027	7.00%	7,883,261,131	35,520,842,963	2,283,623,084	(4,069,343,152)	-5.03%	2,425,015,874	639,295,807	36,160,138,770	2028
2028	7.00%	8,011,633,809	36,160,138,770	2,361,669,414	(4,206,658,053)	-5.10%	2,467,727,265	622,738,626	36,782,877,396	2029
2029	7.00%	8,150,006,915	36,782,877,396	2,402,459,038	(4,342,981,072)	-5.28%	2,508,031,852	567,509,819	37,350,387,214	2030
2030	7.00%	8,296,818,770	37,350,387,214	2,445,736,237	(4,477,875,368)	-5.44%	2,544,605,174	512,466,043	37,862,853,257	2031
2031	7.00%	8,450,593,001	37,862,853,257	2,491,065,805	(4,612,174,322)	-5.60%	2,577,416,534	456,308,017	38,319,161,274	2032
2032	7.00%	8,609,939,079	38,319,161,274	2,538,037,842	(4,751,929,603)	-5.78%	2,606,165,606	392,273,845	38,711,435,119	2033
2033	7.00%	8,777,302,892	38,711,435,119	2,587,373,347	(4,882,547,492)	-5.93%	2,630,828,007	335,653,862	39,047,088,981	2034
2034	7.00%	8,949,603,083	39,047,088,981	2,638,163,997	(5,005,690,651)	-6.06%	2,651,834,269	284,307,615	39,331,396,596	2035
2035	7.00%	9,130,728,543	39,331,396,596	2,691,556,160	(5,122,028,451)	-6.18%	2,669,569,966	239,097,675	39,570,494,271	2036
2036	7.00%	9,320,339,074	39,570,494,271	2,747,449,552	(5,227,336,130)	-6.27%	2,684,606,554	204,719,976	39,775,214,247	2037
2037	7.00%	9,522,270,054	39,775,214,247	2,806,974,767	(5,318,413,732)	-6.31%	2,697,851,297	186,412,331	39,961,626,578	2038
2038	7.00%	9,738,544,920	39,961,626,578	2,870,728,272	(5,397,659,135)	-6.32%	2,710,367,114	183,436,250	40,145,062,828	2039
2039	7.00%	9,966,557,451	40,145,062,828	2,937,941,805	(5,467,043,675)	-6.30%	2,723,132,951	194,031,081	40,339,093,909	2040
2040	7.00%	10,205,811,198	40,339,093,909	3,008,469,025	(5,529,113,042)	-6.25%	2,737,006,145	216,362,128	40,555,456,037	2041
2041	7.00%	10,454,976,438	40,555,456,037	3,081,917,954	(5,589,075,966)	-6.18%	2,752,615,521	245,457,510	40,800,913,547	2042
2042	7.00%	10,710,650,477	40,800,913,547	3,157,285,548	(5,651,079,795)	-6.11%	2,770,257,368	276,463,121	41,077,376,668	2043
2043	7.00%	10,971,518,837	41,077,376,668	3,234,184,323	(5,712,994,949)	-6.03%	2,790,125,343	311,314,717	41,388,691,385	2044
2044	7.00%	11,238,160,980	41,388,691,385	3,312,785,094	(5,776,153,594)	-5.95%	2,812,448,707	349,080,207	41,737,771,591	2045
2045	7.00%	11,512,022,822	41,737,771,591	3,393,514,087	(5,840,829,897)	-5.86%	2,837,436,663	390,120,853	42,127,892,445	2046
2046	7.00%	11,794,079,520	42,127,892,445	3,476,658,761	(5,903,518,970)	-5.76%	2,865,448,960	438,588,751	42,566,481,195	2047
2047	7.00%	12,085,505,363	42,566,481,195	3,562,565,271	(5,963,354,220)	-5.64%	2,897,047,234	496,258,285	43,062,739,480	2048
2048	7.00%	12,387,209,199	43,062,739,480	3,651,501,528	(6,023,154,381)	-5.51%	2,932,787,830	561,134,977	43,623,874,457	2049
2049	7.00%	12,698,316,485	43,623,874,457	3,743,209,733	(6,082,233,005)	-5.36%	2,973,189,998	634,166,727	44,258,041,184	2050
2050	7.00%	13,019,958,451	44,258,041,184	3,838,023,352	(6,143,280,344)	-5.21%	3,018,743,501	713,486,509	44,971,527,693	2051
2051	7.00%	13,352,559,724	44,971,527,693	3,936,067,555	(6,205,533,300)	-5.05%	3,069,919,063	800,453,319	45,771,981,012	2052
2052	7.00%	13,696,437,952	45,771,981,012	4,037,435,979	(6,267,025,529)	-4.87%	3,127,322,857	897,733,308	46,669,714,320	2053
2053	7.00%	14,052,147,278	46,669,714,320	4,142,291,975	(6,328,173,590)	-4.68%	3,191,668,093	1,005,786,477	47,675,500,797	2054
2054	7.00%	14,418,455,452	47,675,500,797	4,250,272,298	(6,379,990,360)	-4.47%	3,264,008,618	1,134,377,556	48,809,878,353	2055

# PERS Reconciliation of Unfunded Actuarial Accrued Liability

**\$ in Millions**

<b>Last Year's UAAL</b>	<b>\$25,542.3</b>
Change due to:	
Expected Change from Amortization	55.9
Investment Experience	(88.0)
Demographic Experience	635.2
Contribution Deficiency	<u>352.7</u>
Total Experience	955.8
<b>This Year's UAAL</b>	<b>\$26,498.1</b>

<b>Previously Reported Period</b>	<b>32.2 years</b>
Change due to:	
Normal amortization	(1.0)
Actuarial experience	1.6
Net Assumption/FCR changes	11.5
Plan amendments	0.0
Contribution change	0.6
<b>Computed Period</b>	<b>44.9 years</b>



# PERS Solvency Test

(\$ Millions)

Valuation Date	Aggregate Accrued Liabilities For			Actuarial Value of Assets	Portion Covered by Actuarial Value of Assets		
	Active Member Contribs	Retirees, Survivors and Inactives	Employer Portion for Active Members		(1)	(2)	(3)
	(1)	(2)	(3)		(1)	(2)	(3)
6/30/2024	\$5,982.2	\$37,160.7	\$16,890.9	\$33,535.6	100%	74.1%	0.0%
6/30/2023	5,895.2	35,734.8	16,518.3	32,606.0	100%	74.7%	0.0%
6/30/2022	5,749.3	33,106.3	13,144.5	31,873.2	100%	78.9%	0.0%
6/30/2021	5,728.1	31,821.7	12,654.5	30,768.3	100%	78.7%	0.0%
6/30/2020	5,710.2	30,220.1	11,424.2	28,629.2	100%	75.8%	0.0%
6/30/2019	5,626.6	29,109.6	11,270.6	28,024.6	100%	76.9%	0.0%

- Active Membership assumed to continue at current population of 145,836
- About 97.8% of those active in 2054 are hired after July 1, 2024

Member	2024	2029	2034	2044	2047	2054
Active – Existing Employees	145,836	81,596	48,571	17,552	12,107	3,259
Active – New Entrants	0	64,240	97,265	128,284	133,729	142,577
Retired/Deferred Vesteds	135,476	147,109	153,821	150,626	148,561	143,578
Total	281,312	292,945	299,657	296,462	294,397	289,414

- Sensitivity Results at 6.50% (Phased-In to 19.90% Rate)

