

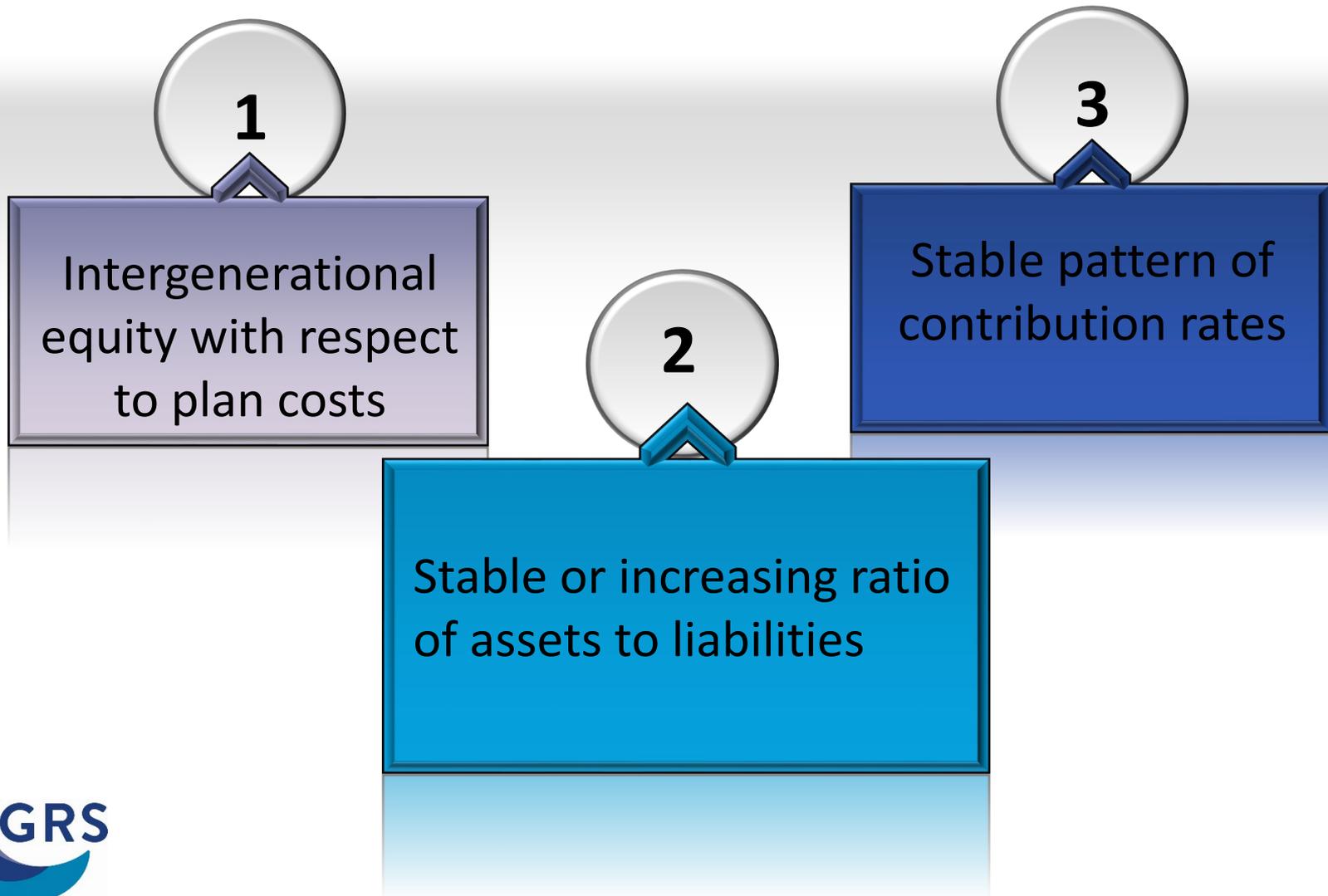
Wisconsin Retirement System

44th Annual Actuarial Valuation as of
December 31, 2024 and Gain/Loss Analysis

June 2025

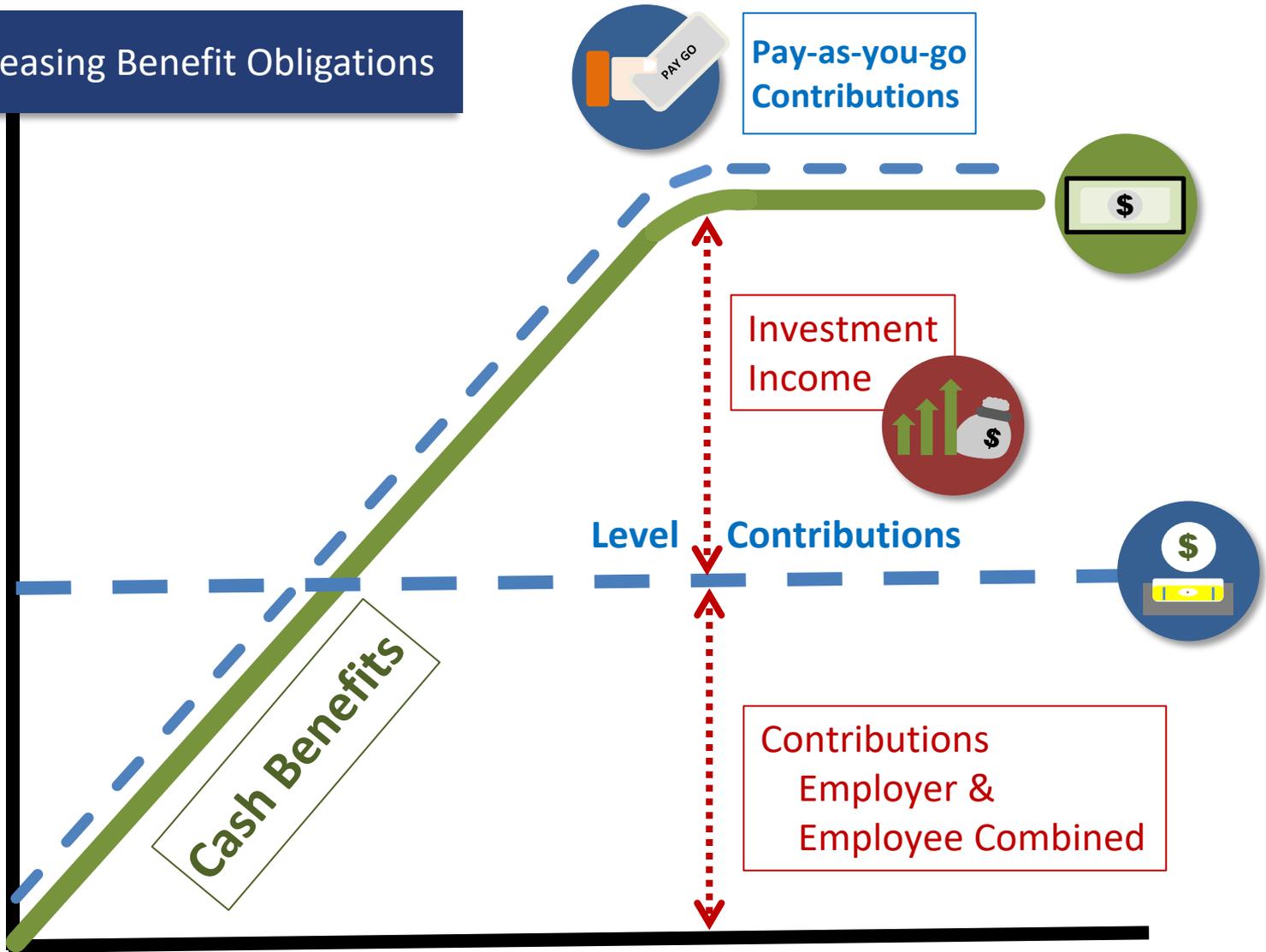


Funding Objectives



Financing Increasing Benefit Obligations

% of Active Employee Pays

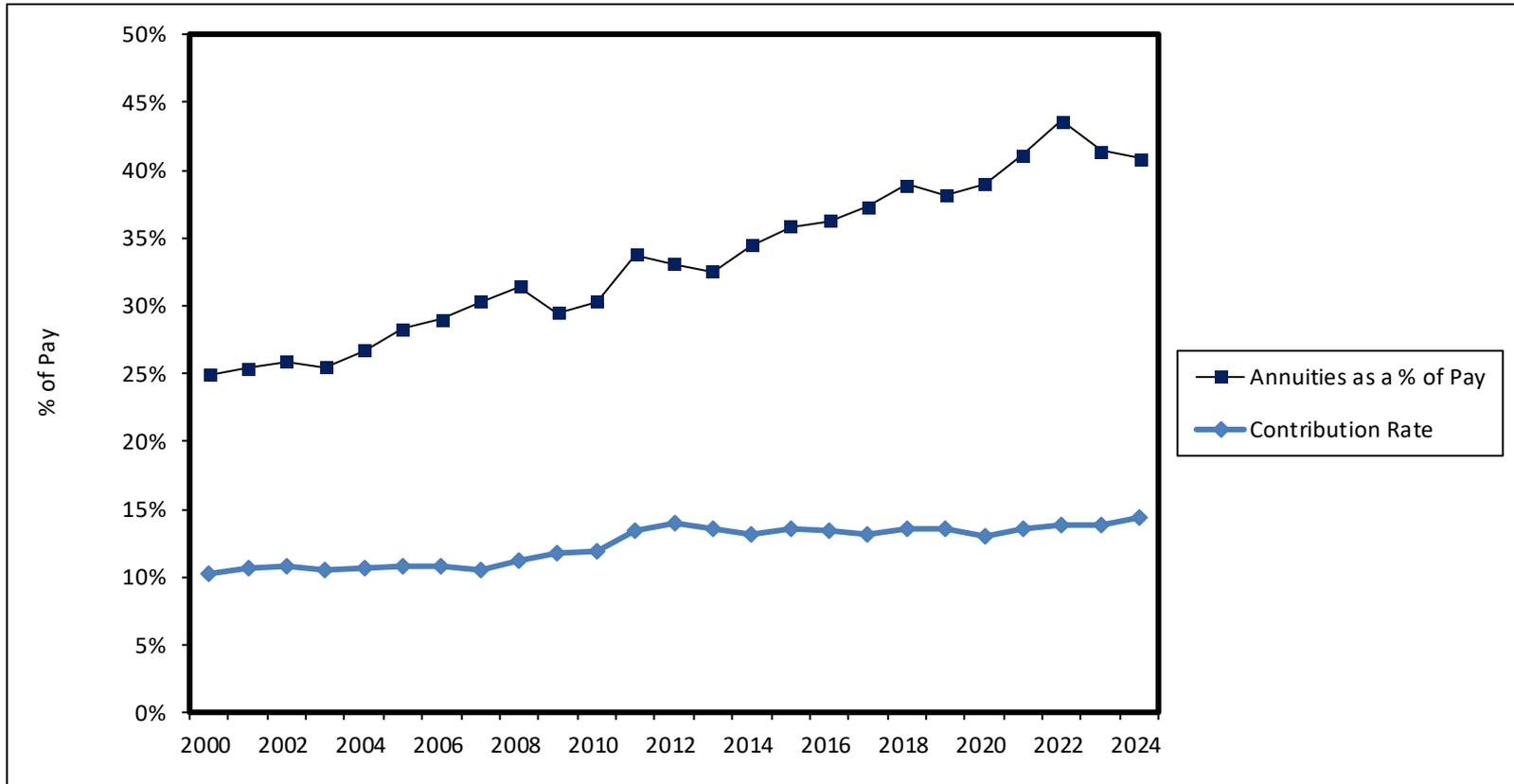


Start

Years of Time



Annuities as a % of Payroll and WRS Average Total Contribution Rate*

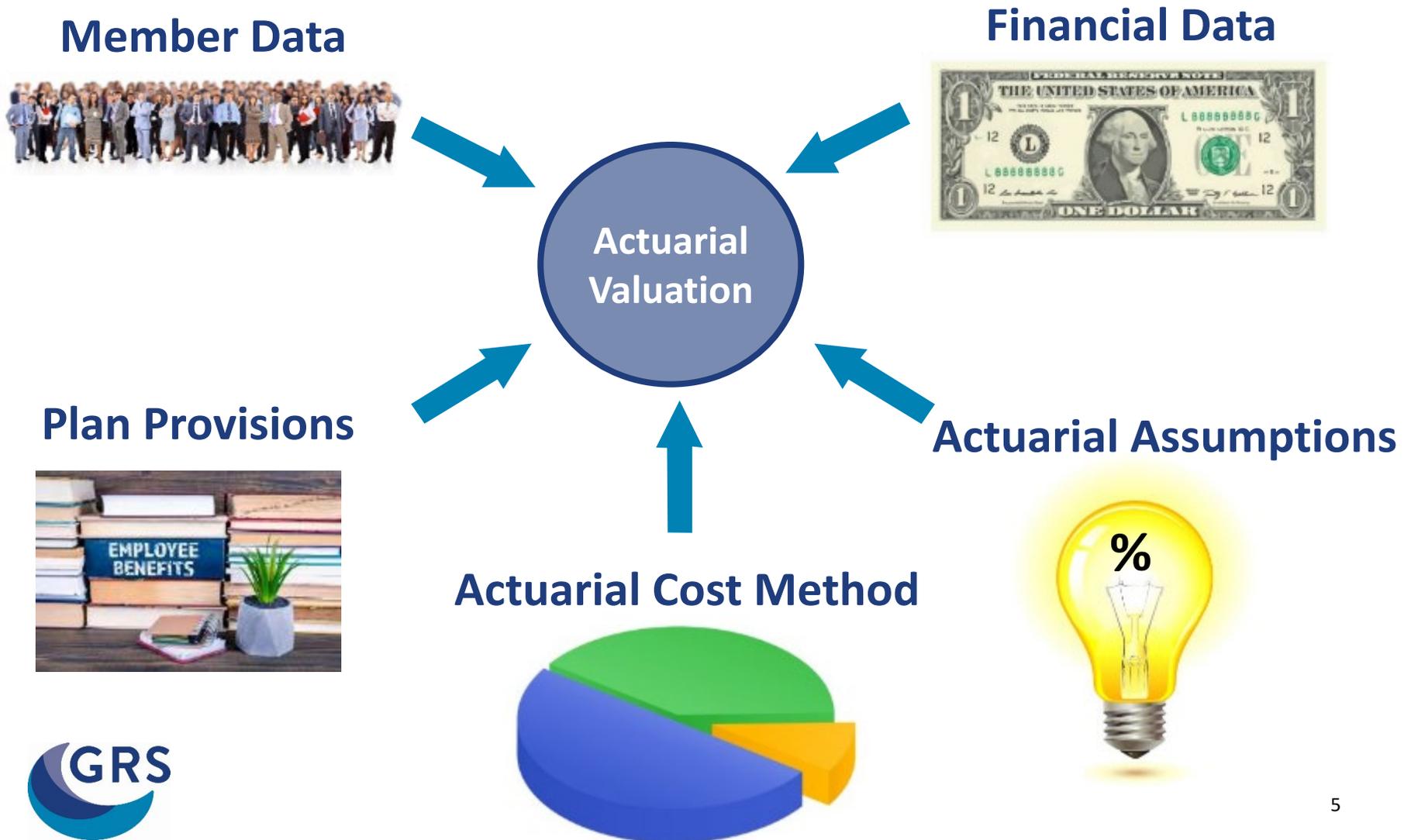


Annuities are expected to continue to increase as a percent of payroll for several more decades.

**Average total rate shown is for General Participants.*



Actuarial Valuation Process



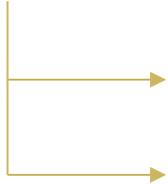
Active Participants at December 31, 2024

Valuation Group	Number	Annual Earnings (\$ Millions)	Group Averages			
			Earnings	Age	Years of Service	Contribs.
General	242,903	\$16,030.0	\$65,993	44.6	10.5	\$72,355
Executive Group & Elected Officials	1,180	127.0	107,664	54.3	14.9	150,111
Protective Occupation with Social Security	21,130	1,931.5	91,413	39.1	11.1	84,623
Protective Occupation without Social Security	3,032	281.8	92,938	38.8	11.9	96,702
Total Active Participants	268,245	\$18,370.3	\$68,483	44.1	10.6	\$73,938
Prior Year	263,737	\$17,136.2	\$64,974	44.2	10.7	\$72,050



All Participants at December 31, 2024

Active Lives
Valuation



Valuation Group	Number	Average Annual Earnings/Benefits ¹
Actives	268,245	\$68,483
Inactives	190,051	\$22,901
Retirees & Beneficiaries	242,226	\$30,993
Total Participants	700,522	

