



## **Benefits and Actuarial Committee (B&A) Meeting**

**1111 East Main Street  
VRS 3rd Floor Board Room**

**Monday, 11/14/2022  
1:00 - 4:00 PM ET**

### **I. Welcome and Introductions**

### **II. Approve Minutes**

- **October 17, 2022**

*B&A October 17 2022 minutes - Page 2*

### **III. GRS 2022 Actuarial Valuation Results for Political Subdivision Retirement Plans, Virginia Sickness and Disability Program (VSDP), Virginia Local Disability Program (VLDP), Local Health Insurance Credit (HIC) Plans, and the Line of Duty Act (LODA) Fund.**

- **RBA:**

Accept the Plan Actuary's Valuations as of June 30, 2022 for the Political Subdivision Retirement Plans; the Health Insurance Credit (HIC) Plans for Political Subdivisions; the State-Funded HIC for Constitutional Officers, Social Services Employees and Registrars; the Virginia Sickness and Disability Program (VSDP) including the Self-Funded Long-Term Care, and the Virginia Local Disability Program (VLDP) including the Self-Funded Long-Term Care.

*RBA - Accept Local Plan Valuations - Page 7*

*November B&A Meeting Final 11.14.22 - Page 8*

- **RBA:**

Accept revised LODA premium for FY 2024 as recommended by the Plan Actuary, effective July 1, 2023.

*RBA\_LODA\_RateFY2024 - Page 62*

*November LODA B&A Final - Page 63*

### **IV. Information Items**

- **Review Stress Test and Sensitivity Analysis Report**

*Stress Test & Sensitivity Analysis 11.14 22 B&A Final - Page 93*

- **Confirmed 2023 B&A Committee Meeting Schedule**

### **V. Other Business**

---

## Minutes

A regular meeting of the Benefits and Actuarial Committee was held on October 17, 2022, in Richmond, Virginia with the following members participating:

William A. Garrett, Chair  
John Bennett  
Lindsey K. Pantele

Board members present:  
Hon. J. Brandon Bell, II (*attended remotely under § 2.2-3708.3(B)(3)*)  
Michael P. Disharoon

VRS Staff:

Patricia Bishop, Jennifer Schreck, Rory Badura, Judy Bolt, Ty Bowers, Lakiesha Cheatham, Jeanne Chenault, Sara Denson, Valerie Disanto, Barry Faison, Jon Farmer, Andrew Feagans, Brian Goodman, Krystal Groff, Robert Irving, Angela Payne, Matt Priestas, Steven Ramirez, Virginia Sowers, Leslie Weldon and Cindy Wilkinson.

Guests:

Jim Anderson, Becky Stouffer and Kurt Dossou; Gabriel, Roeder, Smith & Company; Emily Grimes, Department of Planning and Budget; and Jamie Bitz, Joint Legislative Audit and Review Commission; Bea Snidow, Virginia Education Association.

The meeting convened at 1:00 p.m.

### Opening Remarks

Mr. Garrett called the meeting to order and welcomed everyone to the October 17, 2022, meeting of the Benefits and Actuarial Committee. Mr. Garrett also specifically welcomed the newest member of the Benefits and Actuarial Committee, Ms. Lindsey Pantele. After noting that the meeting was being held in accordance with § 2.2-3708.3(B)(3) of the *Code of Virginia* and the VRS Remote Meeting Attendance Policy, Mr. Garrett took a roll call for attendance:

Mr. Bennett: Present  
Ms. Pantele: Present  
Mr. Bell: Present  
Mr. Disharoon: Present  
Mr. Garrett: Present

### Approval of Minutes

Following a motion by Mr. Bennett, with a second by Mr. Disharoon, the Committee approved the minutes of its April 19, 2022, meeting upon the following roll call vote:

Mr. Bennett: Aye  
Ms. Pantele: Aye  
Mr. Bell: Aye

Mr. Disharoon: Aye  
Mr. Garrett: Aye

#### **Election of Committee Vice Chair**

Next, Mr. Garrett advised that the next item of business was to elect a Committee Vice Chair. Mr. Disharoon moved, with a second by Ms. Pantele, to nominate John Bennett to serve as Vice Chair. The Committee approved the nomination upon the following roll call vote:

Mr. Bennett: Aye  
Ms. Pantele: Aye  
Mr. Bell: Aye  
Mr. Disharoon: Aye  
Mr. Garrett: Aye

#### **Gabriel, Roeder, Smith & Company (GRS) 2022 Actuarial Valuation Results for Five Statewide Retirement Plans, Group Life Insurance, and State and Teacher Retiree Health Insurance Credit**

Next, Mr. Garrett commended the hard work and diligence of VRS staff actuaries, Rory Badura and Sara Denson, as well as the team at Gabriel, Roeder, Smith & Company (GRS), in ensuring a smooth transition and exchange of accurate data and information with former VRS plan actuary, Cavanaugh Macdonald Consulting, LLC. Mr. Garrett noted that additional time was needed in order to replicate prior valuations and validate current process and, as a result, the Virginia Sickness and Disability Program (VSDP) and the Virginia Local Disability Program (VLDP) valuations will be presented in November.

Jim Anderson and Becky Stouffer from the VRS plan actuary, Gabriel, Roeder, Smith & Company (GRS), presented the June 30, 2022, actuarial valuations for the Five Statewide Retirement Plans, Group Life Insurance and the State and Teacher Health Insurance Credit. The VRS actuary conducts annual valuations as of the close of the fiscal year (June 30). In odd-numbered years the valuations are used to establish employer contribution rates. The results in even-numbered years are shared with the Board of Trustees to inform the Board of any emerging trends or indications of the magnitude and direction of contribution rates.

The market value return for the total fund of 0.60% fell short of the long-term assumed rate of return of 6.75%. Despite lower-than-expected returns for fiscal year 2022, recognition of prior gains led to improved funded status for all pension plans on an actuarial basis. In addition, the \$750 million one-time infusion from the 2022 Appropriation Act served to increase funded status by approximately 0.80% for most plans. Fiscal year 2022 also included higher than expected cost-of-living increases and pay increases for most employer groups, exceeding assumed increases, which led to higher-than-expected liabilities.

The Other Post-Employment Benefits (OPEB) plans also benefited from the receipt of a portion of the \$750 million one-time contribution, which increased the funded status by approximately 0.85% for the Health Insurance Credit (HIC) plans and Group Life Insurance (GLI). Each OPEB plan saw an increase in funded status similar to pensions.

Due to a recently implemented allocation methodology for the HIC benefits, the State and Teacher HIC plans saw a reduction in the employer cost for the informational valuation. The new methodology allocates a prorated portion of HIC liability to each employer a member worked for that offered the HIC benefit.

The group life plan saw a slight increase in the employer rate mainly due to an increase in the active life coverage rate from 14.7 cents per \$1,000 of coverage to 16.2 cents per \$1,000 that became effective on July 1, 2022.

GRS also provided a summary of the recently modified Actuarial Standards of Practice 4 (ASOP 4) which will require plans to disclose plan liabilities using a low-default-risk obligation measure (LDRM). While this requirement will not impact contributions or funding, it is an item to be added to the Risk Assessment section of the reports beginning in 2023.

Mr. Garrett thanked Mr. Anderson and Ms. Stouffer for their presentation.

**RBA: Accept the Plan Actuary's Valuations as of June 30, 2022, for the Five Statewide Retirement Plans, Group Life Insurance, and Health Insurance Credit Plans for State and Teachers.**

**Request for Board Action:** *The Virginia Retirement System Board of Trustees accepts the June 30, 2022, Actuarial Valuations conducted by the VRS plan actuary, Gabriel, Roeder, Smith & Company, for the Five Statewide Retirement Plans, Group Life Insurance, and the Health Insurance Credit plans for both State and Teachers.*

Following a motion by Mr. Bennett, with a second by Ms. Pantele, the Committee recommended approval of the action upon the following roll call vote:

Mr. Bennett: Aye  
Ms. Pantele: Aye  
Mr. Bell: Aye  
Mr. Disharoon: Aye  
Mr. Garrett: Aye

Following approval of the RBA, the Committee agreed to pause for a five-minute recess.

**Funding Policy Amendments**

Next, Rory Badura, VRS Senior Staff Actuary, presented the proposed amendments to the VRS Funding Policy. The Funding Policy memorializes the methods by which the Board has elected to govern required funding for pension and OPEB plans with the goal of ensuring that future contributions, along with current asset plans, are sufficient to provide for all benefits expected to be paid when due.

Staff is proposing modifications to the Funding Policy to explicitly set out amortization periods for unfunded liabilities generated by elected plan amendments to be 10 years rather than 20 years in the amortization period section of the policy. For HIC elections, any employer would be required to pay an initial contribution equal to the greater of two years of expected benefit payments or the amount required to reach at least 25% funded for its HIC plan, with the remainder of the unfunded liability amortized over no more than 10 years.

The proposed changes ensure that employers electing the HIC have initial funds available to pay benefits and to establish at least a minimum funded status at the outset, and that the amortization period for all elected plan amendments be shortened to 10 years. This change mirrors the current requirement that an employer electing to participate in VRS must be at least 75% funded for pension benefits at the time of the election, and that any benefit enhancements do not reduce the funded status below 75%.

Mr. Garrett thanked Mr. Badura for his presentation.

#### **RBA: Amendments to the VRS Funding Policy Statement**

***Request for Board Action:*** *The Board approves the changes to the VRS Funding Policy Statement presented at this meeting and attached to this RBA. The changes reflect a new requirement that when electing the health insurance credit (HIC), employers will be required to pay an initial contribution equal to the greater of two years of expected benefit payments or the amount required to reach at least a 25 percent funded status for its HIC plan, with the remainder of the unfunded liability amortized over no more than 10 years, as well as requiring that the amortization period for unfunded liabilities generated by all elected plan amendments be set at 10 years rather than the current 20 years.*

Following a motion by Ms. Pantele, with a second by Mr. Bennett, the Committee recommended approval of the action upon the following roll call vote:

Mr. Bennett: Aye  
Ms. Pantele: Aye  
Mr. Bell: Aye  
Mr. Disharoon: Aye  
Mr. Garrett: Aye

#### **Information Items**

##### Committee Meeting Schedule

Mr. Garrett advised the full Board of Trustees will meet October 18 at 1:00 p.m., and the Committee will meet next on November 14 at 1:00 p.m. to receive the valuation results for the local plans, the Line of Duty Act (LODA) Fund, the Virginia Local Disability Program (VLDP) and the Virginia Sickness and Disability Program (VSDP). In addition, the 2023 meeting schedule will be finalized in the coming weeks.

#### **Adjournment**

Upon a motion by Mr. Disharoon, with a second by Ms. Pantele, the Committee agreed to adjourn the meeting with the following roll call vote:

Mr. Bennett: Aye  
Ms. Pantele: Aye  
Mr. Bell: Aye  
Mr. Disharoon: Aye  
Mr. Garrett: Aye

There being no further business, the meeting concluded at 2:52 p.m.

---

Date

---

William A. Garrett, Chair  
Benefits and Actuarial Committee



**Accept the Plan Actuary's Valuations as of June 30, 2022 for the Political Subdivision Retirement Plans; the Health Insurance Credit (HIC) Plans for Political Subdivisions; the State-Funded HIC for Constitutional Officers, Social Services Employees and Registrars; the Virginia Sickness and Disability Program, including the Self-Funded Long-Term Care; and the Virginia Local Disability Program, including the Self-Funded Long-Term Care.**

---

**Requested Action**

The Virginia Retirement System Board of Trustees accepts the June 30, 2022 Actuarial Valuations conducted by the VRS plan actuary, Gabriel, Roeder, Smith & Company, for the Political Subdivision Retirement Plans; the Health Insurance Credit (HIC) Plans For Political Subdivisions; the State-Funded HIC For Constitutional Officers, Social Services Employees and Registrars; the Virginia Sickness and Disability Program, including the Self-Funded Long-Term Care; and the Virginia Local Disability Program, including Self-Funded Long-Term Care.

**Description/Background**

The VRS plan actuary conducts actuarial valuations annually as of the close of the fiscal year (June 30). The results of the valuations are used to establish employer contribution rates in odd-numbered years. The results in even-numbered years are shared with the Board of Trustees to inform the Board of any emerging trends or indications of the magnitude and direction of contribution rates.

**Authority for Requested Action**

*Code of Virginia* § 51.1-124.22(A)(3) authorizes the Board to employ an actuary as its technical advisor for the administration of the Retirement System.

The above action is approved.

---

A. Scott Andrews, Chair  
VRS Board of Trustees

---

Date



# June 30, 2022 Annual Actuarial Valuation Results

**Presented by: Becky Stouffer, ASA, MAAA, FCA and  
Jim Anderson, FSA, EA, MAAA, FCA**





# We are Glad to be Here for Part II!

---

- GRS replicated Cavanaugh Macdonald 2021 actuarial results within tolerances
- Today's focus: 2022 Valuations – Part II
- GRS incorporated “Best Practice” approaches



# Agenda

---

Big Picture – Pension & OPEB

Highlights of 2022 Pension Valuations

Highlights of 2022 OPEB Valuations

Appendix





**BIG PICTURE**

# **BIG PICTURE – PENSION/OPEB**

# Big Picture – November Meeting Content

Pension	Other Post-Employment Benefits (OPEB)
Political Subdivisions	Health Insurance Credit (HIC) <ul style="list-style-type: none"><li>• Political Subdivisions</li><li>• Constitutional Officers</li><li>• Social Services Employees</li><li>• Registrars</li></ul>
	Virginia Sickness and Disability Program
	Virginia Local Disability Program <ul style="list-style-type: none"><li>• Political Subdivisions</li><li>• Teachers</li></ul>
	Line of Duty Act Fund LODA (separate presentation)



# Big Picture: Actuarial Valuation Results

---

- June 30, 2022 Actuarial Valuations of VRS Pension and OPEB plans are informational
  - Measure funding progress as of June 30, 2022
  - Develop inputs for use in June 30, 2023 valuations

Odd year valuations determine contribution rates for 2 years



# Big Picture: General Funding Objectives

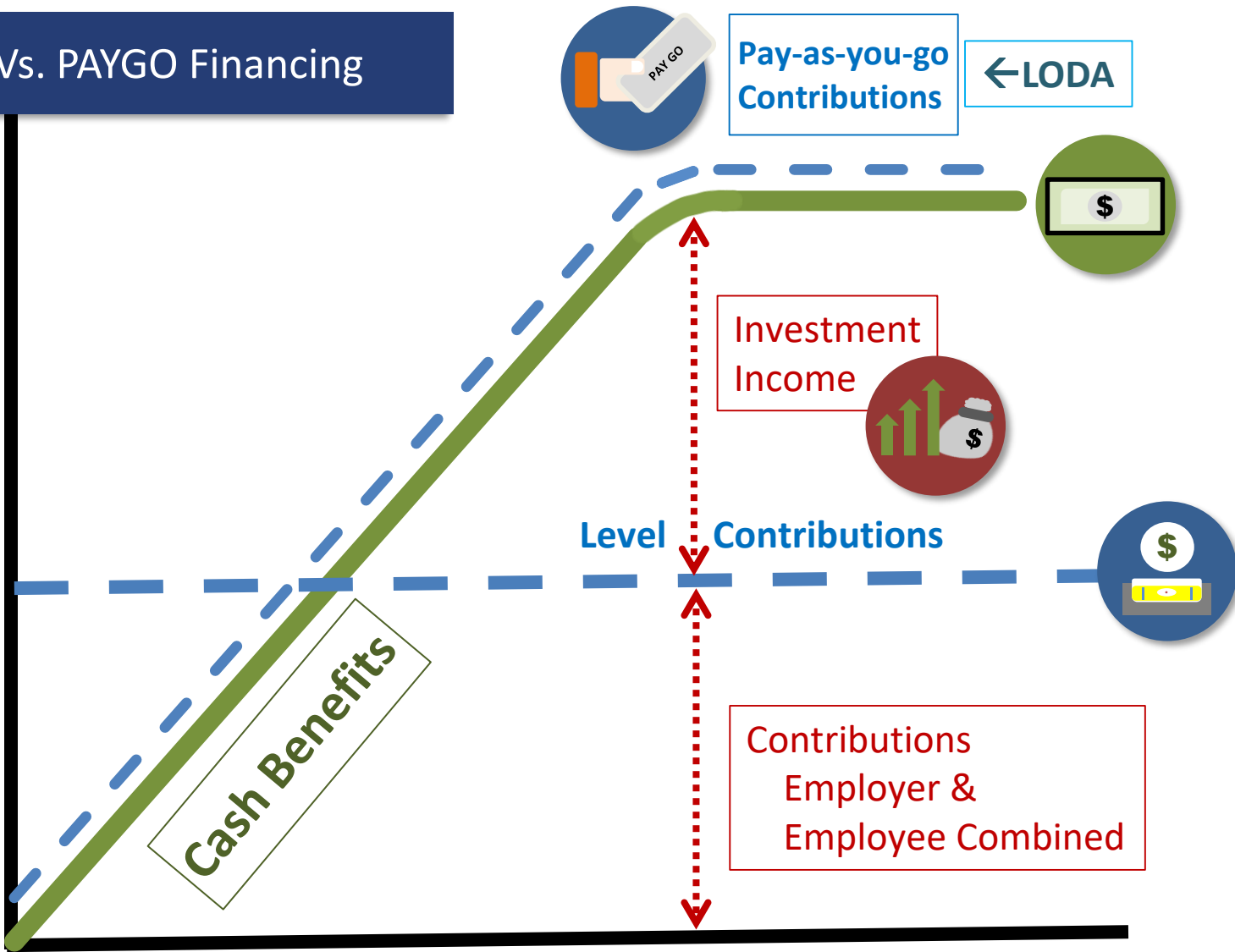
---

- Intergenerational equity with respect to plan costs
- Stable or increasing ratio of assets to liabilities
- Stable pattern of contribution rates