	2024	2029	2034	2044	2047	2054
Total Payroll	\$7,245,824	\$8,011,634	\$8,777,303	\$10,971,519	\$11,794,080	\$14,052,147
UAL	\$30,222,657	\$33,979,381	\$37,914,965	\$47,504,341	\$50,833,695	\$59,495,930
Normal Cost Rate	3.86%	3.97%	4.08%	4.30%	4.38%	4.54%
UAL Rate	14.04%	15.93%	15.82%	15.60%	15.52%	15.36%
FCR Rate	17.90%	19.90%	19.90%	19.90%	19.90%	19.90%
Funded Ratio	52.6%	51.3%	49.2%	41.8%	39.5%	34.3%
Amortization Period	97 years	Infinite	Infinite	Infinite	Infinite	Infinite
ADC	27.88%	34.49%	40.67%	58.14%	64.14%	38.14%
ADC/FCR Ratio	140.1%	173.3%	204.4%	292.1%	322.3%	191.7%
Cash Flow Percentage	(4.7)%	(5.4)%	(6.5)%	(7.2)%	(7.3)%	(6.9)%

- Under this projection, the funded ratio is 39.5% in 2047

# PERS Projection Results

(\$ in thousands)

- Sensitivity Results at 7.55% (Phased-In to 19.90% Rate)

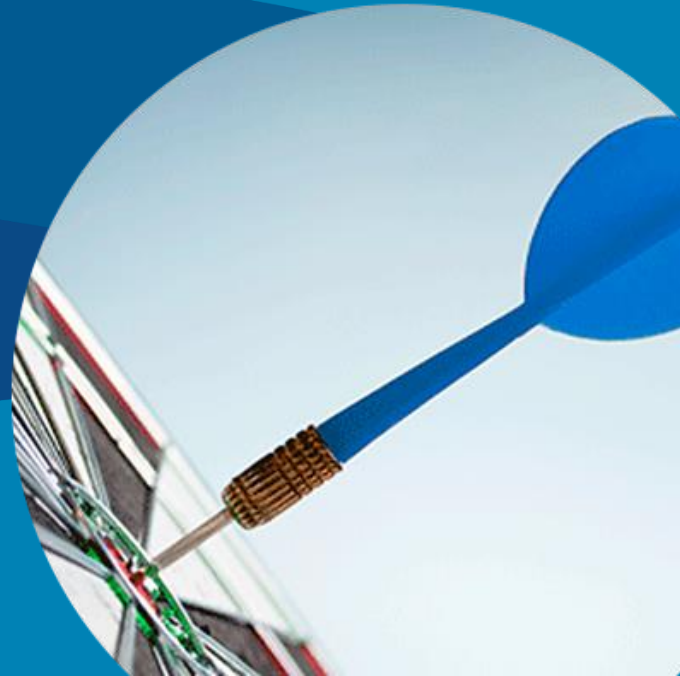
	2024	2029	2034	2044	2047	2054
Total Payroll	\$7,245,824	\$8,011,634	\$8,777,303	\$10,971,519	\$11,794,080	\$14,052,147
UAL	\$22,925,045	\$24,117,821	\$24,574,416	\$22,387,108	\$20,243,110	\$10,519,082
Normal Cost Rate	1.37%	1.52%	1.68%	1.89%	1.95%	2.07%
UAL Rate	16.53%	18.38%	18.22%	18.01%	17.95%	17.83%
FCR Rate	17.90%	19.90%	19.90%	19.90%	19.90%	19.90%
Funded Ratio	59.4%	61.1%	63.0%	69.2%	72.9%	86.9%
Amortization Period	31 years	32 years	28 years	17 years	13 years	5 years
ADC	22.71%	25.49%	28.36%	35.71%	37.23%	14.79%
ADC/FCR Ratio	114.1%	128.1%	142.5%	179.4%	187.1%	74.3%
Cash Flow Percentage	(4.7)%	(5.1)%	(5.7)%	(4.9)%	(4.4)%	(3.0)%

- Under this projection, the funded ratio is 72.9% in 2047



# Public Employees' Retirement System of Mississippi (PERS)

June 30, 2024 Actuarial Audit  
October 23, 2024



# Background

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- The retained actuary produces reports each year on the financial condition of the retirement system
  - Calculates actuarially required contributions
  - Determines funded ratio, UAAL, etc.
- The work of the retained actuary is fundamental to the Board's governance and financial well being of the retirement system
- Actuarial work is very specialized
  - Difficult for Retirement Boards and Legislators to judge the quality and accuracy of an actuary's work

# Background (cont.)

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- An “Actuarial Audit” is the process by which a Retirement Board retains an independent actuarial firm to provide an opinion on the quality and accuracy of the retained actuary’s work
- Government Finance Officers Association (GFOA) guidelines suggest an actuarial audit or review be performed at least every five years
- Many systems have an actuarial audit or review performed on a regular basis

# Scope of Review

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- Provide an evaluation and express an opinion regarding the reasonableness and accuracy of the 2024 actuarial valuation:
  - Evaluate the data used by the actuary, the degree to which the data is sufficient to support the conclusions of the investigation, and the use and appropriateness of any assumptions made regarding the data.
  - Validate the results of the actuarial valuation, including a determination of the actuarial accrued liability, normal cost, and expected employee and employer contributions, including the calculation of the Actuarially Determined Contribution.
  - Reconcile any significant discrepancies between the findings, assumptions, methodology, rates, and adjustments of the auditing actuary and those of the consulting actuary.
  - Determine whether the valuations were performed in accordance with principles and practices prescribed by the Actuarial Standards Board.



# Scope of Review (cont.)

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- Provide an evaluation and express an opinion regarding the reasonableness and accuracy of the 2024 actuarial valuation:
  - Evaluate the current actuarial report in terms of content, format, detail, clarity, and scope.
  - Discuss the reasonableness and appropriateness of the demographic and economic assumptions.
  - Determine whether the actuary is following generally accepted best practices for actuaries.
  - Determine whether the retirement plans' financial objectives are being met. The objectives are set forth in the funding policy.
  - Provide 30-year open-group projection results.

# Primary Conclusions

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- Based on our review of the census data, experience study documents, actuarial valuation reports, and full valuation replication, we believe the 2024 actuarial valuation for PERS is reasonable, based on reasonable assumptions and methods, and the report generally complies with the Actuarial Standards of Practice.
- We also found the comments noted by CavMac in their valuation reports regarding the projected financial condition of PERS to also be appropriate and we concur that the System needs additional contributions to be sustainable.

# Actuarial Assumptions in Context

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- Over time, the true cost of the benefits will be borne out in the actual experience
  - Benefits determined by actual membership behavior (e.g. termination and retirement), plan provisions, and actual life expectancy
  - Plan funding is greatly dependent on actual investment returns and actual contributions to the System
- Assumptions help all stakeholders anticipate the expected future financial condition of PERS
  - Actual experience mirrors the assumptions
    - Plan funding evolves as expected
  - Actual experience is more favorable than assumed
    - Plan funding improves better than expected
  - Actual experience is less favorable than assumed
    - Additional contributions will likely be necessary to finance experience losses
    - Have to make up for lost time on needed contributions

# Principal Assumptions and Methods Audited by GRS

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- Economic assumptions
  - Price inflation
  - Investment return
  - Payroll growth rate
- Demographic assumptions
  - Salary increases (for individuals)
  - Mortality (active, post-employment, disability)
  - Disability incidence
  - Retirement rate
  - Other terminations
- Valuation methodologies
  - Amortization policy
  - Actuarial cost method and asset valuation method

# Demographic Assumptions

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- Review of demographic assumptions is more dependent on actual historical experience
- Reasonable ✓
  - Mortality using standard current tables
  - Modest adjustments to some other demographic assumptions were also reasonable
  - No major demographic gains or losses since study
  - Gains and losses offsetting
    - No concerning bias