Retired Lives
Valuation



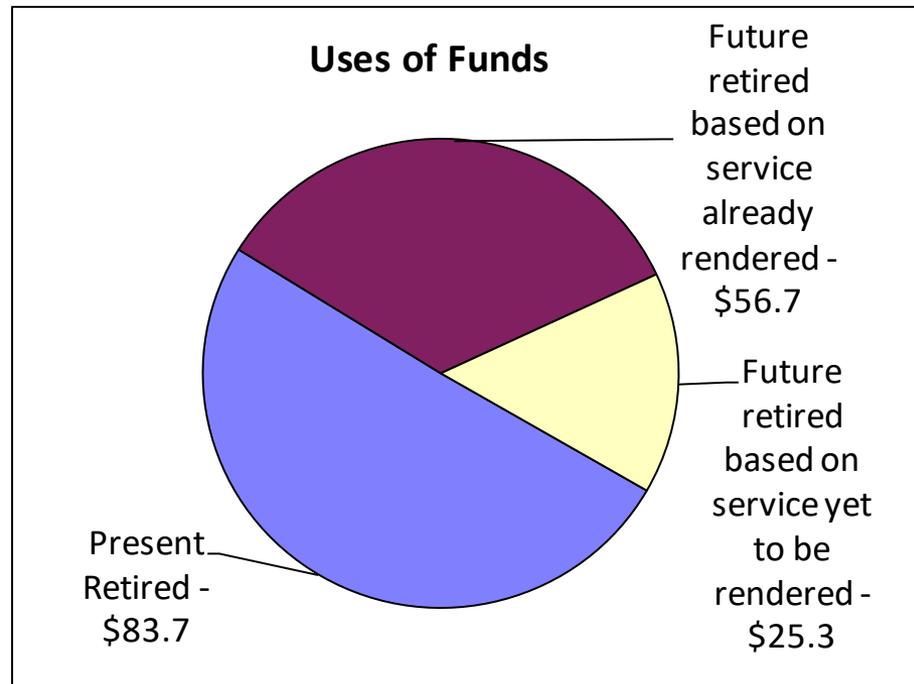
¹ For inactives, average money purchase balance.

From Experience Study: Summary of Demographic Recommendations

Assumption	Recommendation	Financial Impact on Plan Liabilities and Contribution Rates
Withdrawal Rates	Varies	Decrease
Disability Rates	Higher Rates	Increase
Retirement Rates	Higher Rates	Increase
Mortality Rates	No Change	N/A
Pay Increases Due to Merit/Longevity	Higher Rates	Increase