# Pre-funding Vs. PAYGO Financing

% of Active Employee Pays

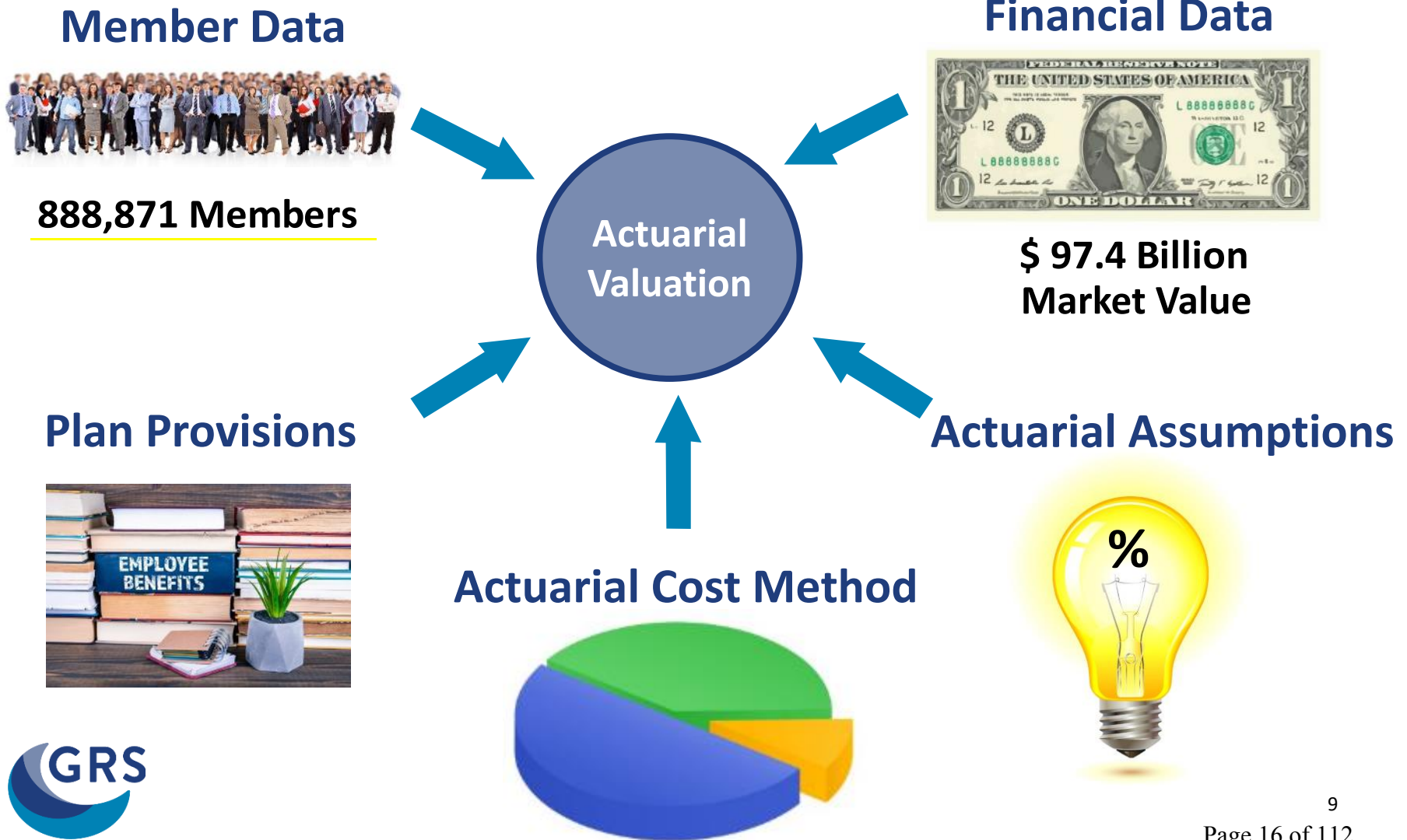


Start


50 Years of Time



# Actuarial Valuation Process – Statewide Pension and Political Subdivisions







**JUNE 30, 2022**  
**VALUATION RESULTS HIGHLIGHTS**

# Active Participants at June 30, 2022

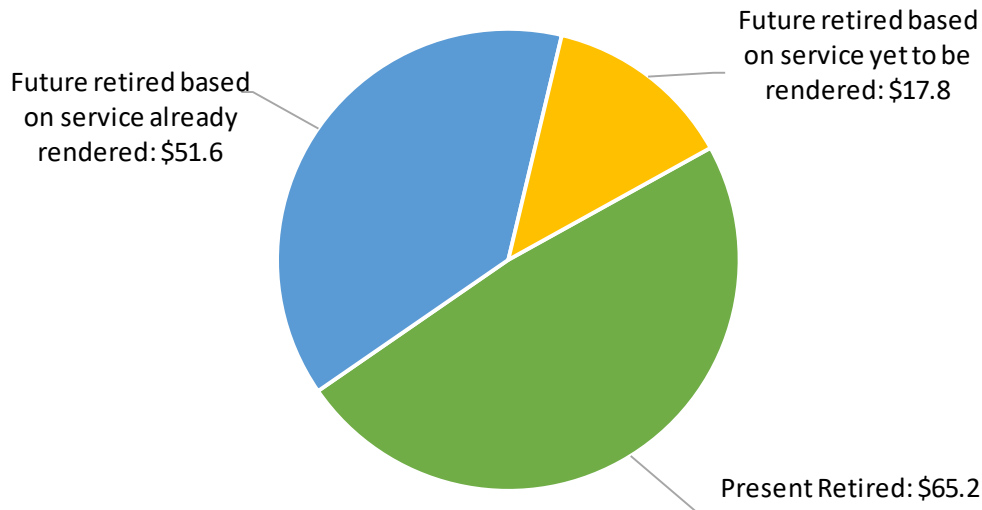
System	Plan 1	Plan 2	Hybrid	Total 2022	Total 2021	Percent Change
State	26,621	13,083	34,344	74,048	73,686	0.5%
Teachers	58,598	27,974	66,784	153,356	149,793	2.4%
SPORS	969	916	-	1,885	1,947	-3.2%
VaLORS	2,123	5,166	-	7,289	7,823	-6.8%
JRS	154	45	262	461	453	1.8%
Pol. Sub.	34,446	30,856	44,604	109,906	108,613	1.2%
Total	122,911	78,040	145,994	346,945	342,315	1.4%



# \$141.8 Billion\* of Benefit Promises to Present Active and Inactive Members

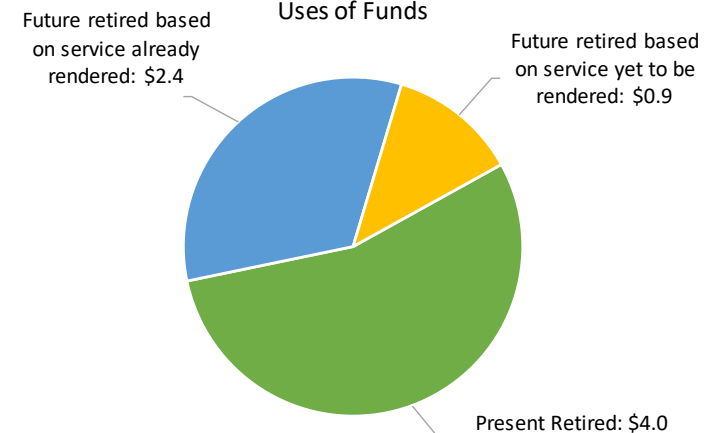
## PENSION: \$134.5 Billion

Uses of Funds



## OPEB: \$7.3 Billion

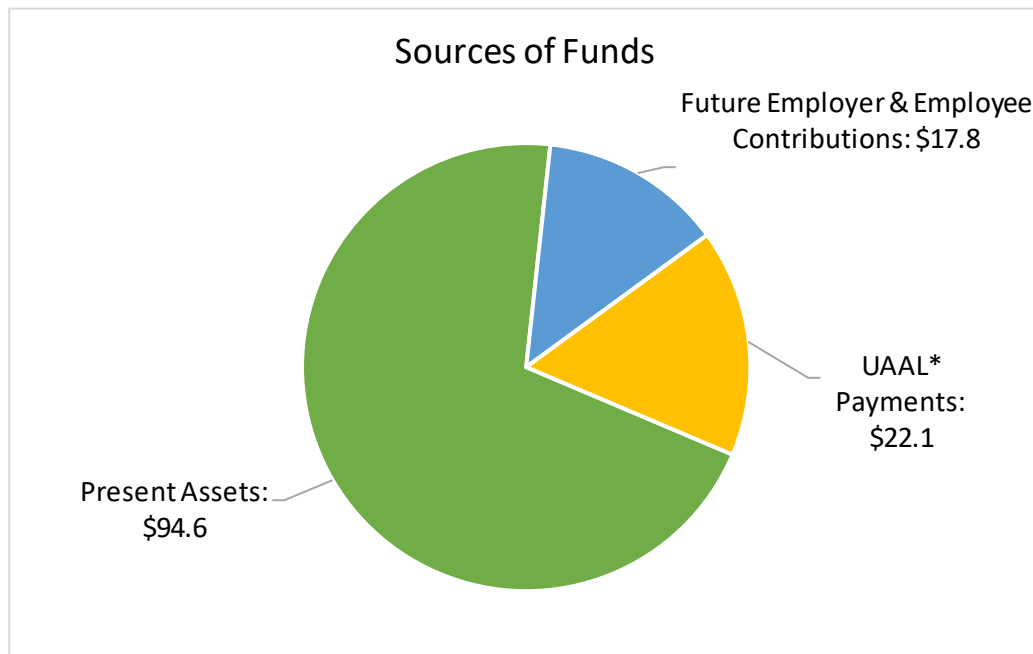
Uses of Funds



\* Present value of future benefits, all plans except VSDP, VLDP and LODA

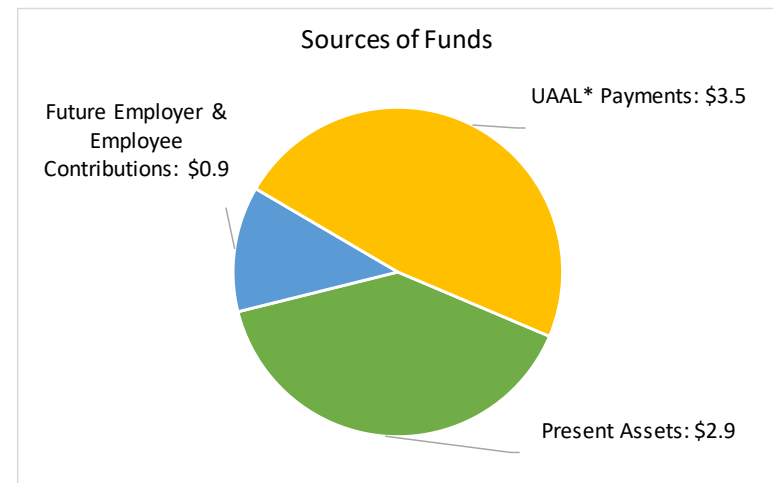
# Sources of Funds for Financing \$141.8 Billion of Benefit Promises to All Employees

## PENSION: \$134.5 Billion



\*Unfunded Actuarial Accrued Liability

## OPEB: \$7.3 Billion



# Fund Sources – Additional Funding Provisions

- Additional \$750 million contributed from the general fund to the trust in June 2022

Pension	Add'l Contribution
State	\$219,156,316
Teachers	\$442,371,087
SPORS	\$10,957,816
VaLORS	\$19,886,407
JRS	\$6,250,014

OPEB	Add'l Contribution
HIC - State	\$8,522,746
HIC - Teachers	\$12,013,013
GLI	\$30,438,378
HIC - Constit. Off.	\$275,975
HIC - Soc. Svcs.	\$121,754
HIC – Registrars	\$6,494

Additional \$250 million proposed for June 2023 for pension and OPEB plans

Looking ahead: \$80.4 million for certain HIC plans (state, constitutional officers, & social services) split between June 2023/June 2024; contingent on revenues



# Fund Sources – Legislation re: Financing DB/DC

---

- HB 473 and SB 70 separate the employer contribution into Defined Benefit and Defined Contribution components effective for contribution rates beginning July 1, 2024
- Currently employers pay a total combined rate that includes an estimate of their DC costs
  - DC costs paid first and the remainder goes to the DB plan
  - Can result in actual DB contribution being more or less than the actuarially determined rate



# Fund Sources – Legislation re: Financing DB/DC

---

- The 2022 informational valuation results continue to show the DC Rate
  - Allows continued communication to employers in the interim

# Actuarial Value Assets **2021: 27.5% MVA Return**

## Political Subdivisions Pension – \$ Millions

	2021	2022	2023	2024	2025
Actual Investment Return	5779				
Assumed Investment Return	1418				
Gain/(Loss) to be Phased-in	4361				
Phased-in Recognition					
-Current year	872	?	?	?	?
-1 <sup>st</sup> prior year	(203)	872	?	?	?
-2 <sup>nd</sup> prior year	(12)	(203)	872	?	?
-3 <sup>rd</sup> prior year	16	(12)	(203)	872	?
-4 <sup>th</sup> prior year	181	16	(12)	(203)	872
Total Recognized Gain/(Loss)	854	673	657	669	872

**2022-2025: Expect \$2.9 billion in deferred asset GAINS**





# Actuarial Value Assets 2022: 0.6% MVA Return

## Political Subdivisions Pension – \$ Millions

	2022	2023	2024	2025	2026
Actual Investment Return	(26)				
Assumed Investment Return	1776				
Gain/(Loss) to be Phased-in	(1802)				
Phased-in Recognition					
-Current year	(360)	?	?	?	?
-1 <sup>st</sup> prior year	872	(360)	?	?	?
-2 <sup>nd</sup> prior year	(203)	872	(360)	?	?
-3 <sup>rd</sup> prior year	(12)	(203)	872	(360)	?
-4 <sup>th</sup> prior year	16	(12)	(203)	872	(360)
Total Recognized Gain/(Loss)	313	297	309	512	(360)