# Economic Assumptions

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- Review of economic assumptions is more dependent on forward looking expectations and less on actual historical experience
- Economic assumptions reasonable ✓
  - Price inflation unchanged at 2.40%
  - Investment return decreased from 7.55% to 7.00%
  - Wage inflation unchanged at 2.65%
  - Payroll growth rate unchanged at 2.65%

# Review Investment Return Assumption

## Nominal Investment Return Expectations

	Investment Consultant	50th Percentile Expected Return (Geometric)		Probability of Exceeding 7.00%	
		2022	2021	2022	2021
		(1)	(2)	(3)	(4)
<b>7 to 10 Year Expectations</b>	1	5.3%	5.2%	29%	27%
	2	5.6%	5.2%	31%	26%
	3	5.7%	5.5%	34%	32%
	4	5.8%	5.7%	34%	33%
	5	6.0%	5.9%	37%	36%
	6	6.0%	5.8%	37%	34%
	7	7.4%	6.7%	55%	46%
<b>20 to 30 Year Expectations</b>	1	6.3%	6.5%	40%	43%
	2	6.4%	6.4%	41%	42%
	3	6.9%	6.5%	48%	44%
	4	7.7%	7.3%	59%	54%
7-10 Year Expectation Avg:		6.0%	5.7%	37%	33%
20-30 Year Expectation Avg:		6.8%	6.7%	47%	46%



- Aon
- Black Rock
- Callan
- Cambridge
- Meketa
- Meritas
- Verus

# Review the Calculation of the Liability and ADC

## Comparison of Key Valuation Results

	CavMac	GRS	Difference
Actuarial Accrued Liability	\$60,033,721	\$60,243,797	0.3%
Actuarial Value of Assets	\$33,535,621	\$33,535,621	0.0%
Unfunded Actuarial Accrued Liability	\$26,498,100	\$26,708,176	0.8%
Funded Ratio	55.9%	55.7%	-0.2%
Payroll for Upcoming Year	\$7,611,848	\$7,647,771	0.5%
<b>Fixed Rate Contribution</b>			
Amounts as a % of Pay:			
Total Normal Cost	11.31%	11.26%	
Administrative Expenses	0.26%	0.26%	
Amortization of Unfunded Liability	<u>17.33%</u>	<u>17.38%</u>	
Total Actuarially Determined Contribution	28.90%	28.90%	
Employee Contribution Rate	9.00%	9.00%	
Net Employer Fixed Contribution Rate (FCR)	19.90%	19.90%	
FCR Amortization Period	45 Years	45 Years	





# Review the Calculation of the Liability and ADC

## Comparison of Key Valuation Results

### Actuarially Determined Contribution

Amounts as a % of Pay:

Total Normal Cost	11.31%	11.26%
Administrative Expenses	0.26%	0.26%
Amortization of Unfunded Liability	<u>23.35%</u>	<u>23.42%</u>
Total Actuarially Determined Contribution	34.92%	34.94%
Employee Contribution Rate	9.00%	9.00%
Net Employer Actuarially Determined Contribution (ADC)	25.92%	25.94%
ADC Amortization Period	24 Years	24 Years

*We believe this funding policy satisfies Section 3.21 of the Actuarial Standard of Practice No. 4, “Reasonable Actuarially Determined Contribution” which outlines the requirements that an actuary must follow when performing a funding valuation and the actuary is required to calculate and disclose a reasonable actuarially determined contribution.*



# Comparison of Financial Projections

## We Believe CavMac's Financial Projections are Reliable for Stakeholders to Make Business Decisions

### GRS Projection

Baseline Projection Based on the July 1, 2024 Actuarial Valuation (7.00%)

(\$ in Thousands)

	2024	2029	2034	2044	2047	2054
Total Payroll	\$7,647,771	\$8,176,416	\$9,031,331	\$11,376,226	\$12,250,625	\$14,603,636
UAAL	\$26,708,176	\$29,712,446	\$32,423,998	\$37,705,084	\$39,025,544	\$41,019,905
ER Normal Cost Rate	2.52%	2.24%	2.03%	1.98%	2.01%	2.10%
UAAL Rate	17.38%	17.66%	17.87%	17.92%	17.89%	17.80%
FCR Rate	19.90%	19.90%	19.90%	19.90%	19.90%	19.90%
Funded Ratio	55.7%	55.7%	55.2%	52.8%	52.6%	53.9%
Amortization Period	45 years	48 years	45 years	36 years	33 years	26 years
ADC	25.94%	30.10%	34.54%	47.74%	51.95%	31.20%
ADC/FCR Ratio	130.4%	151.3%	173.6%	239.9%	261.1%	156.8%
Cash Flow Percentage	-4.3%	-5.0%	-5.8%	-6.0%	-5.6%	-4.6%

### CavMac Projection

Baseline Projection Based on the July 1, 2024 Actuarial Valuation (7.00%)

(\$ in Thousands)

	2024	2029	2034	2044	2047	2054
Total Payroll	\$7,245,824	\$8,011,634	\$8,777,303	\$10,971,519	\$11,794,080	\$14,052,147
UAAL	\$26,498,100	\$29,096,171	\$31,425,966	\$35,787,973	\$36,758,119	\$37,698,010
ER Normal Cost Rate	2.57%	2.70%	2.84%	3.05%	3.12%	3.26%
UAAL Rate	15.33%	17.20%	17.06%	16.85%	16.78%	16.64%
FCR Rate	17.90%	19.90%	19.90%	19.90%	19.90%	19.90%
Funded Ratio	55.9%	55.8%	55.4%	53.6%	53.7%	55.8%
Amortization Period	45 years	52 years	50 years	39 years	36 years	27 years
ADC	25.92%	30.11%	34.80%	47.84%	51.92%	27.80%
ADC/FCR Ratio	130.3%	151.3%	174.9%	240.4%	260.9%	139.7%
Cash Flow Percentage	-4.7%	-5.3%	58/89 -6.1%	-6.0%	-5.6%	-4.5%



# Suggestions for Consideration

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- The termination assumption was based on four years of experience. We suggest the actuary consider using a longer period of experience (e.g. 10 years), as to not overreact to possible short-term changes in economic conditions.
- Consider using a salary weighted approach when reviewing the termination and retirement assumptions.
- Continue to monitor the appropriateness of the 7.00% investment return assumption.
- Document any unique assumptions used in the projections in the Actuarial Assumptions and Methods section of the valuation report.

# Thank You

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- Thank you to the PERS staff for their assistance with this actuarial review
- Thank you to CavMac actuaries, whose cooperation in this matter was essential for GRS to meet PERS's deadlines
- We hope PERS, CavMac, and other Stakeholders find our conclusions useful

# Disclaimers

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- This presentation is intended to be used in conjunction with the actuarial audit report issued on October 18, 2024. This presentation should not be relied on for any purpose other than the purpose described in the actuarial review report.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- The actuaries completing the report (Paul Wood, Daniel White, and Cassie Rapoport) are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

# Public Employees' Retirement System of Mississippi

Actuarial Audit of the June 30, 2024 Actuarial  
Valuation





October 18, 2024

Board of Trustees  
Public Employees' Retirement System of Mississippi  
429 Mississippi Street  
Jackson, MS 39201

Members of the Board:

Gabriel, Roeder, Smith & Company (GRS) is pleased to present this report of an actuarial audit of the July 1, 2024 Actuarial Valuation of the Public Employees' Retirement System of Mississippi (PERS). We are grateful to the PERS staff, and CavMac, the retained actuary, for their cooperation throughout the actuarial audit process.