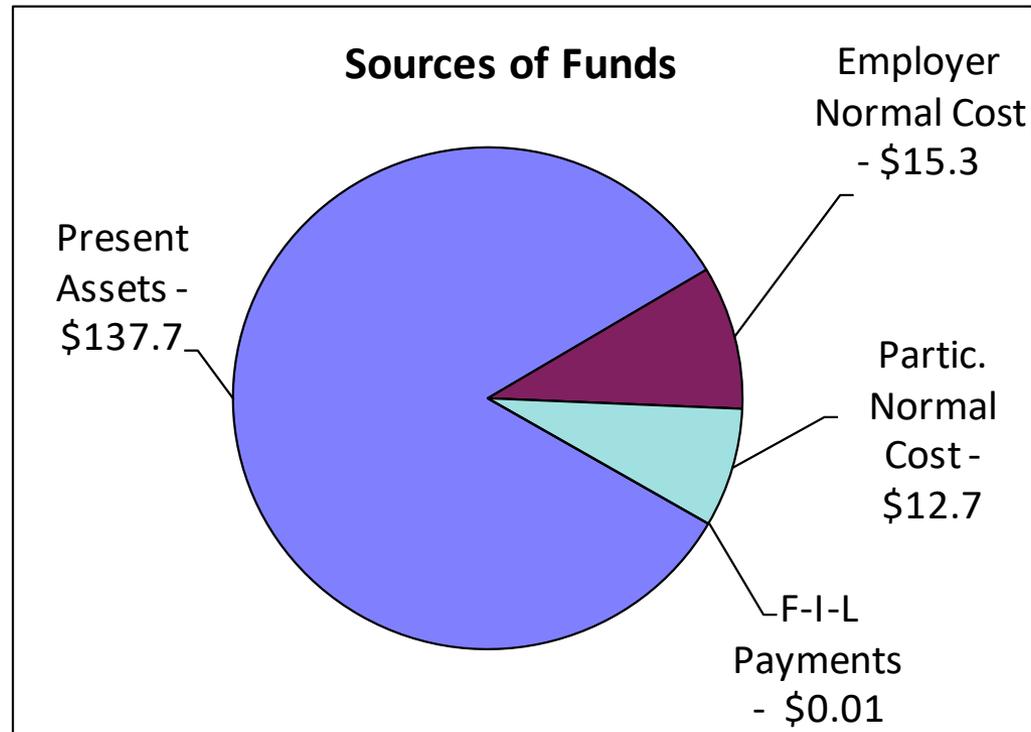


\$165.7 Billion* of Benefit Promises to Present Active and Retired Members

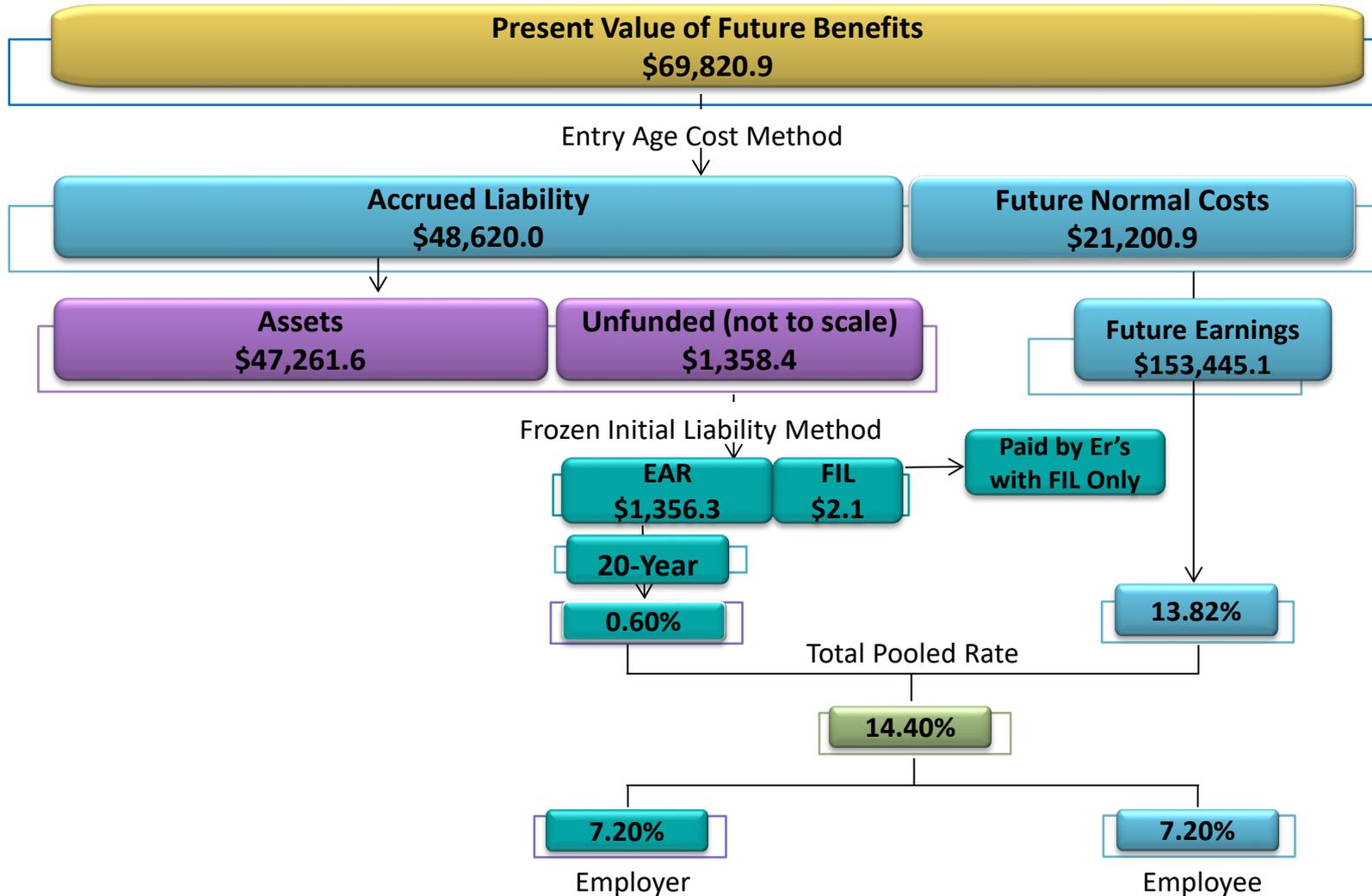


* Present value of future benefits; all divisions combined.

Sources of Funds for Financing \$165.7 Billion of Benefit Promises



Actuarial Valuation Process Illustration for General/Elected Group (\$ Millions)



Summary of December 31, 2024 Valuation Results

	General, Executive & Elected Officials		Protective Occupation				Average 2026
			With Soc. Sec.		Without Soc. Sec.		
	2026	2025	2026	2025	2026	2025	
Employer Normal Cost	7.20%	6.95%	14.70%	14.95%	18.50%	18.95%	8.20%
Participant Normal Cost	7.20%	6.95%	7.20%	6.95%	7.20%	6.95%	7.20%
Total Normal Cost	14.4%	13.9%	21.9%	21.9%	25.7%	25.9%	15.4%
Estimated Total NC (\$ millions)*	\$2,468.3	\$2,241.5	\$448.8	\$388.0	\$76.8	\$73.1	

* Based on payroll projected from valuation date to fiscal year using the payroll growth assumption.

Comparative Statement of Total Average Contribution Rates

Valuation 12/31	General	Executive & Elected	Protective with Soc. Sec.	Protective without Soc. Sec.
2008	11.15%	11.95%	14.14%	15.46%
2013	13.60%	15.40%	16.30%	20.20%
2018	13.54%	13.54%	18.41%	23.02%
2019	13.53%	13.53%	18.51%	23.11%
2020	13.00%	13.00%	18.52%	23.86%
2021	13.60%	13.60%	20.03%	24.90%
2022	13.81%	13.81%	21.20%	26.00%
2023	13.90%	13.90%	21.90%	25.90%
2024	14.41%	14.41%	21.93%	25.70%

Executive and Elected employee and employer rates for CY 2016 and beyond are made in accordance with the combined General/Executive & Elected results.

Reasons for Contribution Changes

Generally zero when not an experience study year

Overall, changes to salary assumptions increased rates, offset by changes to load assumptions for Protectives

	General, Executive & Elected	Protective with Soc. Sec.	Protective without Soc. Sec.
2025 Normal Cost Rate	13.90%	21.90%	25.90%
Effect of Benefit Change	0.00%	0.00%	0.00%
Effect of Assumption Change	0.20%	(0.10)%	(0.10)%
Effect of Asset Performance	(0.04)%	(0.17)%	(0.25)%
Effect of Salary Experience	0.18%	0.21%	0.10%
Effect of Money Purchase Benefit	0.15%	0.05%	0.01%
Demographic and Other Experience	0.01%	0.01%	0.04%
2026 Normal Cost Rate	14.40%	21.90%	25.70%

The effect of Asset Performance is different for each group because the ratio of assets to payroll is different for each group.