**2023-2026: Expect \$0.8 billion in deferred asset GAINS**



# Why We Smooth Asset Returns

---

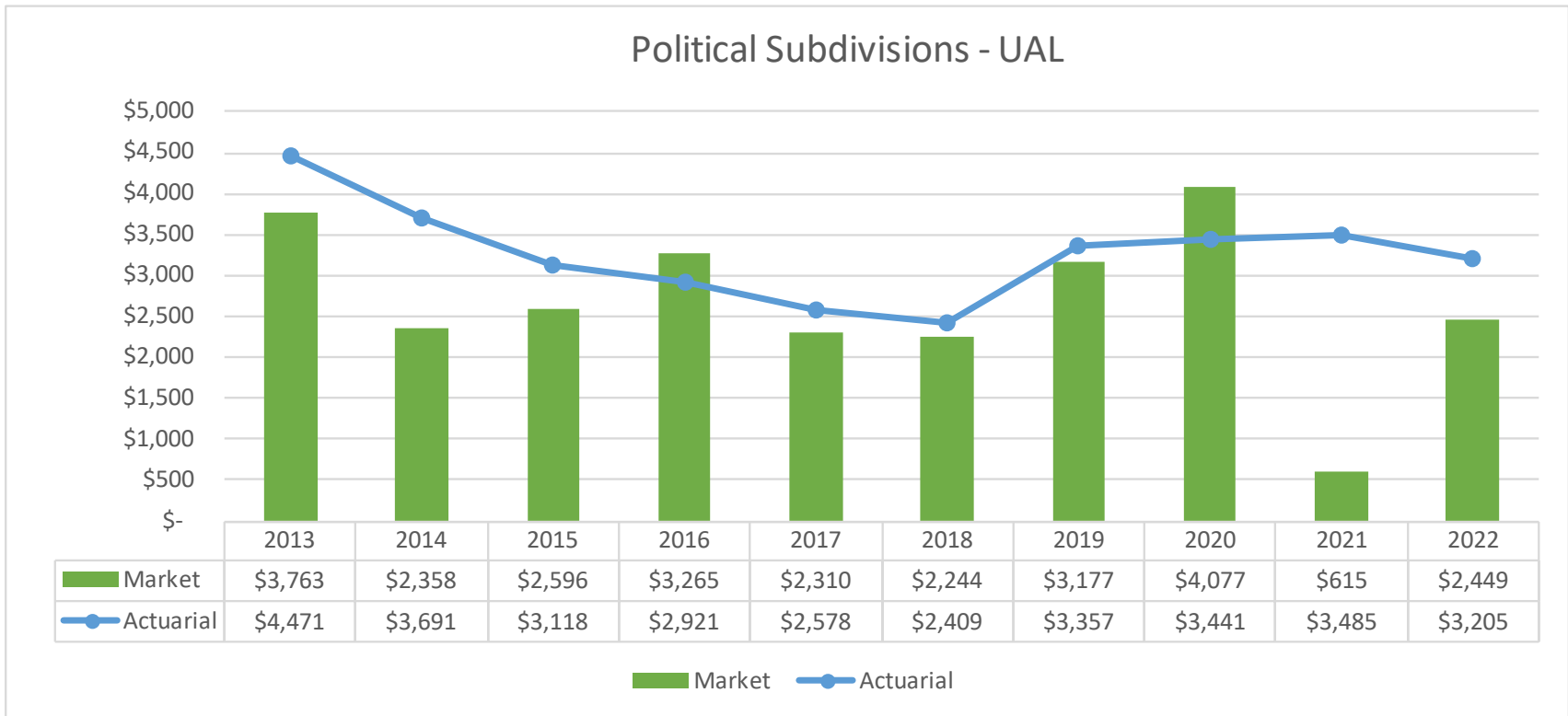
## *VRS Code Section 51.1-145:*

- The total annual defined benefit employer contribution for each employer, expressed as a percentage of the annual membership payroll, shall be determined in a manner so as to remain relatively level from year to year.*

VRS asset experience in 2021-2022 provides real life example: despite falling short of the assumed return in 2022, phased-in asset gains result in small changes in funded status and contributions



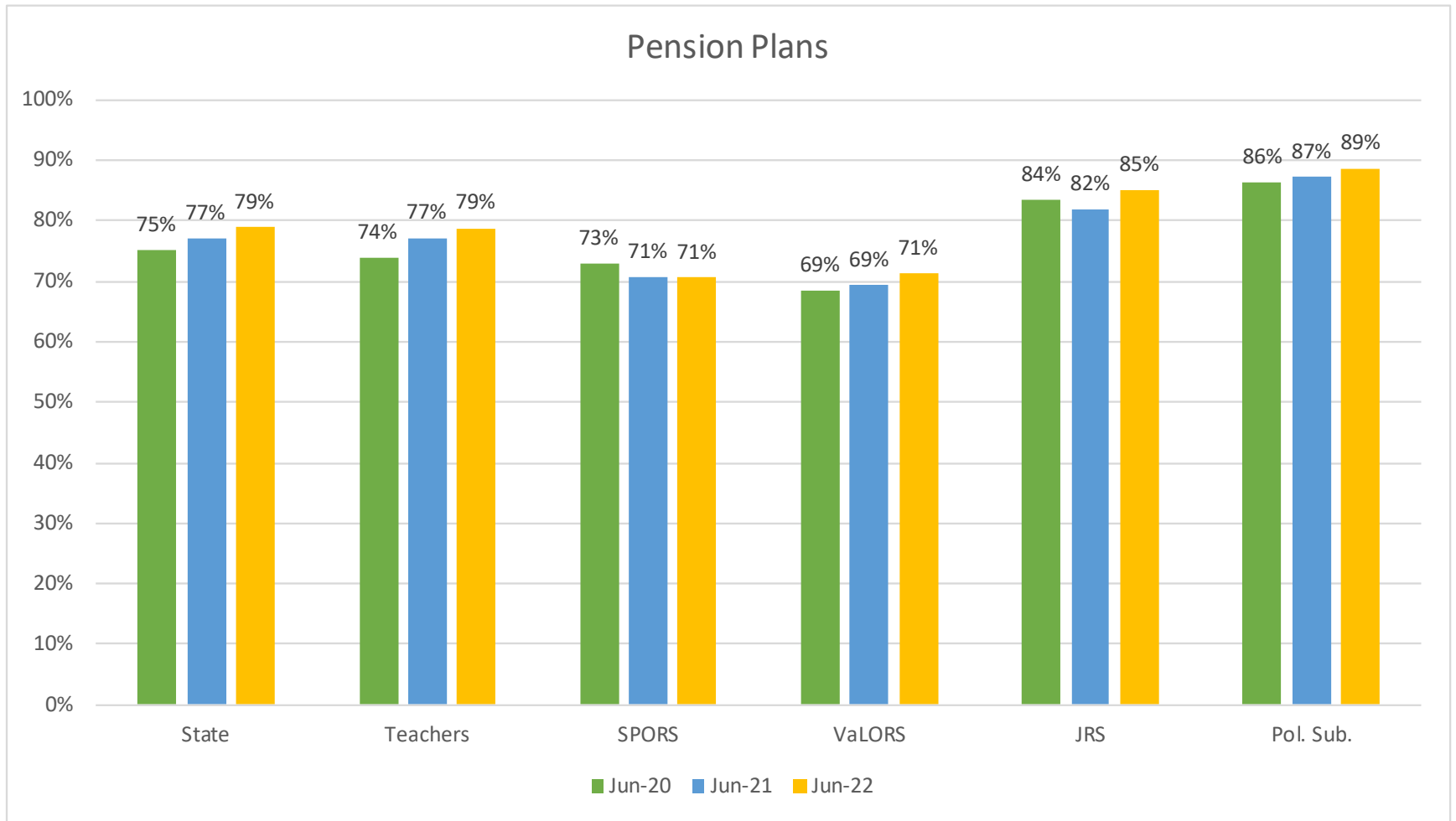
# Why We Smooth Asset Returns



If all assumptions are met, unfunded liabilities will trend to Market Value basis over time



# Funded Status (AVA) – Pension Plans



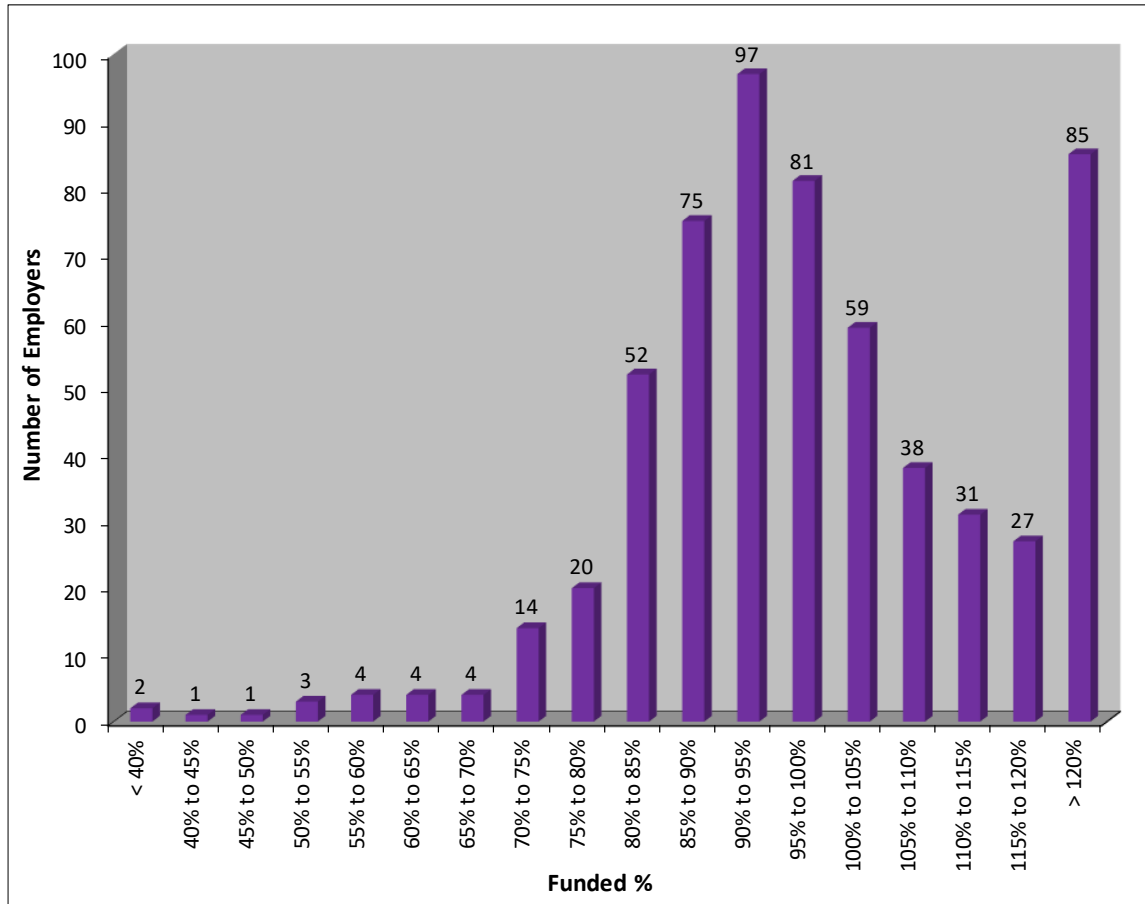
# Funded Status (AVA) – Pension Plans, Political Subdivisions

Funded Status as of June 30, 2022 for 598 Employers

Average Funded Status

**96.8%**

Pol. Sub. With  
no Enhanced  
Hazardous Duty



Average Funded Status

**86.8%**

Pol. Sub. With  
Enhanced  
Hazardous Duty



Chart shows Funded status distribution, 33 employers <75% to 240 employers > 100%  
The chart above shows 598 employers; employers with 0 actives are excluded.

# Calculated Employer Contributions

---

- Will vary significantly for System, Plan and Employer based on:

Benefit Features

Demographics

Funded Status

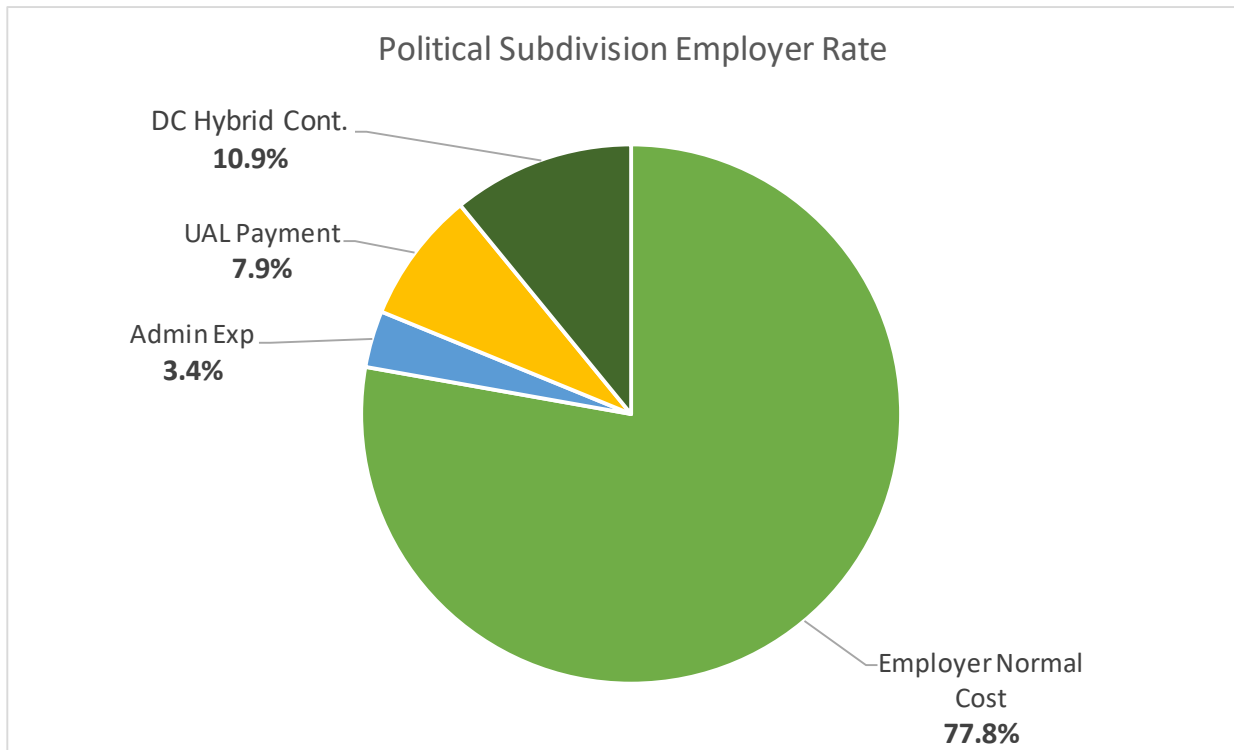


- Two Components:

Normal Cost – this represents the cost of the current year benefit earned by each active member

Amortization of Unfunded Liability – uses a systematic method (funding policy) to pay off the unfunded liability for each employer