This actuarial audit involves an independent verification and analysis of the assumptions, procedures, methods, and conclusions used by the retained actuary for PERS in the valuation as of July 1, 2024, to ensure that the conclusions are technically sound and conform to the appropriate Standards of Practice as promulgated by the Actuarial Standards Board.

GRS is pleased to report to the Board and Staff that, in our professional opinion, the July 1, 2024 Actuarial Valuation prepared by the retained actuary provides a fair and reasonable assessment of the financial position of PERS. We also found the comments noted by CavMac in their valuation reports regarding the projected financial condition of PERS to also be appropriate and concur that the System needs additional contributions to improve the long-term financial condition of the System. **In summary, we believe the results of the July 1, 2024 actuarial valuation for PERS is reasonable for the purpose of assessing the financial condition of PERS and determining the employer contribution rates.**

The undersigned are independent actuaries and consultants. All are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. Thank you for the opportunity to work on this assignment.

Respectfully submitted,  
**Gabriel, Roeder, Smith & Company**

A handwritten signature in black ink that reads "Paul Wood".

Paul Wood, ASA, FCA, MAAA  
Senior Consultant

A handwritten signature in black ink that reads "Daniel J. White".

Daniel J White, FSA, EA, MAAA  
Vice President

A handwritten signature in black ink that reads "Cassie Rapoport".

Cassie Rapoport, ASA, MAAA  
Consultant

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# SECTION I

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## EXECUTIVE SUMMARY

# Executive Summary

The Public Employees' Retirement System of Mississippi engaged Gabriel, Roeder, Smith & Company (GRS) for an actuarial audit of the 2024 actuarial valuation prepared for the Public Employees' Retirement System of Mississippi (PERS).

The purpose of this report is to:

- Provide an evaluation and express an independent opinion regarding the reasonableness and accuracy of the valuation results (including a determination of actuarial accrued liability, normal cost, and actuarially determined contributions), appropriateness of the actuarial assumptions, and application of the actuarial cost method for the 2024 actuarial valuation; and
- Include any recommendations regarding reasonable alternatives to the actuarial assumptions used in the 2024 actuarial valuation.

The scope of this actuarial audit includes the following:

- A. Reproduction of Actuarial Valuations dated June 30, 2024.** GRS will use the same data, actuarial assumptions and methods as the consulting actuary has used in the valuation. The validation shall be done through a **full replication audit** that attempts to duplicate the results of the entire valuation for each plan. GRS will:
1. Evaluate the data used by the actuary, the degree to which the data is sufficient to support the conclusions of the investigation, and the use and appropriateness of any assumptions made regarding the data.
  2. Determine whether the valuations were performed in accordance with principles and practices prescribed by the Actuarial Standards Board.
  3. Validate the results of the actuarial valuation, including a determination of the actuarial accrued liability, normal cost, and expected employee and employer contributions, including the calculation of the Actuarially Determined Contribution.
  4. Reconcile any significant discrepancies between the findings, assumptions, methodology, rates, and adjustments of the contracting Firm and those of the consulting actuary.
  5. Evaluate the current actuarial report in terms of content, format, detail, clarity, and scope.
  6. Discuss the reasonableness and appropriateness of the demographic and economic assumptions.
  7. Determine whether the actuary is following generally accepted best practices for actuaries.
  8. Determine whether the retirement plans' financial objectives are being met. The objectives are set forth in the funding policy.
  9. Provide 30-year open-group projection results.
- B. Review of Experience Studies.** GRS will evaluate the general appropriateness, completeness, and conclusions of the June 30, 2022 Experience Study.
- C. Provide a report to the Executive Director and Board of Trustees who will then deliver the report to the Lieutenant Governor, Speaker of the House, Chairman of the Senate Appropriations Committee and Chairman of the House Appropriations Committee.** GRS will analyze the economic impact of any such recommendation to adjust the employer contributions



to the system and state, including, but not limited to, information showing the fiscal impact to every agency and arm of the state, including, but not limited to, state agencies, cities, counties and school districts.

**D. Attend an in-person meeting.** Attend one in-person meeting to discuss the results of the audit.

## Summary of Findings

**Based on our review of the census data, experience study documents, liability replications, and actuarial valuation report, we believe the 2024 actuarial valuation for PERS is reasonable for the purpose, based on reasonable assumptions and methods, and the report generally complies with the Actuarial Standards of Practice.**

The technical portion of the audit or the replication was clean with very limited findings. The Total Present Value of Future Benefits is generally considered the primary actuarial result for replication purposes. **GRS was able to match this primary result within 0.2%. In addition to that, GRS was able to match the accrued liability by within 0.3% and the Actuarially Determined Contribution (ADC) Rate within 0.02% of payroll.**

We also found the comments noted by CavMac in their valuation reports regarding the projected financial condition of PERS to also be appropriate and agree that the System needs additional contributions to improve the long-term financial condition of the System.



## **SECTION II**

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### **GENERAL ACTUARIAL AUDIT PROCEDURE**

# General Actuarial Audit Procedure

GRS received and reviewed the following items:

- June 30, 2023 actuarial valuation report;
- June 30, 2024 actuarial valuation report;
- Experience Investigation for the Four-Year Period Ending June 30, 2022;
- Census data for plan participants and beneficiaries as of June 30, 2023 and June 30, 2024 originally provided by PERS to the retained actuary for the actuarial valuation; and
- A final set of census data for plan participants and beneficiaries as of June 30, 2023 and June 30, 2024 used by the retained actuary for the actuarial valuation.

In performing our review, we:

- Reviewed descriptions of member benefits and applicable statutes to understand the benefits provided;
- Reviewed the appropriateness of the actuarial assumptions and methods;
- Reviewed the actuarial valuation report; and
- Replicated the actuarial valuation results, including the determination of actuarial accrued liability, normal cost, and actuarially determined contributions.

The actuarial audit observations, which follow, are based on our review of this information and subsequent correspondence with the retained actuary for clarification and further documentation.

## ***Key Actuarial Concepts***

An actuarial valuation is a detailed statistical simulation of the future operation of a retirement system using the set of actuarial assumptions adopted by the governing board. It is designed to simulate all of the dynamics of such a retirement system for each current participant of the plan, including:

- Accrual of future service,
- Changes in benefits,
- Leaving the plan through retirement, disability, withdrawal, or death, and
- Determination of and payment of benefits from the plan.

This simulated dynamic is applied to each active member in the plan and results in a set of expected future benefit payments for that member. Discounting those future payments for the likelihood of survival at the assumed rate of investment return produces the Total Present Value of Plan Benefits (TPV) for that participant. The actuarial cost method will allocate this TPV between the participant's past service (actuarial accrued liability) and future service (future normal costs).



We believe that an actuarial audit should not focus on finding differences in actuarial processes and procedures utilized by the consulting actuary and the auditing actuary. Rather, our intent is to identify and suggest improvements to the process and procedures utilized by the retained actuary for PERS. In performing this actuarial audit, we attempted to limit our discussions regarding opinion differences and focus our attention on the accuracy of the calculations of the liability and costs, completeness and reliability of reporting, and compliance with the Actuarial Standards of Practice that apply to the work performed by the retained actuary.

These key actuarial concepts will be discussed in more detail throughout this report.

### ***Actuarial Qualifications***

The actuarial valuation report was signed by Edward J. Koebel, EA, FCA, MAAA and Ben Mobley, ASA, FCA, MAAA. Both signing actuaries have attained the actuarial credentials noted on the signature line of the actuarial valuation report and are compliant with the Society of Actuaries Continuing Professional Development requirement.