From Experience Study: Summary of Results – Active Lives Valuation

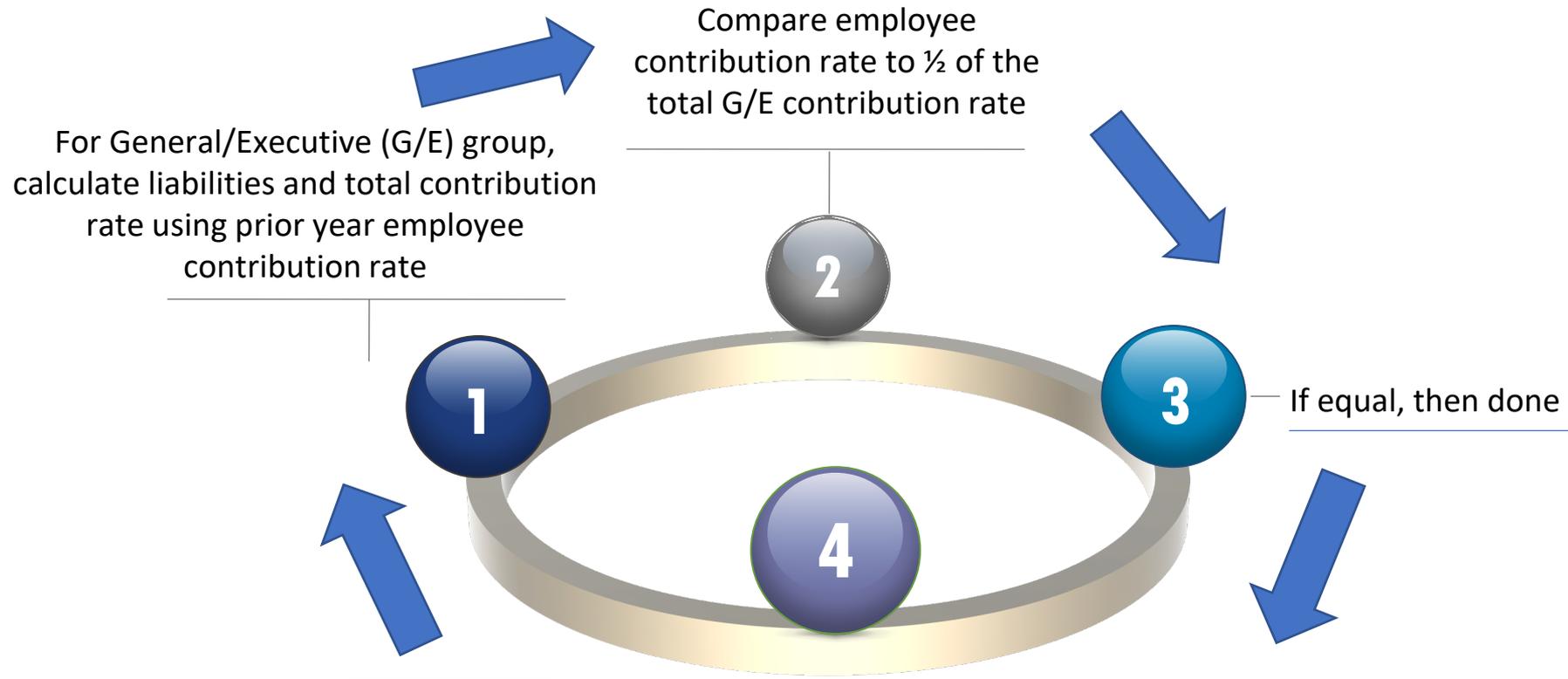
	12/31/2023	Hypothetical Results as of 12/31/2023*
	Actual Results	Demographic Changes Only
Price Inflation	2.40%	2.40%
Wage Inflation	3.00%	3.00%
Investment Return	6.80%	6.80%
General and Executive & Elected	13.9%	14.1%
Protective With Social Security	21.9%	21.8%
Protective Without Social Security	25.9%	25.8%

**New assumptions would first be used in the December 31, 2024 valuation which would first impact rates in 2026.*



Contribution rate changes from new assumptions:
General increase 20 bp, Protectives decrease 10 bp

What is the Money Purchase Effect?



Run iterations until the employee contribution rate used to develop liabilities = $\frac{1}{2}$ of the total contribution rate for the G/E group

Impact of Asset Gains/Losses



- Asset gains and losses above or below the assumed rate of return are smoothed in over the current year and four future years
- Four years after a valuation date, all asset gains or losses known at valuation date are fully recognized
- Statutory smoothing method in WRS is referred to as the Market Recognition Account (MRA)

Operation of Market Recognition Account (MRA)

- \$ Millions

	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
Actual Investment Return	\$ 10,311				
Assumed Investment Return	8,477				
Gain/(Loss) to be phased-in	1,834				
Phased-in recognition					
• Current year	\$ 367	?	?	?	?
• First prior year	928	\$ 367	?	?	?
• Second prior year	(5,068)	928	\$ 367	?	?
• Third prior year	2,495	(5,068)	928	\$ 367	?
• Fourth prior year	<u>1,773</u>	<u>2,495</u>	<u>(5,068)</u>	<u>928</u>	<u>\$ 367</u>
Total recognized gain (loss)	\$ 495	\$(1,278)	\$ (3,773)	\$ 1,295	\$ 367