# Calculated Pension Contributions – Political Subdivisions Average Employer Rate



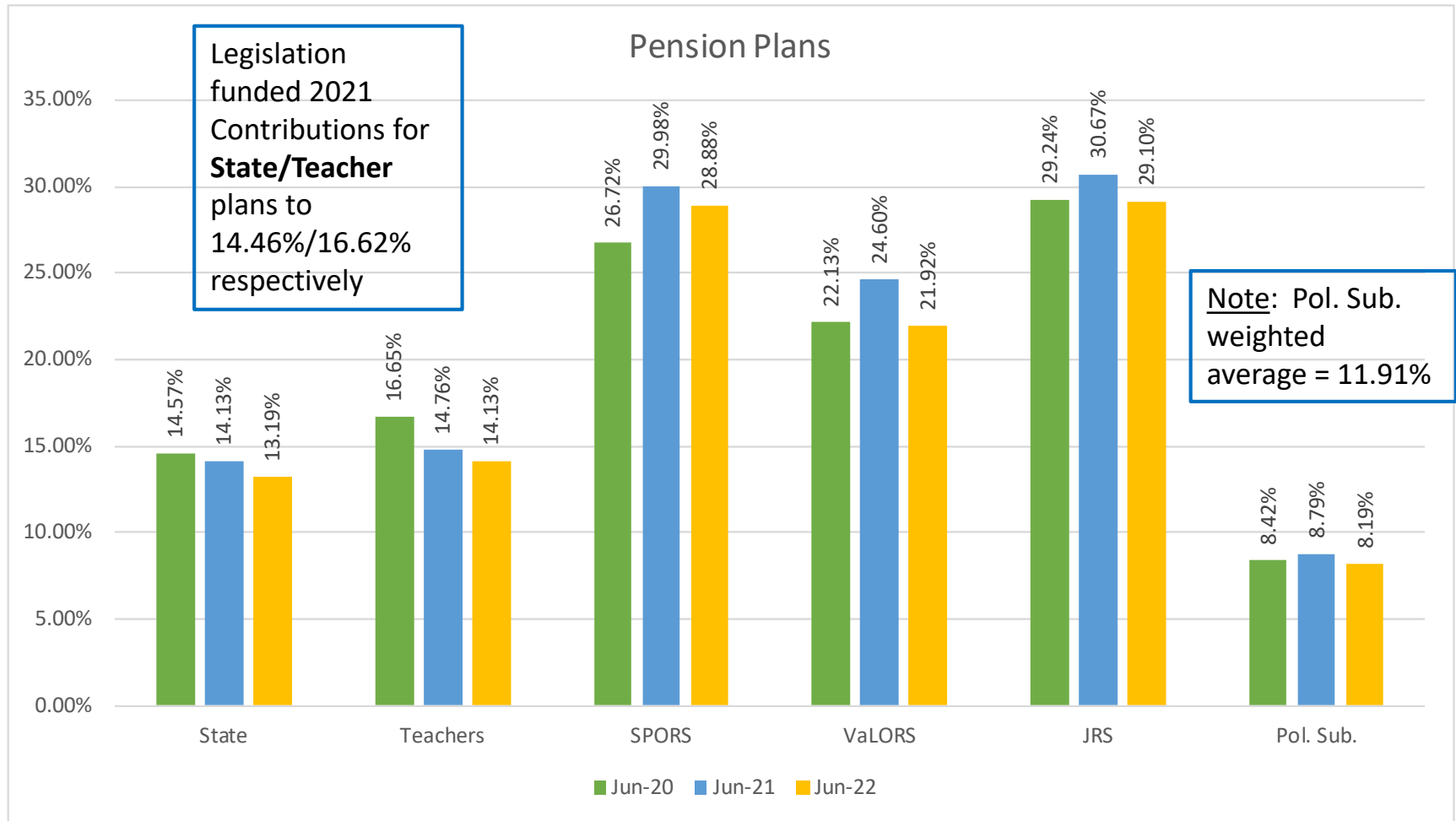
Normal Cost ultimately decreases to Plan 2/Hybrid level

Component	% of Pay
Employer NC	6.37%
Admin Exp	0.28%
UAL Payment	0.65%
DC Hybrid Cont.	0.89%
<b>Total:</b>	<b>8.19%</b>

Note: 7.9% of aggregate Political Sub. Contribution is for UAL payment – vs. ~50% for Statewide pension plans (other than JRS)



# Actuarially Determined Employer Contribution Rates – Pension Plans





# Experience 2021-2022: Pension Plans (in \$millions)

---

	STATE	TEACHERS	SPORS	VaLORS	JRS	Pol. Sub.
UAL Last Valuation	\$ 6,112.7	\$ 12,021.8	\$ 389.3	\$ 738.4	\$ 132.7	\$ 3,480.9
Prior Year (PY) Normal Cost	418.3	921.9	25.5	49.0	18.8	542.4
Actual PY ER Contributions	(837.6)	(1,897.3)	(43.0)	(90.1)	(25.7)	(869.0)
Extra Contributions	(219.2)	(442.4)	(11.0)	(19.9)	(6.3)	-
Interest	405.2	794.7	26.2	49.4	9.1	242.2
Expected UAL	5,879.3	11,398.8	387.0	726.7	128.7	3,396.6
UAL This Valuation	5,861.3	11,792.1	416.6	718.0	110.9	3,205.1
<b>Total (Gain)/Loss</b>	<b>\$ (18.0)</b>	<b>\$ 393.3</b>	<b>\$ 29.6</b>	<b>\$ (8.7)</b>	<b>\$ (17.8)</b>	<b>\$ (191.4)</b>
– Asset (Gain)/Loss	\$ (439.8)	\$ (846.8)	\$ (19.7)	\$ (34.8)	\$ (12.7)	\$ (506.3)
– Liability (Gain)/Loss	\$ 421.8	\$ 1,240.2	\$ 49.3	\$ 26.1	\$ (5.1)	\$ 314.9



# Actuarially Determined Employer Contribution (ADEC) Rates – Political Subdivisions Pension

ADEC Rate as of June 30, 2022 for 598 Employers

Average ADEC Rate

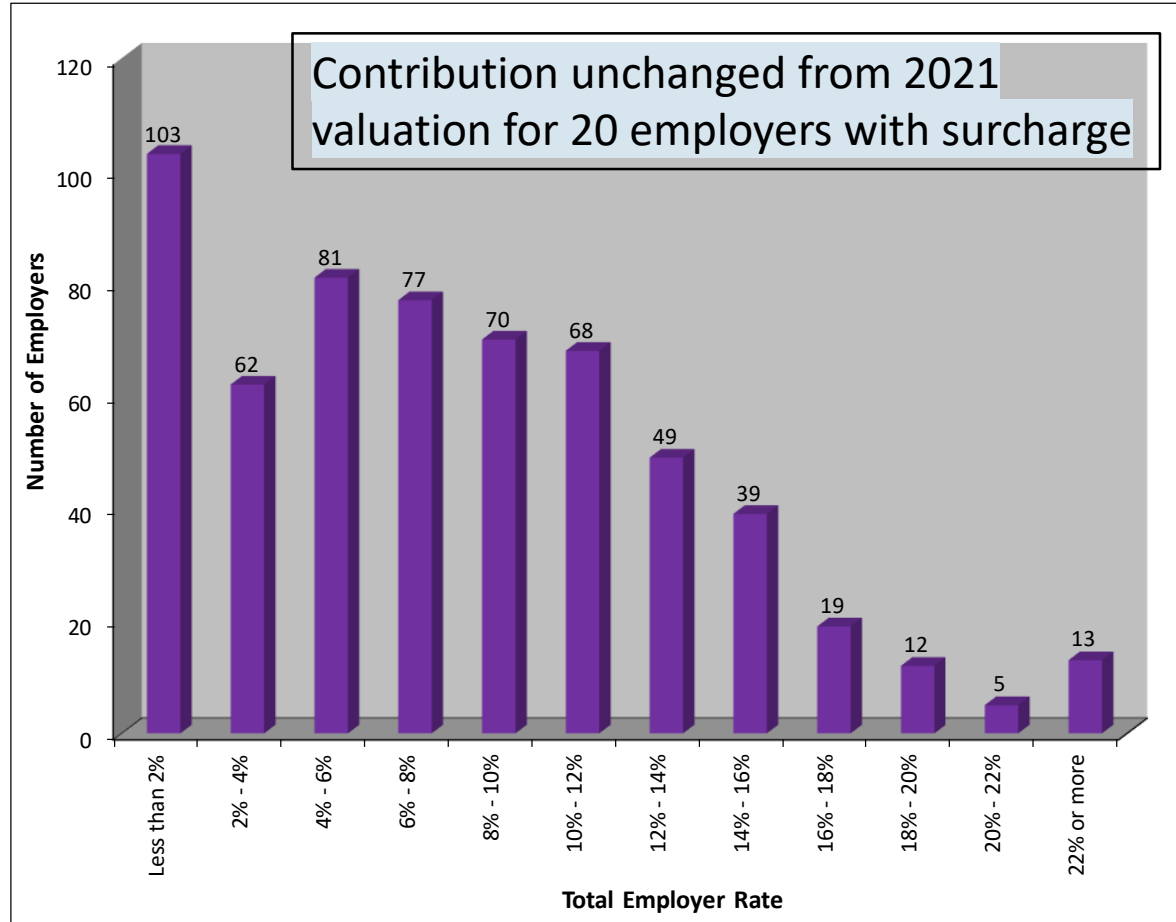
**5.83%**

Pol. Sub. With no Enhanced Hazardous Duty

Average ADEC Rate

**13.85%**

Pol. Sub. With Enhanced Hazardous Duty



The chart above shows 598 employers; employers with 0 actives are excluded.



# Political Subdivisions: Pension Results Commentary

---

- Liability changes
  - 4 New Political Subdivisions for Pension
  - 20 Employers have surcharge
    - Arithmetic average charge = 2.8%
  - No Employers have additional funding charge
  - Changes in coverage
  - Salary and COLA experience



# Pension Results Commentary

---

- Demographic changes vary by employer
  - Active population up slightly for Political Subdivisions in total

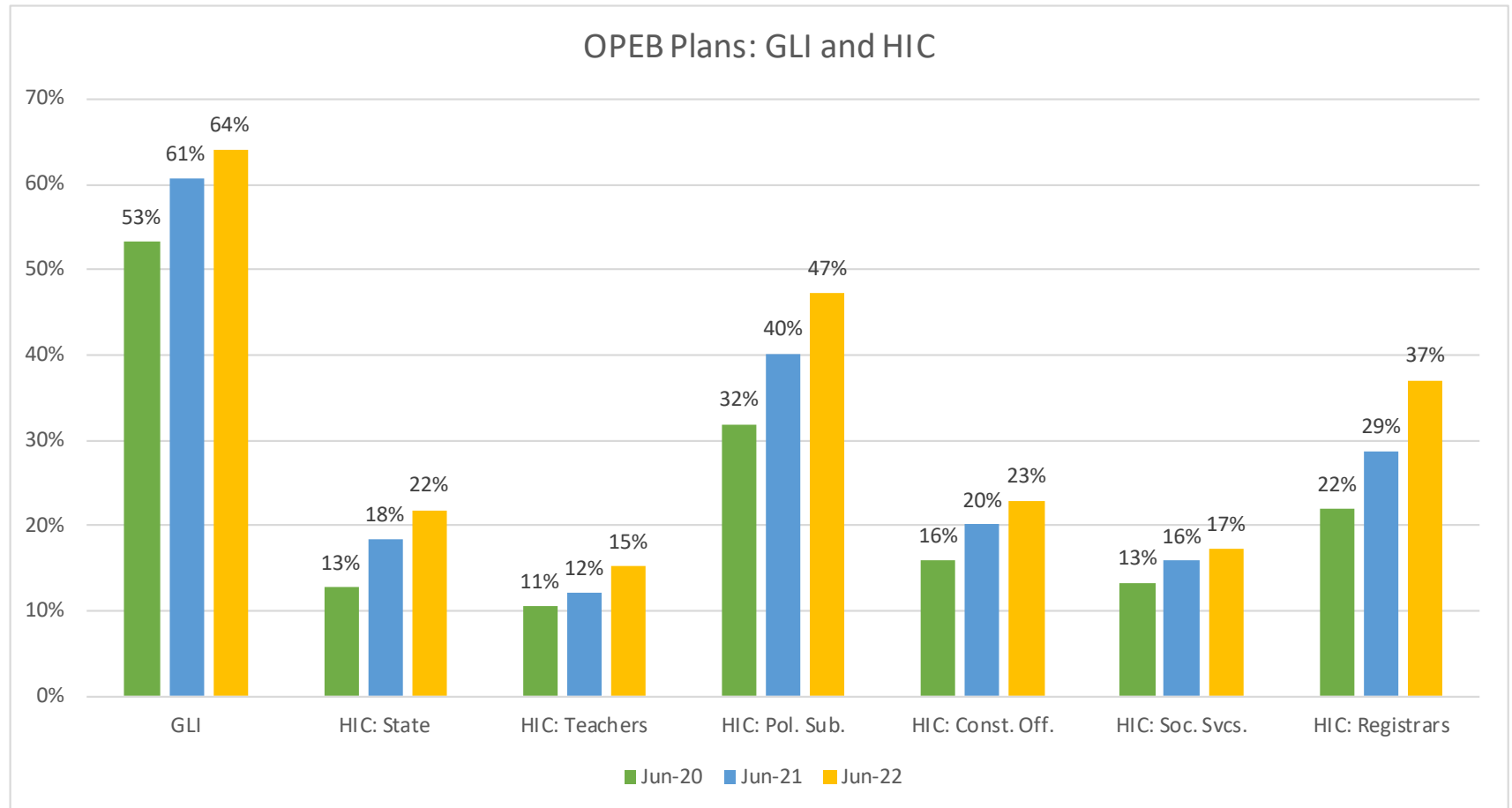
# OPEB: HIC Allocation to Employers

---

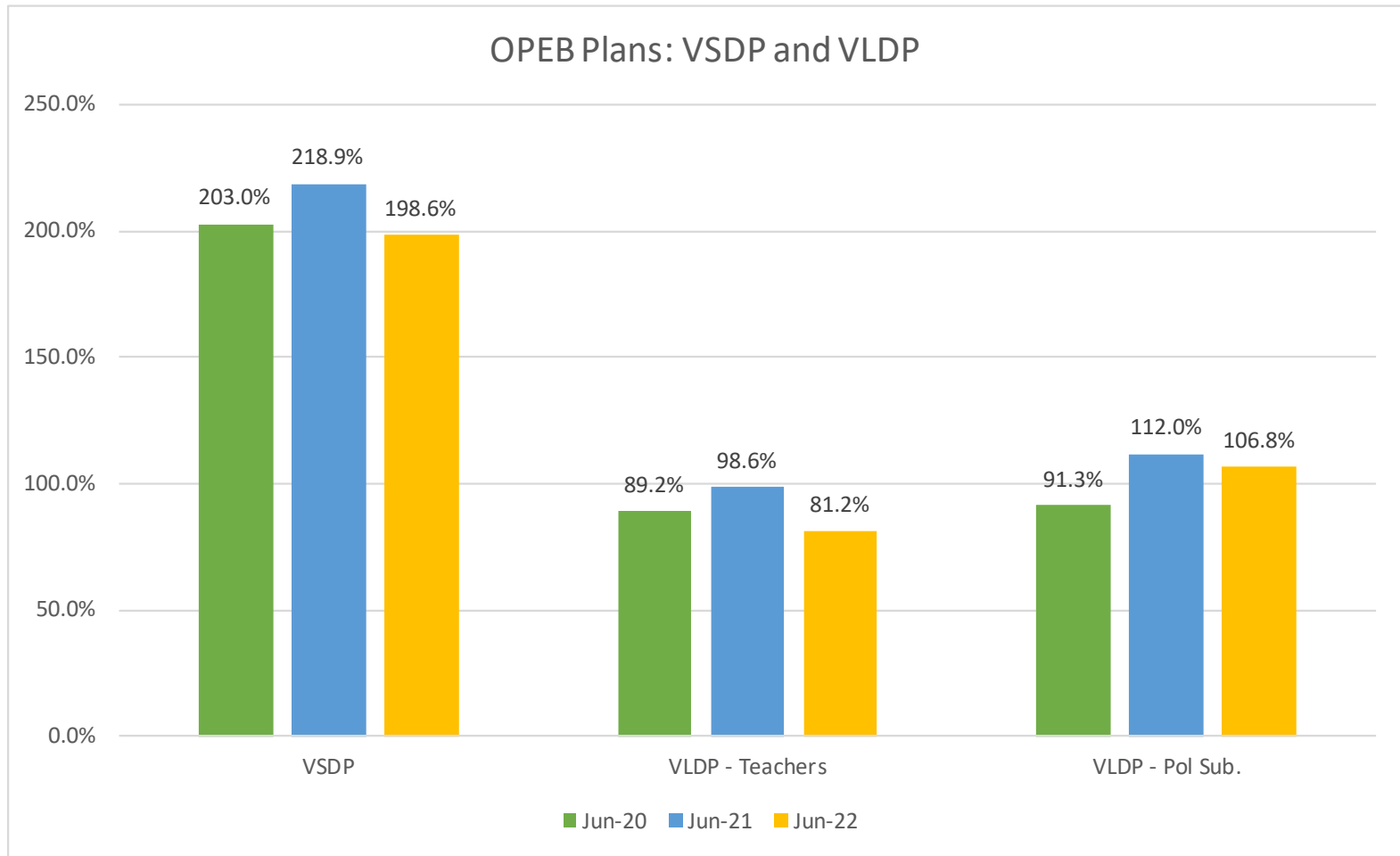
- Health Insurance Credit actual benefit payments charged back to the employer(s)
  - For each disbursement for each payee
- Prior allocation: charged last employer with HIC benefit based on total service
- Revised allocation: allocate to all employers the retiree worked for based on
  - Service
  - Accrual level