## SECTION III

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### ACTUARIAL ASSUMPTIONS AND METHODS

# Actuarial Assumptions

## Overview

The actuarial valuation report contains a description of the actuarial assumptions which were used in the actuarial valuation as of July 1, 2024. The retained actuary published an actuarial experience report, dated April 21, 2023 which was used to set the assumptions in this 2024 valuation.

The set of actuarial assumptions is one of the foundations upon which an actuarial valuation is based. An actuarial valuation is, essentially, a statistical projection of the amount and timing of future benefits to be paid under the retirement plan. In any statistical projection, assumptions as to future events will drive the process. Actuarial valuations are no exception.

It is important to understand the nature of the retirement plan and the plan sponsor when assessing the reasonableness of the actuarial assumptions. No projection of future events can be labeled as “correct” or “incorrect”. However, there is a “range of reasonableness” for each assumption. We evaluate individual elements as follows:

- Whether or not they fall within the range of reasonableness, and
- If they fall within that range, whether they are reasonable for the actuarial valuation of the plan.

Actuarial assumptions for the valuation of retirement plans are of two types: (i) demographic assumptions, and (ii) economic assumptions. We have assessed the reasonableness of both types as part of this actuarial audit.

## Demographic Assumptions

### General

These assumptions simulate the movement of participants into and out of plan coverage and between status types. Key demographic assumptions are:

- turnover among active participants,
- retirement patterns among active participants, and
- healthy retiree mortality.

In addition, there are a number of other demographic assumptions with less substantial impact on the results of the process, such as:

- disability incidence and mortality among disabled benefit recipients,
- mortality among active participants,
- distribution of form of payment selection, and
- percent of active participants who are married and the relationship of the ages of participants and spouses.





Demographic assumptions for a retirement plan such as PERS are normally established by statistical studies of recent actual experience, called experience studies. Such studies underlie the assumptions used in the valuations.

Once it is determined whether or not an assumption needs adjustment, setting the new assumption depends upon the extent to which the current experience is an indicator of the long-term future.

- Full credibility may be given to the current experience. Under this approach, the new assumptions are set very close to recent experience.
- Alternatively, the recent experience might be given only partial credibility. Thus, the new assumptions may be set by blending the recent experience with the prior assumption.
- If recent experience is believed to be atypical of the future, such knowledge is taken into account.
- Finally, it may be determined that the size of the plan does not provide a large enough sample to make the data credible. In such cases, the experience of the plan may be disregarded and the assumption is set based upon industry standards for similar groups.

The measurement of experience is normally affected by simply counting occurrences of an event. Thus, for example, in reviewing retirement patterns, an actuary might count the number of actual retirees among males aged 55 with 30 years of service. These retirements would be compared against the number of total people in that group to generate a raw rate of retirement for that group. In many cases, especially for the development of withdrawal and healthy mortality rates, these counts are weighted by salary, liability, or benefit amount.

Actuarial Standards of Practice (ASOP) No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*, applies to actuaries when they are selecting demographic assumptions. ASOP 35 was recently combined with ASOP 27 for valuations on or after January 1, 2025, but no guidance was changed. In accordance with ASOP No. 35, an actuary should identify the types of demographic assumptions to use for a specific measurement. In doing so, the actuary should determine the following:

- a) The purpose and nature of the measurement;
- b) The plan provisions or benefits and factors that will affect the timing and value of any potential benefit payments;
- c) The characteristics of the obligation to be measured (such as measurement period, pattern of plan payments over time, open or closed group, and volatility);
- d) The contingencies that give rise to benefits or result in loss of benefits;
- e) The significance of each assumption; and
- f) The characteristics of the covered group.

Not every contingency requires a separate assumption. For example, for a plan that is expected to provide benefits of equal value to employees who voluntarily terminate employment or become disabled, retire, or die, the actuary may use an assumption that reflects some or all of the above contingencies in combination rather than selecting a separate assumption for each.



## Observations on Statistical Data Reported and Used

We find that the statistical data included in the experience study was sufficient.

## Observations on Assumptions

Overall, it appears that the current demographic assumptions are reasonable for valuing the liabilities and assessing the contributions.

### ***Mortality***

The mortality assumption uses recent, standard tables published by the SOA based on public sector data (Pub-2010). The adjustments made specific to PERS relied upon benefit-weighted information. While no specific credibility factors were mentioned in the experience study report, CavMac discussed in sufficient depth the rationale for not changing the assumption from the prior experience study.

Future mortality adjustments were reflected using the MP-2020. We find that each component of this approach follows best practice.

### ***Departures (Retirement, Termination, Disability)***

During the experience review period, demographic gains and losses related to departures from active status were minimal in relation to the overall liabilities and did not demonstrate any consistent bias in the assumptions. There was minimal change recommended to the assumptions in the most recent experience study which is consistent with the observed gains and losses over the study period. Their analysis was also reviewed separately for males and females among age and service. We believe these assumptions to be reasonable in general.

We also find the use of a single withdrawal assumption for each of the employee membership types reasonable. However, we suggest that CavMac monitor experience separately for each employee group in order to verify the behavior (i.e. pattern of retirement and termination) of different membership groups is similar.

CavMac's recommendation to reduce the rate of disability incidence to be in conformity of the latest PERS experience and also consistent with the change in disability experience we are seeing in several other retirement systems. We believe this disability incidence assumption to be reasonable.

The termination assumption was based on four years of experience, and termination experience can be influenced over the short-term by the local economic conditions. As a result, we suggest CavMac consider using a longer experience period (e.g. ten years of experience) as to not overreact to possible short-term changes in economic conditions.

Also, we suggest CavMac consider using a salary weighted approach when reviewing the termination and retirement experience with the idea that behavior of members with a larger salary have a larger liability



and if these assumptions are developed using a salary weighted approach then liability gains and losses due to these decrements will be smaller each year.

### ***Other Assumptions***

CavMac assumes 35% of future deferred vested participants will elect to receive a refund, and 65% of future deferred vested participants will elect to receive a deferred annuity. Given the 9.00% member contribution rate and that the plan has an eight-year vesting requirement for members hired after July 1, 2007, we suggest CavMac consider basing this assumption on the age and service of each participant, as those factors can influence whether or not a participant elects a refund or annuity.

We also examined the other demographic assumptions used in the valuation and found them to be reasonable and similar to those used by other public sector plans (when applicable).

## **Economic Assumptions**

### **General**

These assumptions simulate the impact of economic forces on the amounts and values of future benefits. Key economic assumptions are the assumed rate of investment return and assumed rates of future salary increase. All economic assumptions are built upon an underlying inflation assumption.

ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*, applies to actuaries when they are selecting economic assumptions. ASOP No. 27 states that each economic assumption selected by the actuary should be reasonable. For this purpose, an assumption is reasonable if it has the following characteristics:

- a) It is appropriate for the purpose of the measurement;
- b) It reflects the actuary's professional judgment;
- c) It takes into account historical and current economic data that is relevant as of the measurement date;
- d) It reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data, or a combination thereof; and
- e) It has no significant bias (i.e., it is not significantly optimistic or pessimistic), except when provisions for adverse deviation or plan provisions that are difficult to measure are included and disclosed, or when alternative assumptions are used for the assessment of risk.

Additionally, ASOP No. 27 states that communications regarding actuarial reports subject to this standard should contain the following:

- a) A description of each significant assumption used in the measurement and whether the assumption represents an estimate of future experience, and
- b) A description of the information and analysis used in selecting each economic assumption that has a significant effect on the measurement.