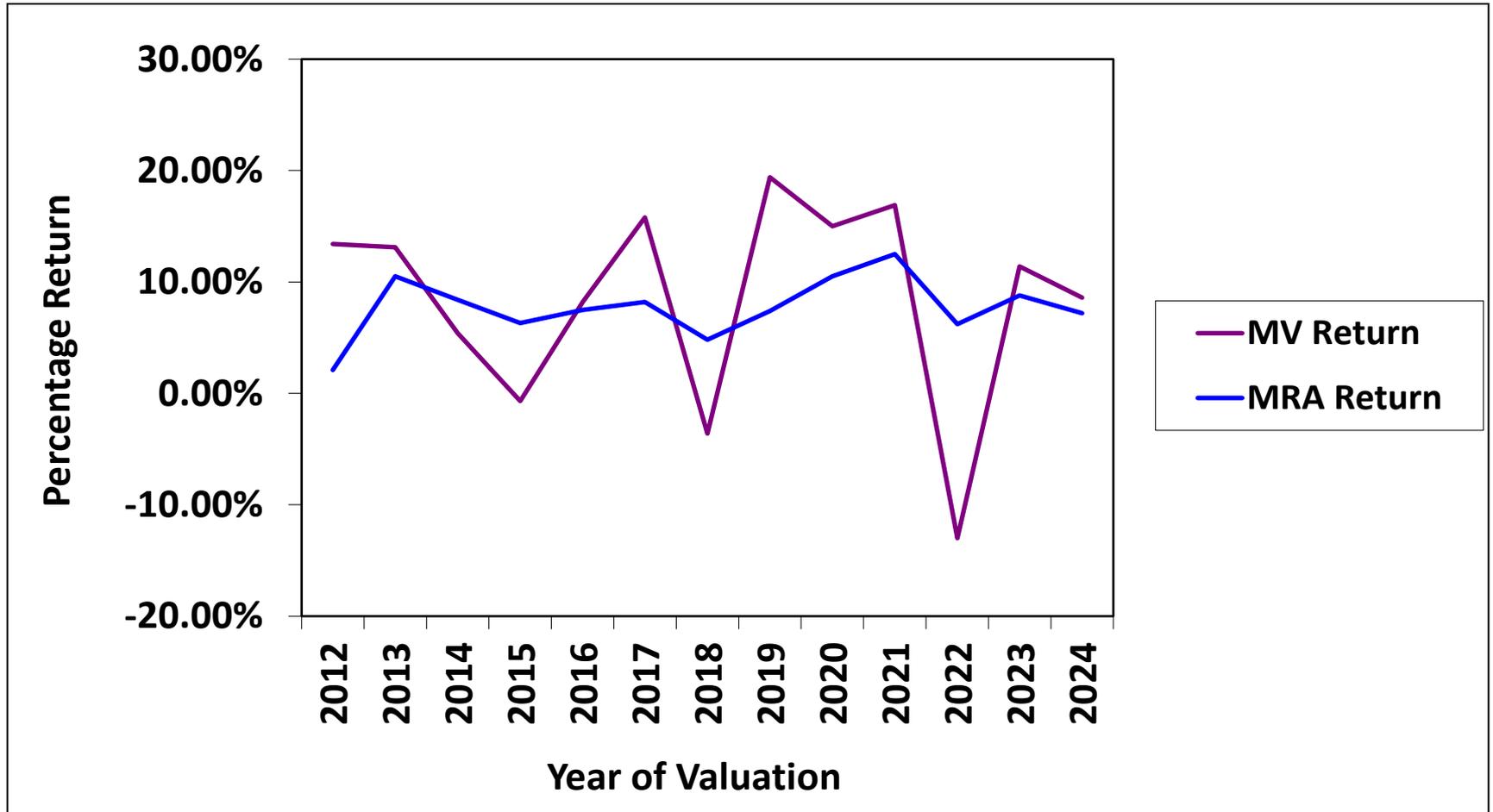
Reconciliation of Market Recognition Account (MRA)

	<u>\$ Millions</u>
MRA at Beginning of Year	\$126,948.3
Non-Investment Cash Flow	(4,586.1)
Assumed Return (at 6.8%)	8,476.6
Phase-in of Gains/(Losses)	494.4
MRA at End of Year	\$131,333.2
MRA Rate of Return	7.20%
Market Value Rate of Return	8.60%

Assets in MRA include non WRS programs such as Sick Leave, Duty Disability, etc.

Market value rate of return shown as calculated by GRS and may differ from returns calculated by SWIB and/or ETF.

Market Value Return vs. Market Recognition (Actuarial) Return



WRS Funded Status



	Frozen Initial	Entry Age
2020	100.0%	99.1%
2021	100.0%	99.3%
2022	100.0%	98.8%
2023	100.0%	98.6%
2024	100.0%	98.1%

Concluding Remarks

- There are \$3.4 billion of unrecognized losses in the MRA
- Due to the cost sharing nature of WRS, asset gains/losses have been traditionally shared by:

Employees	Employers	Retirees
↑↓ Money Purchase Benefits	↓↑ Contributions	↑↓ Dividends
↓↑ Contributions		



Gain/Loss Analysis

2024 Gain/Loss Analysis



A Gain/Loss Analysis measures differences between actual and assumed experience in each Risk Area.

WRS Assumption Risk Areas

Primary Risks	
Demographic	Economic
Normal retirement	Salary increases
Early retirement	Investment return
Death-in-service	
Disability	
Other separations	



Why Have a Gain/Loss Analysis?



1

To gain an understanding of reasons for contribution rate changes



2

It is a year-by-year measure of the operation of assumptions



3

To determine when assumption changes are needed



4

To understand the nature of risk

The Nature of Defined Benefit Plan Risk

Investment Risk

- The risk that actual returns will differ from assumed returns.

Asset/Liability Mismatch

- The potential that changes in assets are not offset by changes in liabilities. Because of the way assets are invested in most public plans, this is almost synonymous with investment risk.

Contribution Risk

- The risk that actual contributions will differ from expected contributions. This could occur, for example, if the plan's funding policy is not followed, or if there are changes in the covered population.



Retirement Sustainability Equation

- Asset/Liability Mismatch

$$C_{\text{ontributions}} + I_{\text{ntestments}} = B_{\text{enefits}} + E_{\text{xpenses}}$$

B depends on

- ▶ Plan Provisions – at retirement, member receives x% of Final Average Pay times years of service
- ▶ Participant Experience – tenure, pay increases, etc.

Most Systems do not have asset changes offset by liability changes

Retirement Sustainability Equation

- Smaller Asset/Liability Mismatch in WRS

$$C_{\text{ontributions}} + I_{\text{ntestments}} = B_{\text{enefits}} + E_{\text{xpenses}}$$

B depends on plan provisions, which incorporates **I** Experience

- ▶ Money Purchase Defined Contribution benefit (changes with I results)
- ▶ Annual post-retirement adjustments to the monthly annuity benefit are based solely on investment returns
 - ▶ Dividends can increase or decrease

The Nature of Defined Benefit Plan Risk

Salary and Payroll Risk

- Individual pays and/or total covered payroll may not grow at the assumed rate. If covered payroll grows more slowly than assumed, or shrinks, actual contributions may fall short of expected contributions.