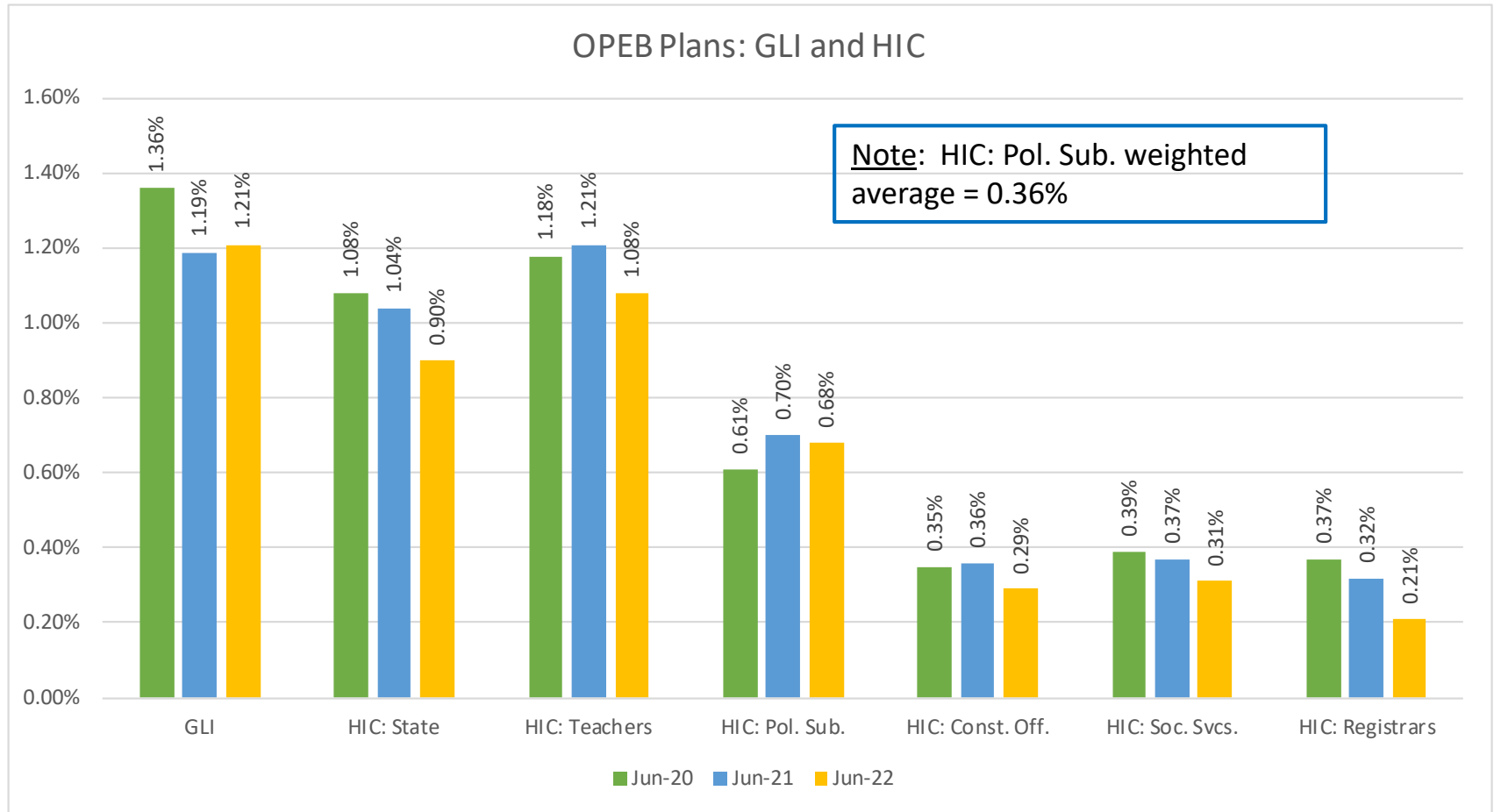
# Funded Status (AVA) – OPEB Plans



# Funded Status (AVA) – OPEB Plans

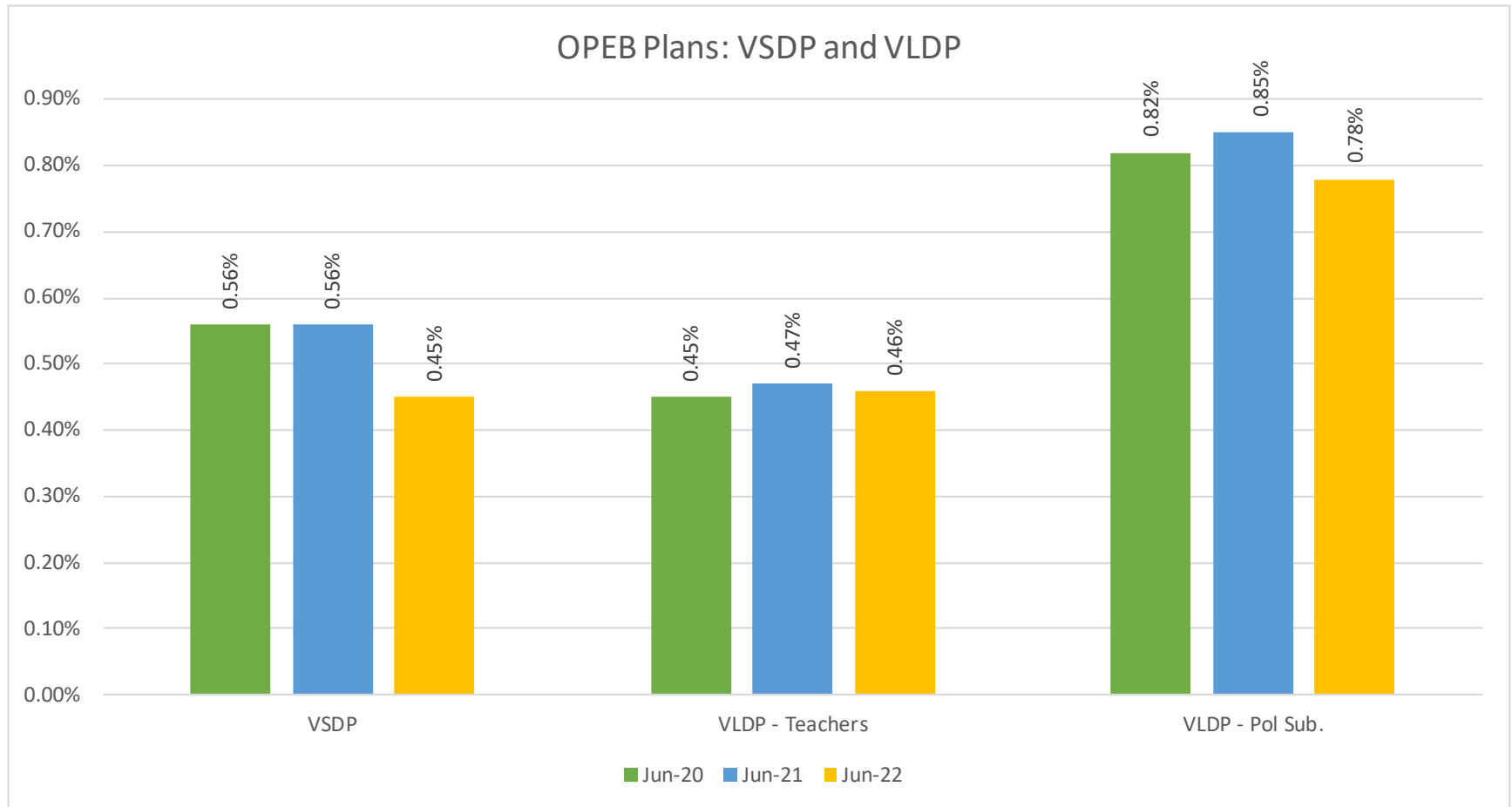


# Actuarially Determined Employer Contribution Rates – OPEB Plans





# Actuarially Determined Employer Contribution Rates – OPEB Plans



# Experience 2021-2022: OPEB – GLI & HIC (in \$millions)

---

	GLI	HIC: State	HIC: Teachers	HIC: Locals	HIC: Const. Off.	HIC: Soc. Svcs.	HIC: Registrars
UAL Last Valuation	\$ 1,389.3	\$ 852.8	\$ 1,294.1	\$ 49.5	\$ 26.6	\$ 12.5	\$ 0.4
Prior Year (PY) Normal Cost	79.6	18.8	18.9	1.5	0.8	0.3	-
Actual PY ER Contributions	(175.8)	(85.0)	(112.5)	(5.6)	(2.8)	(1.2)	(0.1)
Extra Contributions	(30.4)	(8.5)	(12.0)	-	(0.3)	(0.1)	-
Expected UAL	1,392.4	852.4	1,291.5	49.1	26.5	12.5	0.4
UAL This Valuation	1,349.0	802.2	1,237.0	39.7	25.6	12.3	0.3
<b>Total (Gain)/Loss</b>	<b>(43.4)</b>	<b>(50.2)</b>	<b>(54.5)</b>	<b>(9.4)</b>	<b>(0.9)</b>	<b>(0.1)</b>	<b>(0.1)</b>
-- Asset (Gain)/Loss	(115.1)	(19.9)	(19.7)	0.7	-	(0.1)	-
-- Method Change (Gain)/Loss	-	13.3	10.0	5.2	0.5	0.3	(0.1)
-- Liability (Gain)/Loss	71.7	(43.6)	(44.7)	(15.3)	(1.4)	(0.4)	-



# Experience 2021-2022: OPEB – VSDP & VLDP (in \$millions)

---

	VSDP	VLDP Teachers	VLDP Locals
UAL Last Valuation	\$ (297.3)	\$ 0.1	\$ (0.6)
Prior Year (PY) Normal Cost	34.6	1.6	2.0
Actual PY ER Contributions	21.3	2.6	2.6
Extra Contributions	-	-	-
Expected UAL	(294.8)	0.1	(0.6)
UAL This Valuation	(291.2)	1.7	(0.5)
<b>Total (Gain)/Loss</b>	<b>3.6</b>	<b>1.6</b>	<b>0.1</b>
-- Asset (Gain)/Loss	(18.5)	(1.0)	(0.7)
-- Method Change (Gain)/Loss	-	-	-
-- Liability (Gain)/Loss	22.1	2.7	0.8



# OPEB Results Commentary

---

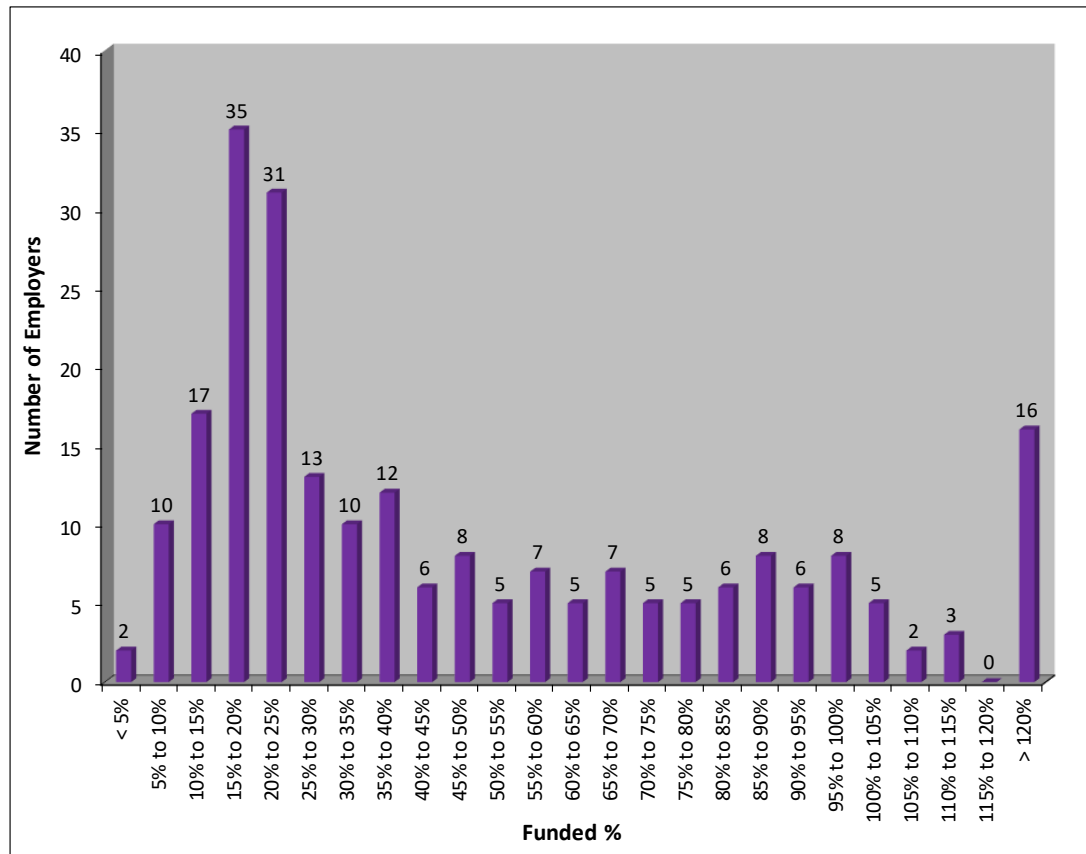
- Impact of additional \$51 million infusion in June 2022

	<b>Additional Contribution</b>	<b>Funded Status Impact</b>	<b>Contrib. Rate Impact</b>
HIC - State	\$8,522,746	+0.85%	-0.00%
HIC - Teachers	\$12,013,013	+0.84%	-0.01%
GLI	\$30,438,378	+0.84%	-0.01%
HIC - Constit. Off.	\$275,975	+0.83%	-0.01%
HIC - Soc. Svcs.	\$121,754	+0.82%	-0.00%
HIC – Registrars	\$6,494	+1.19%	-0.00%



# Funded Status (AVA) – OPEB HIC Political Subdivisions

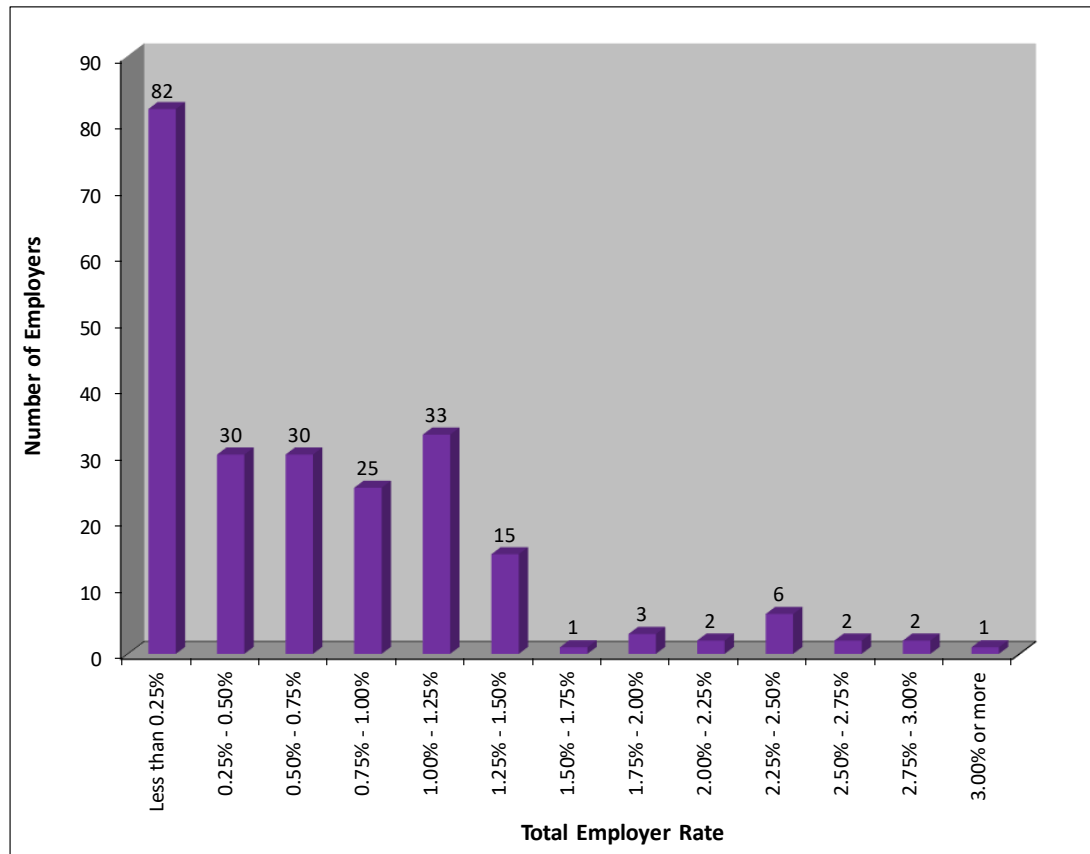
Funded Status as of June 30, 2022 for 232 Employers



The chart above shows 232 employers; employers with 0 actives are excluded.