## Inflation

Inflation refers to mean price inflation as measured by annual increases in the Consumer Price Index (CPI). This inflation assumption underlies most of the other economic assumptions. It primarily impacts investment return and salary increases.

The current explicit price inflation assumption is 2.40%. The inflation assumption was left unchanged at 2.40% following the most recent experience study. GRS finds that the recommendation to leave the assumption unchanged at 2.40% was reasonable and appropriate.

The exhibit on the next page shows some of the key metrics GRS uses in making inflation recommendations. Although some metrics *could* be used to support a different inflation assumption, GRS believes that CavMac's analysis and conclusions sufficiently support the continued use of a 2.40% price inflation assumption.

<b>Forward-Looking Price Inflation Forecasts<sup>a</sup></b>	
<b>Congressional Budget Office<sup>b</sup></b>  5-Year Annual Average 10-Year Annual Average	2.44% 2.32%
<b>Federal Reserve Bank of Philadelphia<sup>c</sup></b>  5-Year Annual Average 10-Year Annual Average	2.50% 2.33%
<b>Federal Reserve Bank of Cleveland<sup>d</sup></b>  10-Year Expectation 20-Year Expectation 30-Year Expectation	2.37% 2.41% 2.46%
<b>Federal Reserve Bank of St. Louis<sup>e</sup></b>  10-Year Breakeven Inflation 20-Year Breakeven Inflation 30-Year Breakeven Inflation	2.26% 2.43% 2.27%
<b>U.S. Department of the Treasury<sup>f</sup></b>  10-Year Breakeven Inflation 20-Year Breakeven Inflation 30-Year Breakeven Inflation 50-Year Breakeven Inflation 100-Year Breakeven Inflation	2.19% 2.43% 2.27% 2.36% 2.43%
<b>Social Security Trustees<sup>g</sup></b>  Ultimate Intermediate Assumption	2.40%
<sup>a</sup> End of the Second Quarter, 2024. Version 2024-07-12 by Gabriel, Roeder, Smith & Company	
<sup>b</sup> An Update to the Budget and Economic Outlook: 2024 to 2034, Release Date: June 2024, Consumer Price Index (CPI-U), Percentage Change from Year to Year, 5-Year Annual Average (2024 - 2028), 10-Year Annual Average (2024 - 2033).	
<sup>c</sup> Second Quarter 2024 Survey of Professional Forecasters, Release Date: May 10, 2024, Headline CPI, Annualized Percentage Points, 5-Year Annual Average (2024 - 2028), 10-Year Annual Average (2024 - 2033).	
<sup>d</sup> Inflation Expectations, Model output date: June 1, 2024.	
<sup>e</sup> The breakeven inflation rate represents a measure of expected inflation derived from X-Year Treasury Constant Maturity Securities and X-Year Treasury Inflation-Indexed Constant Maturity Securities. Observation date: June, 2024.	
<sup>f</sup> The Treasury Breakeven Inflation (TBI) Curve, Monthly Average Rates, June, 2024.	
<sup>g</sup> The 2024 Annual Report of The Board of Trustees of The Federal Old-Age And Survivors Insurance and Federal Disability Insurance Trust Funds, May 6, 2024, p. 10, Key Assumptions and Summary Measures for Long-Range (75-year) Projections, Intermediate, Consumer Price Index (CPI-W).	

## Investment Return

The investment return assumption is one of the principal assumptions in any actuarial valuation of a retirement plan. It is used to discount future expected benefit payments to the valuation date, in order to determine the liabilities of the retirement plan. Even a small change to this assumption can produce significant changes to the liabilities and contribution rates. The current assumption incorporates inflation of 2.40% per annum plus an annual real rate of return of 4.60%, net of investment-related expenses paid from the trust, for an assumed nominal rate of return of 7.00%.

In the most recent study, CavMac examined multiple sources in making their recommendation including Callan’s (the PERS investment consultant) asset allocation study, as well as the 10 and 20-year returns from the Horizon survey. GRS uses an approach in reviewing the investment return assumption similar to that used by CavMac when they referenced the Horizon Actuarial Services survey for forward-looking return expectations. GRS also uses forward-looking expectations developed by nationally recognized professional investment consulting firms. Some of these forward-looking assumptions are based on a seven- to ten-year time horizon, while others are based on a longer 20- to 30-year time horizon. Since investment consultants update their assumptions on at least an annual basis, we also compared their expectations developed in 2022, to their prior year assumptions to better understand changes in their expectations. Below is an exhibit that provides this comparison for each investment consulting firm for 2021 and 2022. While there is more current information available by investment consultants, we believe it is appropriate to use the information available in 2022, the time CavMac performed the experience study analysis and made a recommendation to use a 7.00% investment return assumption.

### Nominal Investment Return Expectations - 50% Percentile

	Investment Consultant	50th Percentile Expected Return (Geometric)		Probability of Exceeding 7.00%	
		2022	2021	2022	2021
		(2)	(3)	(4)	(5)
7 to 10 Year Expectations	(1)	(2)	(3)	(4)	(5)
	1	5.3%	5.2%	29%	27%
	2	5.6%	5.2%	31%	26%
	3	5.7%	5.5%	34%	32%
	4	5.8%	5.7%	34%	33%
	5	6.0%	5.9%	37%	36%
	6	6.0%	5.8%	37%	34%
20 to 30 Year Expectations	7	7.4%	6.7%	55%	46%
	1	6.3%	6.5%	40%	43%
	2	6.4%	6.4%	41%	42%
	3	6.9%	6.5%	48%	44%
	4	7.7%	7.3%	59%	54%
	7-10 Year Expectation Avg:	6.0%	5.7%	37%	33%
	20-30 Year Expectation Avg:	6.8%	6.7%	47%	46%



The investment consultants used in the GRS analysis, in alphabetical order, include: Aon, Black Rock, Callan, Cambridge, Meketa, Mercer, and Versus. These forward-looking return assumptions are mapped to the investment policy documented in the PERS 2022 annual report.

In conclusion, GRS finds that CavMac's analysis process and the external sources of information they used in their analysis to be appropriate. We also concur with the recommendation to decrease the real rate of return to 4.60%, which results in a 7.00% nominal return assumption.

Please note that a future change in the System's investment policy or a return to a low interest rate economic environment may result in a decrease in the probability the System attains a 7.00% return assumption, which may require a further decrease in the return assumption at a future date.

### **Administrative Expenses**

The investment return assumption is stated net of expected investment-related expenses from the trust. Accordingly, the actuarial valuation includes an explicit assumption for administrative expenses. This is our preferred approach and a reasonable assumption based on past experience. Recent experience showed that the recommended expense assumption of 0.26% of pay assumption to be reasonable by GRS.

### **Member Salary Increase Assumption**

In general, assumed rates of pay increases are often constructed as the total of three main components:

- Price inflation – currently 2.40%
- Economic Productivity Increases – currently 0.25%
- Merit, Promotion, and Longevity – This portion of the salary increase assumption reflects components such as promotional increases as well as increases for merit and longevity. This portion of the assumption is not related to inflation. The current assumptions vary this component based on the participant's current service.

This structure is reasonable and our preferred approach. The productivity increase assumption is supportable. The merit assumption looks reasonable given the experience study data.

### **Summary**

The set of actuarial assumptions and methods, taken in combination, are reasonable and established in accordance with ASOP No. 27 and ASOP No. 35 (soon to be combined ASOP 27).

We have no recommended changes to the actuarial assumptions.



# Actuarial Methods

## **Actuarial Cost Method**

The Entry Age Normal actuarial cost method is the most prevalent funding method in the public sector. It is appropriate for the public sector because it produces costs that remain relatively stable as a percentage of payroll over time, resulting in intergenerational equity for taxpayers. We have reviewed the retained actuary's application of the Entry Age Normal actuarial cost method and we believe that the method is reasonable and appropriately applied.