Longevity Risk

- Members may live for more or fewer years than expected, affecting the amount of pension income they will receive from the plan.

Other Demographic Risks

- Members may terminate, retire, or become disabled at rates other than expected, affecting both contribution rates and funded status.

Population Development During 2024

Beginning Census	263,737	<i>Expected</i>
(-) Normal Retirement	3,912	4,814
(-) Reduced Retirement	3,193	3,965
(-) Death	83	274
(-) Disability Retirement		
- Total Approved	195	173
- Less Pending	64	
- Net New	131	
(-) Other Separations	16,395	14,902
(-) Transfers Out	3,647	
(+) Transfers In	3,647	
(+) New Entrants	28,222	
Ending Census	268,245	

Population Development During 2024

Normal Retirements	Varied by group and gender. Overall, lower than expected, but net result on liabilities is a small loss.
Reduced Retirements	Lower than expected, overall producing a small loss.
Deaths	Among active participants were lower than expected. The net result for the past year was a small loss.
Disabilities	Slightly higher than expected, producing a small gain.
Other Separations	Varied by group, gender and service. Overall, higher than expected. The net result was a small loss.

Comparative Schedule of Experience Gains/Losses by Decrement

Divisions Combined (Millions)

	<u>2023</u>	<u>2024</u>
Normal Retirement	\$ (14.7)	\$ (7.2)
Reduced Retirement	(10.8)	(12.5)
Disability Retirement	4.6	7.4
Death with Benefit	(1.7)	(2.8)
Other Separations	<u>(20.9)</u>	<u>(23.0)</u>
Total	\$ (43.5)	\$ (38.1)
As % of Liabilities	-0.09%	-0.07%

Components of Total Gain/(Loss)

	<u>Gain/(Loss) in Millions</u>	
	<u>2023</u>	<u>2024</u>
Economic Risk Areas	\$(320)	\$(629)
Decrement Risk Areas	(44)	(38)
Other Activity	<u>(95)</u>	<u>50</u>
Total Gain/(Loss)	\$(459)	\$(618)

Investment Earnings in 2024 (Active Participants)

	<u>\$ Millions</u>
A. Average balance on Participant and Employer Accumulation Reserves	\$50,379
B. Expected earnings: 6.8%	3,426
C. Earnings credited to Participant and Employer Accumulation Reserves	4,181
D. Gain (loss) from earnings: C - B	\$ 755

Investment Earnings in 2024 (Active Participants)

- \$755 million is the total recognized asset gain for the year for active participants
- However, part of the total gain/loss is allocated to Variable Excess accounts
- Some of the gain/loss flows through to members via the operation of Money Purchase minimum benefits
- Must net these out to determine remaining core fund gain or loss
- Remaining portion affects contribution rates



Investment Earnings in 2024 (Active Participants)



	<u>\$ Millions</u>
Gross Gain/(Loss) for the Year (for Actives)	\$755
Less Estimated Gain/(Loss) due to Money Purchase	97
Less Estimated Gain/(Loss) due to Variable Excess	<u>504</u>
Net Core Fund Asset Gain/(Loss)	\$154

Salary Related Gain/Loss

- Pay increases were overall higher than expected, resulting in a loss



	Gain/Loss	% of Group
	\$ Millions	Liabilities
General, Executive & Elected	\$(429.8)	(0.9)%
Protective w/Soc. Sec.	(144.7)	(2.4)%
Protective w/o Soc. Sec.	(4.3)	(0.4)%
	\$(578.8)	(1.1)%

Concluding Remarks

1

Recognition of remaining prior asset gains and losses are expected over the next few years

2

This Gain/Loss Analysis is the first in a regular 3-year experience cycle

3

This study, together with the 2025 and 2026 results, will form the basis for the next experience study to be performed after the December 31, 2026 valuation cycle





NEWS & EVENTS

Current Events

Five-year Actuarial Audit of the WRS

- Cheiron reported their results earlier today
- Their report noted

“Based on our review, we believe the December 31, 2023 Actuarial Valuation is accurate and produces reasonable required employer contributions, based on the assumptions and methods in effect at the time the valuation was prepared. However, we have recommendations for GRS and/or ETF to consider. None of these recommendations would materially change the valuation results.”



WRS Actuarial Audit: Valuation Report

Audit Recommendation	Plan of Action
Add a description of Current Earnings, review methodology	2024 valuation - added description 2025 - methodology review
Review risk disclosures	2025 item
Clarify funding method description	2025 item
Add additional disclosure relating to the unfunded liability amortization	2024 valuation - added disclosure
Add additional disclosure regarding reasonable actuarially determined contribution	2024 valuation - added disclosure



WRS Actuarial Audit: Experience Study

Audit Recommendation for next Experience Study	Plan of Action
Add credibility discussion; graphs; results showing the A/E ratio for the current and recommended assumptions	<i>GRS will consider adding graphs, credibility information, and enhanced Actual/Expected ratios</i>
Review the retirement age assumption for Terminated Vested Participants	<i>GRS will investigate when terminated vested members ultimately retire</i>
Discussion regarding the amortization period	<i>GRS reviews the amortization period during funding policy review occurring separately and after the experience study - will document recommendations in next study</i>





THANK YOU

QUESTIONS

Disclaimers

- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- Jim Anderson, Mark Buis and Richard C. Koch Jr. 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.
- This is one of multiple documents comprising the actuarial report. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the full report entitled “Forty-Fourth Annual Actuarial Valuation and Gain/Loss Analysis.”
- If you need additional information to make an informed decision about the contents of this presentation or the contents of the full report, or if anything appears to be missing or incomplete, please contact us before making use of the information.