# Actuarially Determined Employer Contribution (ADEC) Rates – OPEB HIC Political Subdivisions

ADEC Rate as of June 30, 2022 for 232 Employers



The chart above shows 232 employers; employers with 0 actives are excluded.



Contribution unchanged from 2021 valuation for 161 employers with surcharge

# OPEB Results Commentary

---

- New HIC allocation methodology
- 4 Employers have additional funding charge , average charge = 0.4%
- 161 Employers have surcharge , average charge = 0.36%

# Conclusion



## 1. Improved Funded Status on Actuarial Asset Basis

- Despite lower than expected returns for fiscal year 2022, recognition of prior gains led to improved funded status

## 2. Contributions

- Lower for Pension
- Lower for OPEB

## 3. Looking Forward:

- Planned additional funding for 2023-2024 based on 2022 appropriation act
- Market volatility/inflation
- Continued monitoring of payroll growth and head count





# THANK YOU

## QUESTIONS





# APPENDIX



# Changes in Coverage Since Last Valuation (Pension)

---

Employer	Description of Change
City of Norfolk	Expanded coverage to include prospective new hires, combined with existing constitutional officers
Montgomery County	Enhanced Hazardous Duty for Fire and EMT, 1.85% multiplier
Northumberland County	Enhanced Hazardous Duty for Fire and EMT, 1.70% multiplier
Westmoreland County	Enhanced Hazardous Duty for Fire and EMT, 1.70% multiplier
Wythe County	Enhanced Hazardous Duty, 1.85% multiplier
Town of Windsor	Enhanced Hazardous Duty for Law Enforcement Officers, 1.85% multiplier
Town of Stanley	Enhanced Hazardous Duty for Law Enforcement Officers, 1.85% multiplier



# Changes in Coverage Since Last Valuation (Pension)

---

Employer	Description of Change
Town of New Market	Enhanced Hazardous Duty, 1.85% multiplier
Town of Weber City	Enhanced Hazardous Duty for Law Enforcement Officers, 1.70% multiplier
Town of Independence	Enhanced Hazardous Duty for Law Enforcement Officers, 1.70% multiplier



# Changes in Coverage Since Last Valuation (Pension)

---

## New Political Subdivisions in VRS

Employer	New Employer Contribution Rate
Northern Virginia Soil And Water Conservation District	7.25%
Northern Neck Soil And Water Conservation District	5.33%
Town of Glade Spring	10.45%
Town of Farmville	10.72%

Note: Town of Pound (*Employer No. 55238*) no longer has active employees as of June 30, 2022



# Summary: Pension Plan Contribution Rates

	FY 2021/2022	FY 2023/2024	Informational
	2019 Valuation	2021 Valuation	2022 Valuation
State	14.46%	14.46%*	13.19%
Teachers	16.62%	16.62%*	14.13%
SPORS	26.26%	29.98%	28.88%
VaLORS	21.90%	24.60%	21.92%
JRS	29.84%	30.67%	29.10%
Political Subdivisions (Avg)	8.33%	8.79%	8.19%

\* State and Teachers contribution rates set at 2019 valuation level, increased from 14.13% and 14.76% respectively, and include DC rate for Hybrid members.

Note: weighted average for Political Subdivisions = 11.91%



# Summary: OPEB Contribution Rates

	FY 2021/2022	FY 2023/2024	Informational
	2019 Valuation	2021 Valuation	2022 Valuation
Group Life Insurance	1.34%	1.34%*	1.21%
Health Insurance Credit (HIC)			
-- State	1.12%	1.12%*	0.90%
-- Teachers	1.21%	1.21%	1.08%
-- Pol. Subs.	0.59%	0.70%	0.68%
-- Const. Officers	0.36%	0.36%	0.29%
-- Social Services EEs	0.38%	0.37%	0.31%
-- Registrars	0.39%	0.32%	0.21%
VSDP	0.61%	0.61%*	0.45%
VLDP			
-- Teachers	0.47%	0.47%	0.46%
-- Pol. Subs.	0.83%	0.85%	0.78%

\* GLI, HIC-State, and VSDP contribution rates held at 2019 valuation level, ADEC decreased to 1.19%, 1.04%, and 0.56% respectively



Note: weighted average for Political Subdivisions = 0.36%

# Summary: Unfunded Pension Plan Liabilities - (\$000)

## Unfunded Liability

### (AVA)

	2021	2022
State	\$ 6,112,670	\$ 5,861,321
Teachers	12,021,814	11,792,090
SPORS	389,314	416,642
VaLORS	738,351	718,017
JRS	132,738	110,861
Pol. Subs.	3,480,933	3,205,143
<b>Total</b>	<b>22,875,820</b>	<b>22,104,074</b>

### (MVA)

	2021	2022
State	\$ 3,615,554	\$ 5,199,844
Teachers	7,129,718	10,550,802
SPORS	276,498	387,081
VaLORS	538,229	666,103
JRS	60,256	91,593
Pol. Subs.	609,465	2,448,840
<b>Total</b>	<b>12,229,720</b>	<b>19,344,263</b>





# Summary: Unfunded OPEB Liabilities (\$000)

## Unfunded Liability

### (AVA)

	2021	2022
GLI	\$ 1,389,277	\$ 1,349,005
HIC - STATE	852,834	802,184
HIC - TEACHERS	1,294,093	1,237,047
HIC - POL. SUBS.	49,490	39,742
HIC - CONST. OFF.	26,572	25,605
HIC - SOCIAL SVC EES	12,488	12,329
HIC - REGISTRARS	421	345
VSDP	(297,276)	(291,190)
VLDP - TEACHERS	74	1,689
VLDP - POL. SUBS.	(599)	(508)
Total	\$ 3,327,374	\$ 3,176,247

### (MVA)

	2021	2022
GLI	\$ 1,111,390	\$ 1,273,766
HIC - STATE	836,808	801,741
HIC - TEACHERS	1,277,187	1,235,793
HIC - POL. SUBS.	49,490	39,742
HIC - CONST. OFF.	26,572	25,605
HIC - SOCIAL SVC EES	12,488	12,329
HIC - REGISTRARS	421	345
VSDP	(361,816)	(307,488)
VLDP - TEACHERS	(486)	1,656
VLDP - POL. SUBS.	(1,163)	(510)
Total	\$ 2,950,891	\$ 3,082,979



# Pension Inactive Participants at June 30, 2022

System	Plan 1	Plan 2	Hybrid	Total 2022	Total 2021	Percent Change
State	16,740	22,866	20,570	60,176	58,625	2.6%
Teachers	22,897	32,400	29,589	84,886	75,932	11.8%
SPORS	283	467	-	750	702	6.8%
VaLORS	2,654	9,619	-	12,273	11,702	4.9%
JRS	11	1	2	14	11	27.3%
Pol. Sub.	31,759	45,328	34,221	111,308	101,838	9.3%
<b>Total</b>	<b>74,344</b>	<b>110,681</b>	<b>84,382</b>	<b>269,407</b>	<b>248,810</b>	<b>8.3%</b>

Participants working across multiple employers may appear multiple times in the counts above



# Pension Retired Participants at June 30, 2022

System	Plan 1	Plan 2	Hybrid	Total 2022	Total 2021	Percent Change
State	69,430	1,672	272	71,374	70,231	1.6%
Teachers	106,348	1,992	239	108,579	106,011	2.4%
SPORS	1,762	12	-	1,774	1,755	1.1%
VaLORS	6,363	180	2	6,545	6,234	5.0%
JRS	570	3	7	580	577	0.5%
Pol. Sub.	79,777	3,465	425	83,667	80,790	3.6%
<b>Total</b>	<b>264,250</b>	<b>7,324</b>	<b>945</b>	<b>272,519</b>	<b>265,598</b>	<b>2.6%</b>

Participants working across multiple employers may appear multiple times in the counts above



# Disclaimers

- This presentation expresses the views of the authors and does not necessarily express the views of Gabriel, Roeder, Smith & Company.
- Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.



# Disclaimers

- This presentation is intended to be used in conjunction with the forthcoming actuarial valuation reports. This presentation should not be relied on for any purpose other than the purposes described in the valuation reports.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- Jim Anderson and Becky Stouffer are independent of the plan sponsor, are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.





**Accept revised LODA premium for FY 2024 as recommended by the Plan Actuary, effective July 1, 2023.**

---

**Requested Action**

The Board accepts the increased FY 2024 premium for the Line of Duty Death and Health Benefits Trust Fund (the LODA Fund) as recommended by the Plan Actuary for FY 2024.

**Description/Background**

At its November 16, 2021 meeting, the Board of Trustees certified a full-time equivalent premium rate of \$681.84 for the Line of Duty Death and Health Benefits Trust Fund for the FY 2023-2024 biennium, effective July 1, 2022.

The Plan Actuary, however, has determined that given the LODA Fund's pay-as-you-go status, additional funds are required in order to prevent the potential for negative cash flow in fiscal year 2024. The increase is the result of several factors, with the most impactful being a drop in the Full-Time equivalent (FTE) headcount from 19,087 FTEs to 17,900 FTEs, along with an increase in the number of claims during the year. The recommendation is for an increase in the FY 2024 rate to \$830.00 effective July 1, 2023. Generally, the required dollars collected from premiums will remain relatively level over the biennium if the headcounts are static. However, because this plan has no pre-funding, in the case of a substantial drop in the FTE headcounts or unfavorable plan experience, the premium level needs to increase in order to collect the required funding to pay expected benefits for the upcoming year.

**Rationale for Requested Action**

The Board typically certifies LODA premiums on a biennial basis but is authorized to determine participating employer contribution rates required for the LODA Fund. In addition, by Code the Line of Duty Death and Health Benefits Trust Fund premiums are developed on a current disbursement or pay-as-you-go basis. Because the Line of Duty Act is not part of the VRS pension plan, under the exclusive benefit rule the VRS trust fund cannot be used to fund benefits and there is no other source of funds to make benefit payments other than the annual premiums, Health Insurance Credit reimbursements, and any investment earnings.

**Authority for Requested Action**

*Code of Virginia* § 9.1-400.1 authorizes the Board to set the participating employer contribution rates for the Line of Duty Death and Health Benefits Trust Fund.

The above action is approved.

---

A. Scott Andrews, Chair  
VRS Board of Trustees

---

Date



**June 30, 2022  
Annual Actuarial  
Valuation Results –  
Line Of Duty Act Fund**

**Presented by: Becky Stouffer, ASA, MAAA;  
Jim Anderson, FSA, EA, MAAA; and Kurt Dosson, ASA, MAAA**



November 14, 2022

# Agenda

---

- Big Picture – Line Of Duty Act Fund
- Highlights of 2022 Valuation
- Appendix







**BIG PICTURE**

# **BIG PICTURE - Line Of Duty Act Fund**



# Big Picture: Line Of Duty Act Fund (LODA)

---

- GRS replicated Cavanaugh Macdonald 2021 actuarial results within tolerances
- Today's focus: 2022 Valuation
- GRS incorporated “Best Practice” approaches
  - Tweaks, not major changes



# Big Picture: Actuarial Valuation Results

---

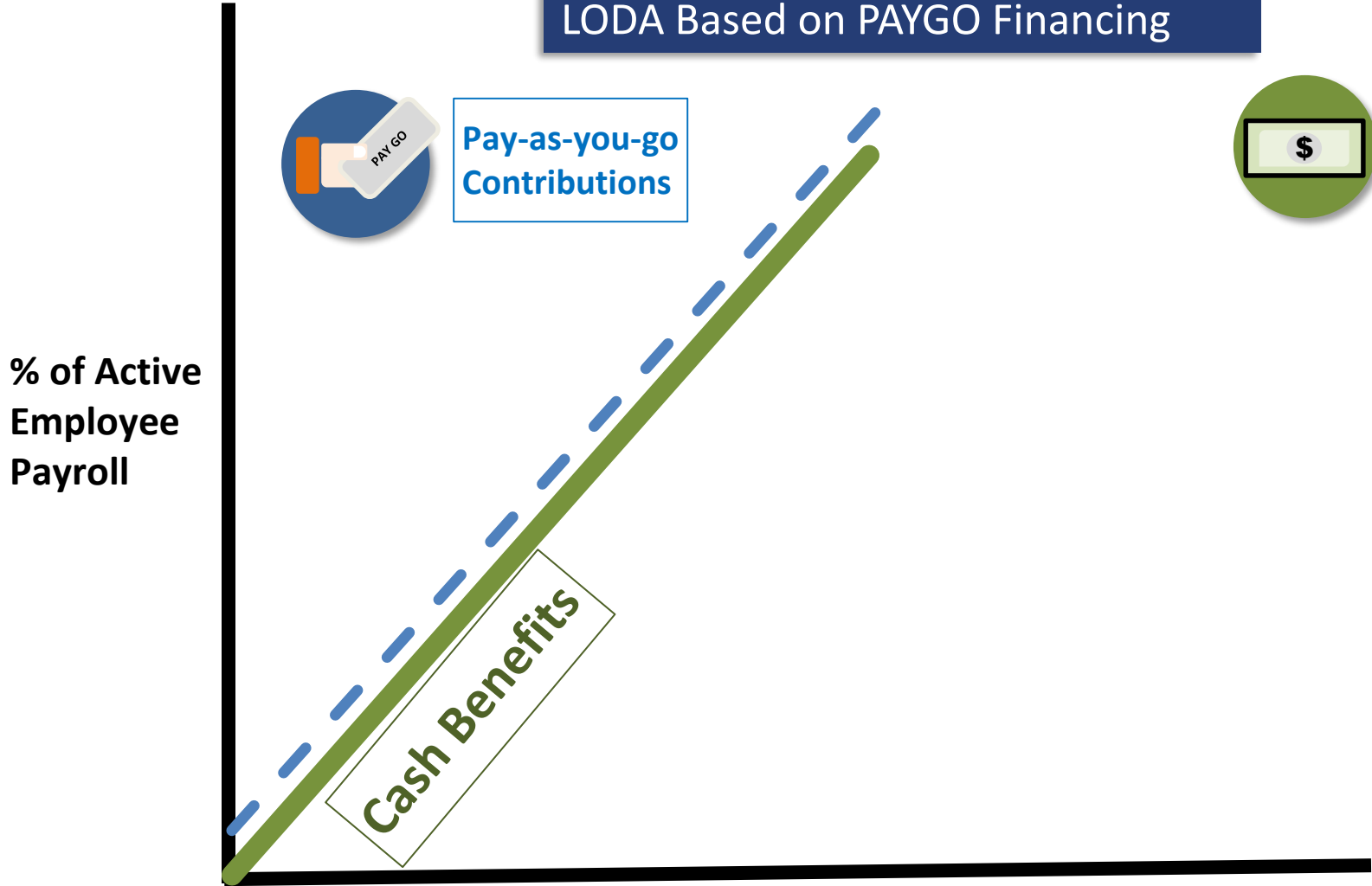
June 30, 2022 LODA Actuarial Valuation develops