## **Asset Smoothing Method**

PERS uses five-year asset smoothing. This is a reasonable and common approach.

## **Amortization Method**

The Actuarially Determined Contribution (ADC) uses a 30-year level percent of pay amortization for the existing UAAL on June 30, 2018. Annual future actuarial experience gains and losses, assumption changes or benefit enhancements or reductions are amortized over 25 years from the date of the valuation. This is a reasonable and common approach.

As a result, there are 24 years remaining for the original June 30, 2018 amortization base and new amortization base layers will now be longer than the original UAAL base. The use of a layered amortization base for financing the unfunded actuarial accrued liability has become increasingly common among public retirement systems. This amortization method provides increased stability in the contribution requirements and still achieve PERS's goal of attaining a fully funded Retirement System.

We believe PERS's continued use of this funding policy for determining the Actuarial Determined Contribution (ADC) is appropriate for use for PERS. We believe this funding policy also satisfies Section 3.21 of the Actuarial Standard of Practice No. 4, "Reasonable Actuarially Determined Contribution" which outlines the requirements that an actuary must follow when performing a funding valuation and the actuary is required to calculate and disclose a reasonable actuarially determined contribution.





**SECTION IV**

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**ACTUARIAL VALUATION RESULTS**

# Actuarial Valuation Results

## Replication of Actuarial Valuation Results

We replicated the 2024 actuarial valuation results using the assumptions and methods used by the retained actuary, and we were able to replicate the plan liabilities very closely.

### PERS Key Valuation Results as of July 1, 2024 ('s in millions)

	CavMac	GRS	Difference
Actuarial Accrued Liability	\$60,033,721	\$60,243,797	0.3%
Actuarial Value of Assets	\$33,535,621	\$33,535,621	0.0%
Unfunded Actuarial Accrued Liability	\$26,498,100	\$26,708,176	0.8%
Funded Ratio	55.9%	55.7%	-0.2%
Payroll for Upcoming Year	\$7,611,848	\$7,647,771	0.5%
<b>Fixed Rate Contribution</b>			
Amounts as a % of Pay:			
Total Normal Cost	11.31%	11.26%	
Administrative Expenses	0.26%	0.26%	
Amortization of Unfunded Liability	<u>17.33%</u>	<u>17.38%</u>	
Total Actuarially Determined Contribution	28.90%	28.90%	
Employee Contribution Rate	9.00%	9.00%	
Net Employer Fixed Contribution Rate (FCR)	19.90%	19.90%	
FCR Amortization Period	45 Years	45 Years	
<b>Actuarially Determined Contribution</b>			
Amounts as a % of Pay:			
Total Normal Cost	11.31%	11.26%	
Administrative Expenses	0.26%	0.26%	
Amortization of Unfunded Liability	<u>23.35%</u>	<u>23.42%</u>	
Total Actuarially Determined Contribution	34.92%	34.94%	
Employee Contribution Rate	9.00%	9.00%	
Net Employer Actuarially Determined Contribution (ADC)	25.92%	25.94%	
ADC Amortization Period	24 Years	24 Years	



We have also included long term projections as part of this audit. The summary is shown below. As you will see, the projected 30-year funded ratio aligns relatively closely with the CavMac results. That is, the 30-year funded ratio in CavMac’s report was 55.8% and the results from our projection is 53.9%. From our perspective, this is very close over such a long projection period. The projections below assume the total FCR will increase to 28.9% over the next five years.

**Mississippi PERS**  
**Projection Results Based on July 1, 2024 Actuarial Valuation - Ultimate Total FCR of 28.9%**  
**Discount Rate: 7.00%**

Valuation as of July 1, (1)	Actuarial Accrued Liability (AAL, in thousands) (2)	Actuarial Value of Assets (AVA, in thousands) (3)	Actuarial Accrued Liability (UAAL, in thousands) (4)	Funded Ratio (5)	Market Return for FY Beginning on Valuation Date (6)	Contribution Rate for Fiscal Year Following Valuation Date (7)		Projected Payroll - (in thousands) (9)	Employee Contributions (in thousands) (10)	Employer Contributions (in thousands) (11)
						Employee	Employer			
2024	\$60,243,797	\$33,535,621	\$26,708,176	55.7%	7.00%	9.00%	17.90%	\$7,647,771	\$702,065	\$1,396,330
2025	61,662,801	34,753,005	26,909,796	56.4%	7.00%	9.00%	18.40%	7,703,348	707,167	1,445,764
2026	63,107,195	34,663,966	28,443,229	54.9%	7.00%	9.00%	18.90%	7,809,887	716,948	1,505,590
2027	64,503,646	35,671,430	28,832,216	55.3%	7.00%	9.00%	19.40%	7,945,993	729,442	1,572,353
2028	65,838,069	36,657,084	29,180,985	55.7%	7.00%	9.00%	19.90%	8,042,147	738,269	1,632,395
2029	67,078,647	37,366,201	29,712,446	55.7%	7.00%	9.00%	19.90%	8,176,416	750,595	1,659,649
2030	68,256,876	38,006,671	30,250,205	55.7%	7.00%	9.00%	19.90%	8,342,134	765,808	1,693,286
2031	69,396,454	38,606,350	30,790,103	55.6%	7.00%	9.00%	19.90%	8,497,755	780,094	1,724,874
2032	70,466,720	39,134,568	31,332,152	55.5%	7.00%	9.00%	19.90%	8,654,134	794,449	1,756,616
2033	71,469,152	39,590,484	31,878,668	55.4%	7.00%	9.00%	19.90%	8,844,480	811,923	1,795,253
2034	72,435,001	40,011,003	32,423,998	55.2%	7.00%	9.00%	19.90%	9,031,331	829,076	1,833,180
2035	73,356,668	40,386,167	32,970,501	55.1%	7.00%	9.00%	19.90%	9,232,558	847,549	1,874,025
2036	74,213,120	40,697,389	33,515,731	54.8%	7.00%	9.00%	19.90%	9,427,097	865,407	1,913,512
2037	75,019,782	40,960,422	34,059,360	54.6%	7.00%	9.00%	19.90%	9,625,347	883,607	1,953,753
2038	75,775,633	41,172,390	34,603,243	54.3%	7.00%	9.00%	19.90%	9,824,535	901,892	1,994,184
2039	76,491,039	41,344,820	35,146,218	54.1%	7.00%	9.00%	19.90%	10,055,001	923,049	2,040,964
2040	77,188,300	41,505,695	35,682,605	53.8%	7.00%	9.00%	19.90%	10,300,757	945,609	2,090,848
2041	77,850,263	41,641,069	36,209,193	53.5%	7.00%	9.00%	19.90%	10,546,843	968,200	2,140,798
2042	78,517,104	41,792,613	36,724,491	53.2%	7.00%	9.00%	19.90%	10,814,994	992,816	2,195,227
2043	79,204,157	41,979,882	37,224,275	53.0%	7.00%	9.00%	19.90%	11,098,986	1,018,887	2,252,872
2044	79,937,730	42,232,646	37,705,084	52.8%	7.00%	9.00%	19.90%	11,376,226	1,044,338	2,309,146
2045	80,698,982	42,531,670	38,167,312	52.7%	7.00%	9.00%	19.90%	11,663,371	1,070,697	2,367,431
2046	81,496,365	42,888,728	38,607,637	52.6%	7.00%	9.00%	19.90%	11,947,123	1,096,746	2,425,027
2047	82,337,526	43,311,983	39,025,544	52.6%	7.00%	9.00%	19.90%	12,250,625	1,124,607	2,486,632
2048	83,218,106	43,800,871	39,417,235	52.6%	7.00%	9.00%	19.90%	12,536,477	1,150,849	2,544,654
2049	84,115,782	44,332,250	39,783,532	52.7%	7.00%	9.00%	19.90%	12,845,158	1,179,185	2,607,310
2050	85,045,910	44,928,402	40,117,507	52.8%	7.00%	9.00%	19.90%	13,175,529	1,209,514	2,674,369
2051	85,938,224	45,525,280	40,412,945	53.0%	7.00%	9.00%	19.90%	13,514,215	1,240,605	2,743,115
2052	86,855,173	46,190,381	40,664,791	53.2%	7.00%	9.00%	19.90%	13,870,544	1,273,316	2,815,443
2053	87,842,053	46,973,351	40,868,702	53.5%	7.00%	9.00%	19.90%	14,229,155	1,306,236	2,888,234
2054	88,886,713	47,866,808	41,019,905	53.9%	7.00%	9.00%	19.90%	14,603,636	1,340,614	2,964,246