1. Generally develops informational Pay-As-You-Go (PAYGO) rate per Full Time Equivalent (FTE) Employee
2. Actuarially Determined Employer Contribution (for accounting purposes only)

Odd year valuations  
determine LODA PAYGO Rate  
for 2 years



# A Different Approach: LODA Based on PAYGO Financing



% of Active  
Employee  
Payroll

Start

Years of Time



# Big Picture: Line Of Duty Act Fund (LODA)

---

- Pay-As-You-Go Financing
  - Required for participating employer contributions by Section 9.1-400.1 of the *Code of Virginia*
  - Costs
    - Death and health care premium payments from Department of Human Resource Management (DHRM)
    - Health Insurance Credit (HIC) reimbursements (used to offset claims)
  - Administrative expenses



# Big Picture: Line Of Duty Act Fund (LODA)

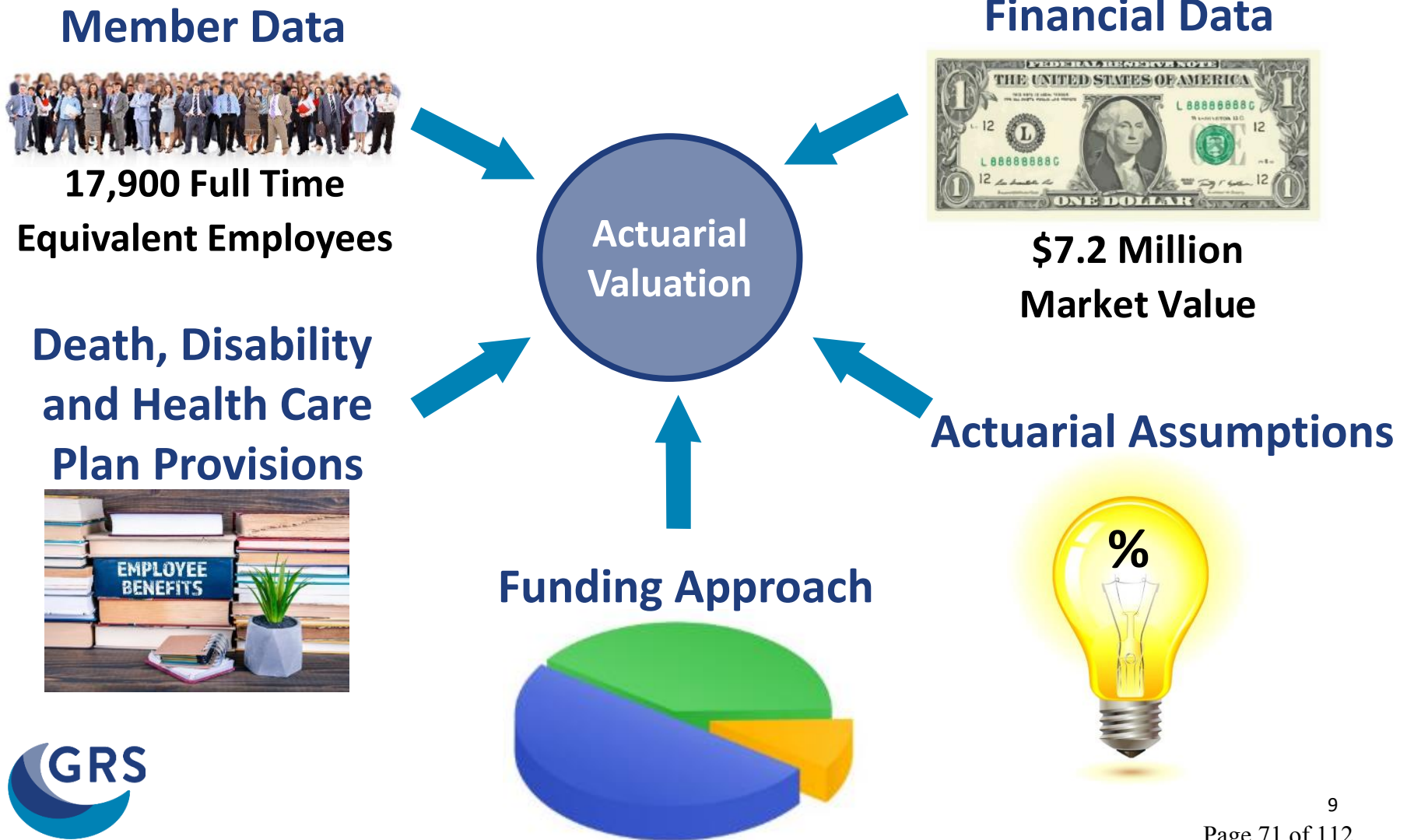
---


- Project benefit payments for future years
  - Plan covers the cost of health care premiums for current beneficiaries
  - Cover the cost of any new claims that are expected to occur during the year (new health care premiums & death claims)
- Set Employer contributions per Full Time Equivalent (FTE) so that
  - Assets sufficient to cover costs for a two year period with some cushion



# Actuarial Valuation Process

## Line of Duty Act Fund





**JUNE 30, 2022**  
**VALUATION RESULTS HIGHLIGHTS**



# Active Participants

Employer Group	Weight	FY 2021 Counts	FY 2022 Counts
State/VaLORS/SPORS	100%	9,577	8,701
National Guard*			
Full-Time	100%	1,044	1,044
Part-Time	10%	752	752
<b><i>Total State &amp; National Guard</i></b>		<b>11,373</b>	<b>10,497</b>
Participating Political Subdivisions			
Full-Time	100%	7,106	6,875
Volunteers	25%	608	528
<b><i>Total Pol. Sub. Employees</i></b>		<b>7,714</b>	<b>7,403</b>
<b><i>Aggregated Total</i></b>		<b>19,087</b>	<b>17,900</b>

\*National Guard counts unchanged – Dept. of Military Affairs did not provide 2022 data



# Health Care Beneficiaries

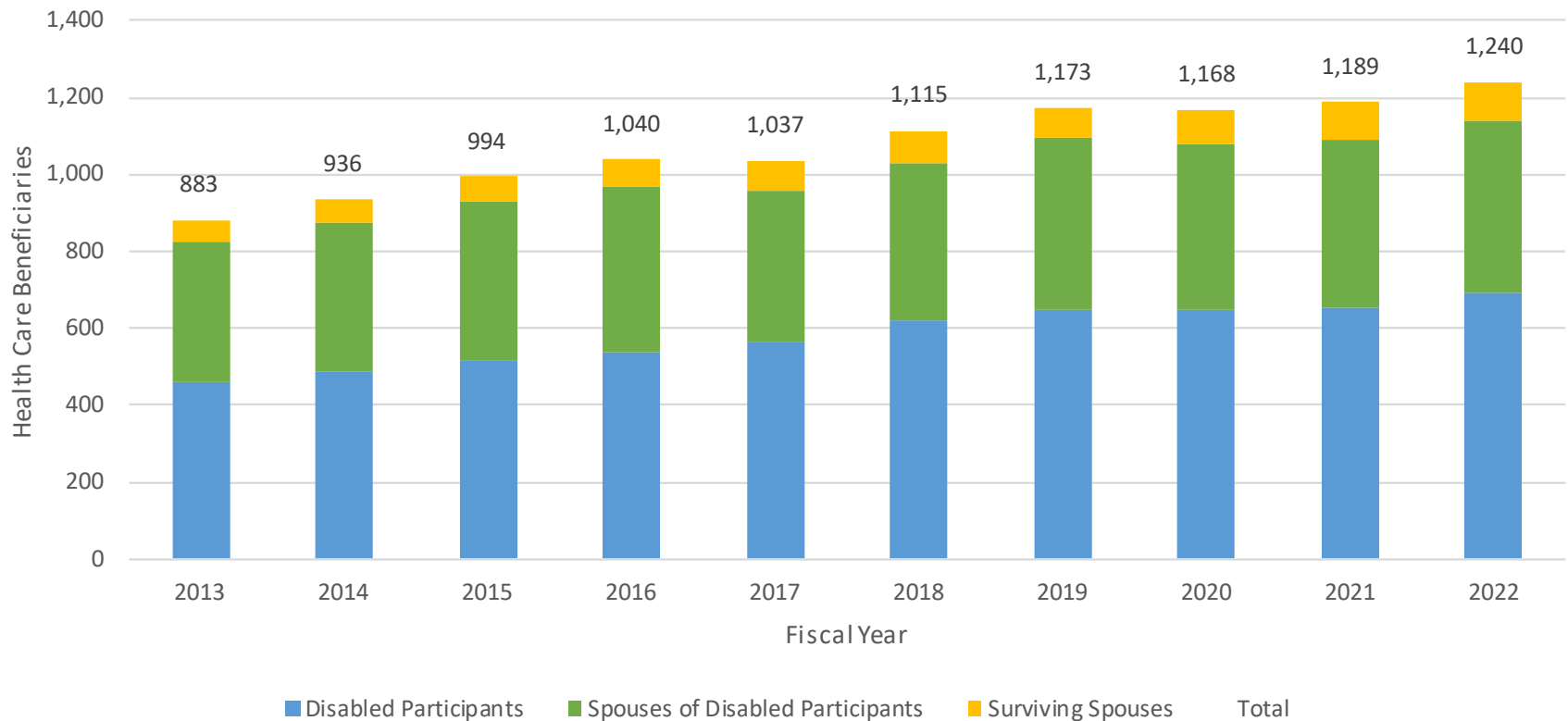
---

Beneficiary Type	Total 2021	Total 2022
Disabled Participants	653	691
Spouses of Currently Disabled Participants	440	449
Surviving Spouses	96	100
<b>Total</b>	<b>1,189</b>	<b>1,240</b>



# Health Care Beneficiaries: 10-year History

LODA Fund - Health Care Beneficiaries



# Health Care Premiums

---

Health care costs based on premium amounts invoiced by DHRM for those receiving LODA benefits

- Premium amounts reflect recent claims experience of current LODA beneficiaries

Assumed trend for future health care costs

- Pre-65: 7% initially, decreasing 0.25% over 9 years to a 4.75% ultimate rate
- Post-65: 5.25% initially, decreasing to 5.125%, 5%, and to a 4.75% ultimate rate



# Initial Monthly Per Capita Costs – Provided by DHRM

FY 2023				
Membership Level	LODA Plan Current LODA Employment	LODA Plan Former LODA Employment	Medicare Primary	Medicare Part B Premium
Single	\$1,084	\$1,119	\$296	\$164.90
Two Person	\$1,850	\$1,882	N/A	N/A
Family (3 or more family members)	\$2,623	\$2,653	N/A	N/A

FY 2022				
Membership Level	LODA Plan Current LODA Employment	LODA Plan Former LODA Employment	Medicare Primary	Medicare Part B Premium
Single	\$1,016	\$1,049	\$293	\$170.10
Two Person	\$1,733	\$1,764	N/A	N/A
Family (3 or more family members)	\$2,458	\$2,486	N/A	N/A

- For pre-Medicare members, premiums increased ~6.7% vs. 7.0% expected.
- For Medicare eligible members, premiums increased ~1.0% vs. 5.25% expected.
- The projected 2023 Medicare Part B premium reflects a decrease of ~3.1% from 2022.



# Market Value Assets: June 30, 2021 - June 30, 2022

---

## Line of Duty Act:

Beginning balance	7,552,697
-------------------	-----------

### Additions:

Member contributions	-
Employer contributions	13,770,559
Health Insurance Credit Offset	474,802
Miscellaneous revenue	177,000
<b>Total additions</b>	<b>14,422,361</b>

### Deductions:

Line of Duty Act reimbursements	
Health Care Benefits	13,987,376
Death Benefits	125,000
Administrative expenses	782,350
Non-Participating Employer Administrative Expenses	128,250
Other expenses	-
<b>Total deductions</b>	<b>15,022,976</b>

Investment Income (Net)	261,657
-------------------------	---------

<b>Ending balance</b>	<b>7,213,739</b>
-----------------------	------------------

LODA fund assets expected to earn 6.75% return
--



# Putting It All Together: Development of LODA Employer Costs Per FTE

---

- Combine
  - Demographics of group as of June 30, 2022
  - Health care premium rates as of June 30, 2022
  - Health care trend and other actuarial assumptions
  - Health Insurance Credit (HIC) Program Reimbursements
  - Administrative Expenses
    - Net fiscal year 2022 amount is \$782,350, assumed to increase at 3% per annum for future years



# Putting It All Together: Fiscal Year 2023-2024

## Results Based on Scheduled Contribution

	FY 2023	FY 2024
FTE Employees		
- Expected (2021)	19,087	19,087
- Informational (2022)	17,900	17,900
Employer Contributions*	\$ 13,254,190	\$ 12,204,731
Benefit Costs	(15,211,889)	(17,239,265)
Miscellaneous Revenue	50,213	51,719
Administrative Expenses	(805,821)	(829,996)
Investment Income	395,353	134,283
Net Cash Flow	(2,317,954)	(5,678,527)
End of Year Position	\$ 4,895,786	\$ <b>(782,742)</b>

\*Based on scheduled contribution for Fiscal Year 2023

Due to projected end of year deficit an adjusted 2024 rate is needed to ensure the plan will have funds available to pay benefits.