The table on the following page provides a comparison of certain projection information that was independently calculated by GRS and the projection information provided on page 34 of the 2024 actuarial valuation report prepared by CavMac. There are additional assumptions (e.g. a new entrant profile) and other calculation nuances (e.g. timing of contributions and benefit payments) that are required to prepare a projection. These differences will also result in subtle differences in the two projections, especially as stakeholders look at the information beyond 15 years.

However, it is GRS’s opinion that stakeholders can rely on CavMac’s projection information for making business decisions.



**GRS Projection**  
**Baseline Projection Based on the July 1, 2024 Actuarial Valuation (7.00%)**  
**(\$ in Thousands)**

	2024	2029	2034	2044	2047	2054
Total Payroll	\$7,647,771	\$8,176,416	\$9,031,331	\$11,376,226	\$12,250,625	\$14,603,636
UAAL	\$26,708,176	\$29,712,446	\$32,423,998	\$37,705,084	\$39,025,544	\$41,019,905
ER Normal Cost Rate	2.52%	2.24%	2.03%	1.98%	2.01%	2.10%
UAAL Rate	17.38%	17.66%	17.87%	17.92%	17.89%	17.80%
FCR Rate	19.90%	19.90%	19.90%	19.90%	19.90%	19.90%
Funded Ratio	55.7%	55.7%	55.2%	52.8%	52.6%	53.9%
Amortization Period	45 years	48 years	45 years	36 years	33 years	26 years
ADC	25.94%	30.10%	34.54%	47.74%	51.95%	31.20%
ADC/FCR Ratio	130.4%	151.3%	173.6%	239.9%	261.1%	156.8%
Cash Flow Percentage	-4.3%	-5.0%	-5.8%	-6.0%	-5.6%	-4.6%

**CavMac Projection**  
**Baseline Projection Based on the July 1, 2024 Actuarial Valuation (7.00%)**  
**(\$ in Thousands)**

	2024	2029	2034	2044	2047	2054
Total Payroll	\$7,245,824	\$8,011,634	\$8,777,303	\$10,971,519	\$11,794,080	\$14,052,147
UAAL	\$26,498,100	\$29,096,171	\$31,425,966	\$35,787,973	\$36,758,119	\$37,698,010
ER Normal Cost Rate	2.57%	2.70%	2.84%	3.05%	3.12%	3.26%
UAAL Rate	15.33%	17.20%	17.06%	16.85%	16.78%	16.64%
FCR Rate	17.90%	19.90%	19.90%	19.90%	19.90%	19.90%
Funded Ratio	55.9%	55.8%	55.4%	53.6%	53.7%	55.8%
Amortization Period	45 years	52 years	50 years	39 years	36 years	27 years
ADC	25.92%	30.11%	34.80%	47.84%	51.92%	27.80%
ADC/FCR Ratio	130.3%	151.3%	174.9%	240.4%	260.9%	139.7%
Cash Flow Percentage	-4.7%	-5.3%	-6.1%	-6.0%	-5.6%	-4.5%

Projection information shown above for certain years provides a comparison of projections that were independently prepared by GRS and CavMac.



## **SECTION V**

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### **CONTENT OF THE VALUATION REPORT**

## Content of the Valuation Report and Presentation

ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, and ASOP No. 41, *Actuarial Communications*, provide guidance for measuring pension obligations and communicating the results. These Standards list specific elements to be included, either directly or by references to prior communication, in pension actuarial communications.

The pertinent items that should be included in an actuarial valuation report on a pension plan should include:

- The name of the person or firm retaining the actuary and the purposes that the communication is intended to serve.
- A statement as to the effective date of the calculations, the date as of which the participant and financial information were compiled, and the sources and adequacy of such information.
- An outline of the benefits being discussed or valued and of any significant benefits not included in the actuarial determinations.
- A summary of the participant information, separated into significant categories such as active, retired, and terminated with future benefits payable. Actuaries are encouraged to include a detailed display of the characteristics of each category and reconciliation with prior reported data.
- A description of the actuarial assumptions, the cost method and the asset valuation method used. Changes in assumptions and methods from those used in previous communications should be stated and their effects noted. If the actuary expects that the long-term trend of costs resulting from the continued use of present assumptions and methods would result in a significantly increased or decreased cost basis, this should also be communicated.
- A summary of asset information and derivation of the actuarial value of assets. Actuaries are encouraged to include an asset summary by category of investment and reconciliation with prior reported assets showing total contributions, benefits, investment return, and any other reconciliation items.
- A statement of the findings, conclusions, or recommendations necessary to satisfy the purpose of the communication and a summary of the actuarial determinations upon which these are based. The communication should include applicable actuarial information regarding financial reporting. Actuaries are encouraged to include derivation of the items underlying these actuarial determinations.
- A disclosure of any facts which, if not disclosed, might reasonably be expected to lead to an incomplete understanding of the communication.

We believe that CavMac has complied with these ASOP requirements when issuing their valuation report and we only have a few minor comments for consideration:

- We recommend CavMac disclose additional assumptions used in the projections in the valuation report, as well as the rationale for it. This would include the use of a 2% load on the projected contributions.
- The valuation report shows sample active mortality rates, but does not list the table being used. We recommend the table being used for active mortality rates be disclosed in the valuation report.
- The modified cash refund is currently being valued by assuming retirement benefits will be guaranteed for 5 years. We recommend this assumption be disclosed in the valuation report.



We have reviewed the actuarial valuation report prepared by CavMac with regard to disclosures as required by ASOP 51. Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions. PERS is currently in a precarious financial condition and in need of additional employer contributions. In our professional opinion, we believe that CavMac's projections, sensitivity information, and commentary satisfy the requirements regarding disclosure of risk, measuring pension obligations, and determining pension plan contributions.

# SECTION VI

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## SUMMARY



## Summary

Based on our review of the census data, experience study documents, liability replications, and actuarial valuation report, we believe the 2024 actuarial valuation is reasonable for the purpose of determining the sufficiency of the current contribution rates, based on reasonable assumptions and methods, and the report generally complies with the Actuarial Standards of Practice.

GRS has identified some items for the Board, the retained actuary and Staff for the upcoming valuation and experience study which we believe will further improve the accuracy of your valuation results in future years, as well as some strategic considerations for the Board going forward. These recommendations are for consideration, but do not hinder our opinion of this being a “clean” audit.

Finally, to reiterate, PERS needs additional contributions as the current contribution levels are not sufficient to fund the plan over a reasonable period of time.