# Putting It All Together: Fiscal Year 2023-2024

## Results for 1-month Benefit Reserve at FYE 2024

	FY 2023	FY 2024
FTE Employees		
- Expected (2021)	19,087	19,087
- Informational (2022)	17,900	17,900
Employer Contributions*	\$ 13,254,190	\$ 14,821,207
Benefit Costs	(15,211,889)	(17,239,265)
Miscellaneous Revenue	50,213	51,719
Administrative Expenses	(805,821)	(829,996)
Investment Income	-	195,903
Net Cash Flow	(2,713,307)	(3,000,432)
End of Year Position	\$ 4,500,432	\$ 1,500,000

\*Based on scheduled contribution for FY 2023 and \$830/FTE for FY 2024

Adjusted rate was developed assuming no investment income during 2023 and includes a 1-month reserve at year end



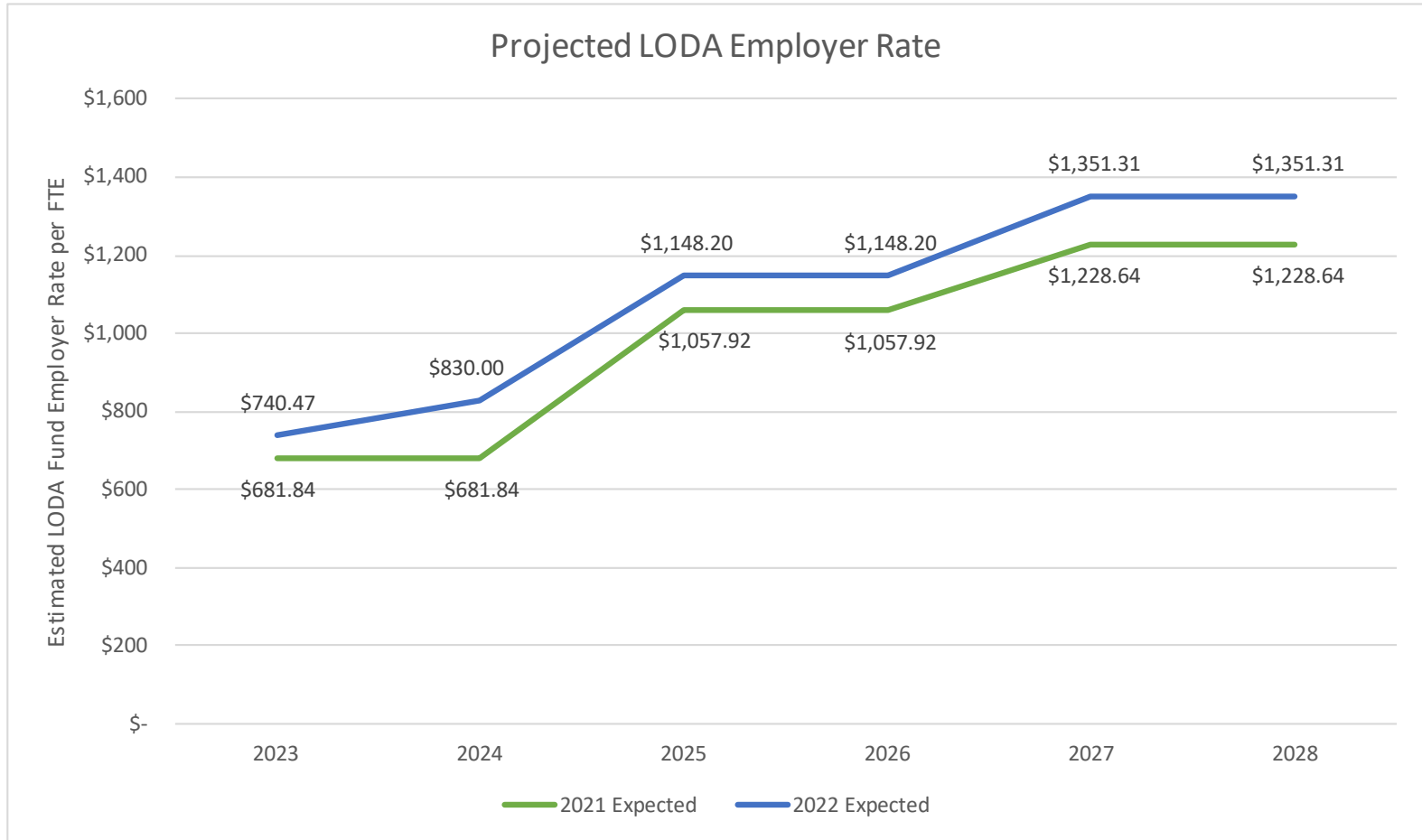
# Putting It All Together: LODA Rate History

Valuation Date	Fiscal Year	Board Certified Rate	Adjusted Rate	Informational Rate
6/30/2022	2024	\$681.84	\$830.00 <sup>1</sup>	\$732.57 <sup>1</sup>
6/30/2021	2023	681.84	N/A	N/A
6/30/2020	2022	695.18	\$722.55	758.03
6/30/2019	2021	695.18	717.31	N/A
6/30/2018	2020	705.77	N/A	729.25
6/30/2017	2019	705.77	N/A	N/A

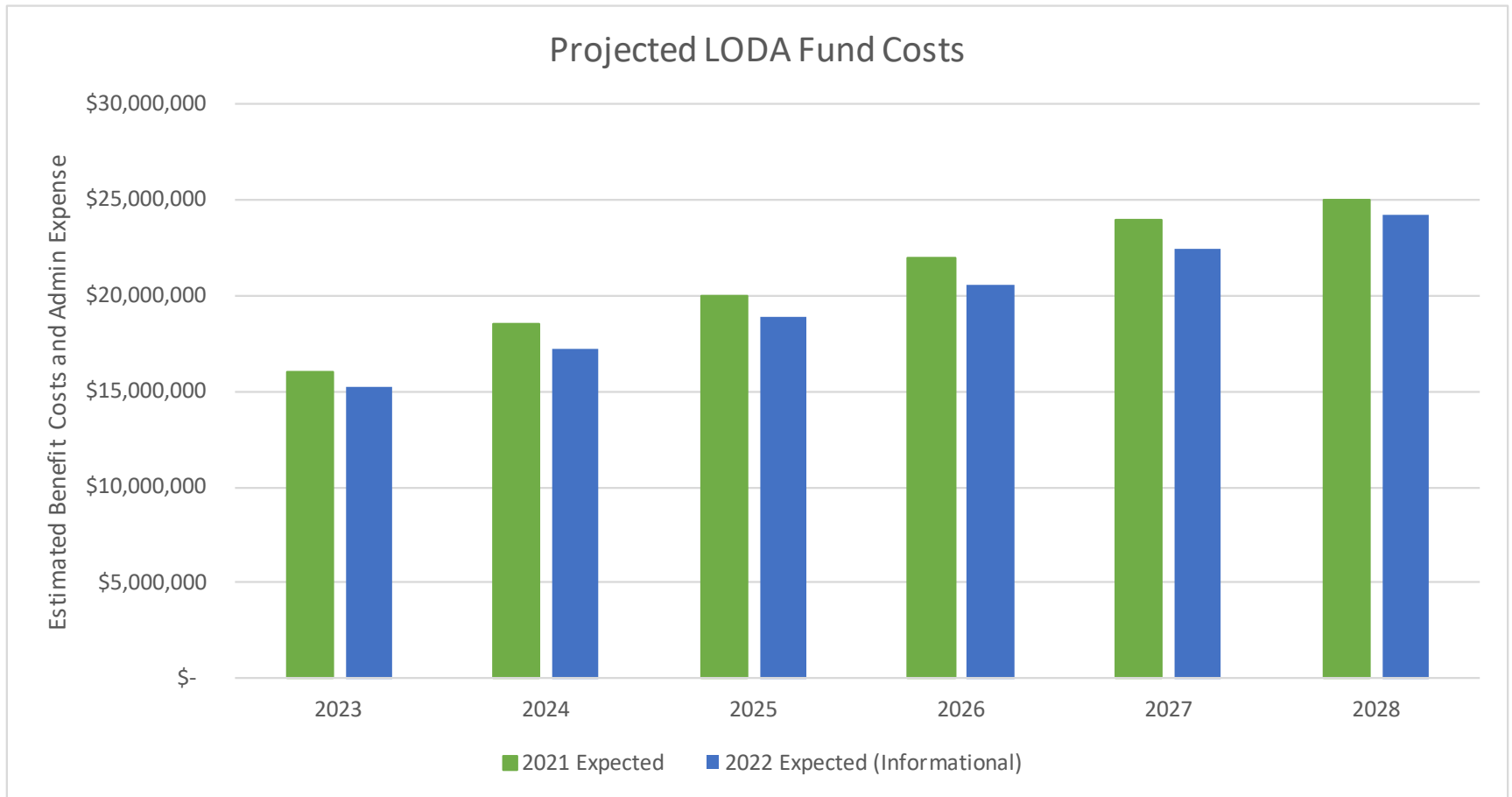
<sup>1</sup> Informational rates based on June 30, 2022 valuation



# Putting It All Together



# Putting It All Together: Projected Benefit Payments



# LODA: Conclusions

---

- LODA Fund contributions are likely to increase annually, due to
  - PAYGO financing approach
  - Health care inflation
  - Increasing number of beneficiaries
  - Static/Decreasing FTE employee count



# THANK YOU

## QUESTIONS





# APPENDIX



# Actual vs. Expected Benefit Payments

---

FY 2022		
Type of Benefit	Expected	Actual
Health Insurance Benefits	\$13,210,421	\$13,987,376
Death Benefits	\$390,000	\$125,000
HIC Offsets	(\$494,000)	(\$474,802)
Total	\$14,094,421	\$14,587,178

Expected FY 2022 Death Benefits and HIC Offset figures from GRS replication results





# Initial Monthly Per Capita Costs

---

Valuation Date	Under Age 65	Over Age 65 Including Medicare Part B
June 30, 2018	\$1,186.01	\$506.50
June 30, 2019	\$1,137.63	\$406.60
June 30, 2020	\$1,222.51	\$431.50
June 30, 2021	\$1,319.01	\$463.10
June 30, 2022	\$1,413.08	\$460.90

Under Age 65: Includes the assumed additional cost for coverage of dependent children



# LODA Legislation

---

- Effective 7/1/2023: disability re-certifications and appeals of re-certifications required to be performed by “licensed health practitioners”

# Disclaimers

- This presentation expresses the views of the authors and does not necessarily express the views of Gabriel, Roeder, Smith & Company.
- Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.



# Disclaimers

- This presentation is intended to be used in conjunction with the forthcoming actuarial valuation reports. This presentation should not be relied on for any purpose other than the purposes described in the valuation reports.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- Jim Anderson, Kurt Dosson and Becky Stouffer are independent of the plan sponsor, are Members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.



# VRS Stress Test and Sensitivity Analysis

Report Summary

November 2022



# Stress Testing and Sensitivity Analysis Mandate



- Section 51.1-124.30:1 of the *Code of Virginia* requires VRS to formally adopt a policy to regularly report sensitivity and stress testing analyses for members of the General Assembly.
- The analyses should include projections of benefit levels, pension costs, liabilities and debt reduction under various economic and investment scenarios.
- This report provides an analysis of the potential impact of various scenarios and hypothetical situations on VRS-administered retirement plans and supports transparency for the future health of the retirement system.\*

\* Report content and summary slides are subject to further editorial and content review.

# VRS Stress Test and Sensitivity Analysis

Based on June 30, 2021 Actuarial Valuation

This report is based on the June 30, 2021 actuarial valuation.

- Muted economic forecasts including higher than expected inflation and more volatility in the markets.
- Risks to long-term funding, including:
  - Investment volatility
  - Contribution risk
  - Longevity



- Following robust market returns in fiscal year 2021, future outperformance in the near term may be materially lower than both historic norms as well as projected returns over longer timeframes. This was true for fiscal year 2022 in which VRS had an investment return of 0.6%.
- New valuation assumptions were reflected in the June 30, 2021 rate-setting valuation including generational mortality assumptions that will help counter longevity risk by increasing contribution requirements to cover expected long-term costs.
- As plans mature and assets continue to grow, downside investment risk will have a bigger impact on plan funded status and employer contribution rates.



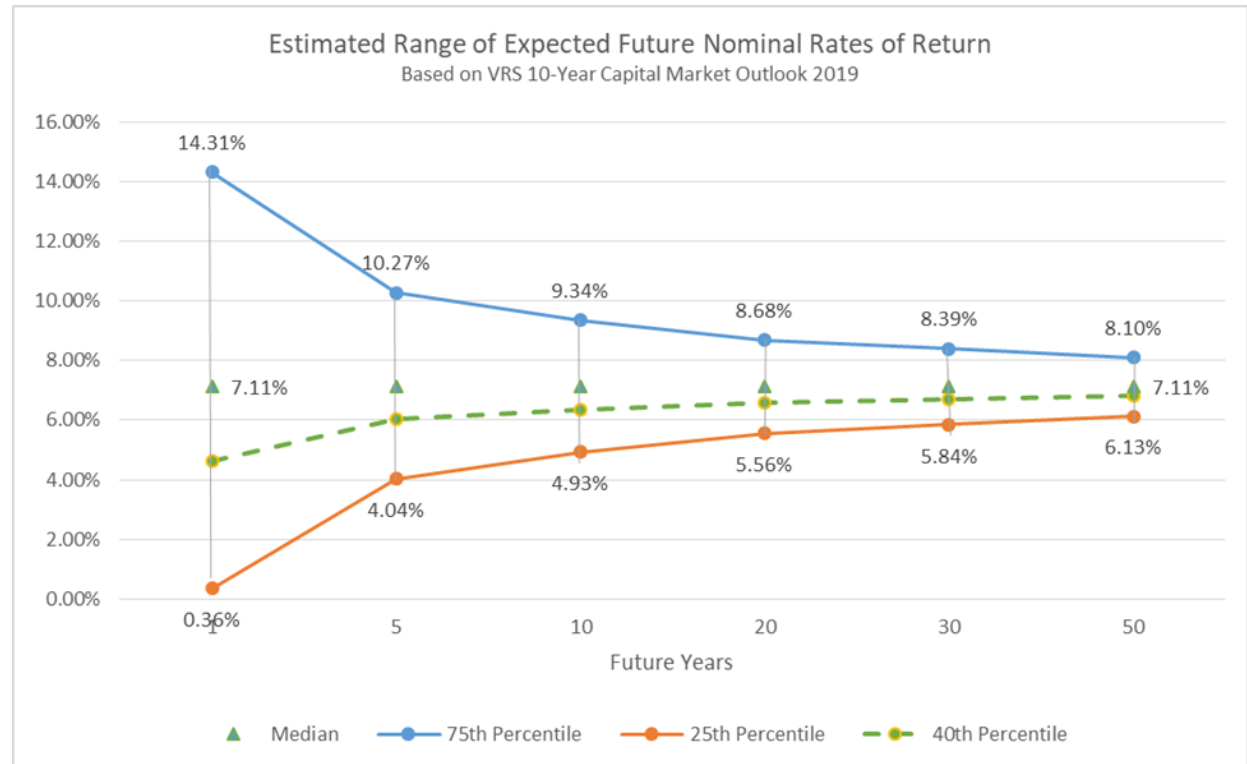
- Significant resources must remain dedicated to addressing the amortization of the legacy unfunded liabilities.
- Analysis suggests that accelerating the payback of the legacy unfunded liabilities could provide significant long-term savings and better position the statewide plans to weather future volatility in investment returns, serving to reduce investment risk.
  - Recent examples from 2022 Appropriation Act include the \$750 million ad-hoc contribution and maintaining higher prior rates for State and Teacher plans.

# Future Risk Analysis

## Investment Rate of Return

The discount rate reflects expectations of what the markets will deliver in the future and is calculated based on two components:

- Expected price inflation; and
- Real Rate of Return.



Due to the divergence between expected returns over the near term, i.e., the next five to 10 years, and over the longer term, i.e., 20 to 30 years, the Board selected a blended discount rate of 6.75%, below the median expected long-term rate of 7.11%.

# Future Risk Analysis

## Capital Market Outlook

### VRS 2021 Capital Market Outlooks - Forward Returns & Volatilities

#### 20 Year Outlook

Asset Class	Wt.	Current	
		E(r)	E( $\sigma$ )
Public Equity	34.0%	6.6%	14.0%
Fixed Income	15.0%	3.0%	4.0%
Credit Strategies	14.0%	6.8%	6.5%
Real Assets	14.0%	6.8%	10.0%
Private Equity	14.0%	10.6%	20.0%
MAPS	6.0%	5.5%	8.0%
PIP	3.0%	8.3%	15.0%
Cash	0.0%	0.0%	0.5%
<i>Currency Return Addition</i>		<i>0.1%</i>	
<b>Total Fund</b>		<b>6.76%</b>	<b>11.4%</b>

### VRS 2022 Capital Market Outlooks - Forward Returns & Volatilities

#### 20 Year Outlook

Asset Class	Wt.	Current	
		E(r)	E( $\sigma$ )
Public Equity	34.0%	6.8%	16.8%
Fixed Income	15.0%	4.4%	4.7%
Credit Strategies	14.0%	7.1%	5.4%
Real Assets	14.0%	6.0%	14.0%
Private Equity	14.0%	8.8%	26.2%
MAPS	6.0%	5.9%	7.9%
PIP	3.0%	7.3%	18.9%
Cash	0.0%	0.0%	0.5%
<i>Currency Return Addition</i>		<i>0.1%</i>	
<b>Total Fund</b>		<b>6.72%</b>	<b>13.8%</b>

While the 20-year outlooks for 2021 and 2022 continue to show support for the current 6.75% discount rate, volatility has increased in the 20-year forward returns from 11.4% in 2021 to 13.8% for 2022.

# Future Risk Analysis

## Sensitivity Analysis

- Analysis of discount rate sensitivity on employer contribution rates gives a sense of the long-term risk to the employer contribution rates and changes to the funded status.
- The analysis provides the impact on employer contribution rates assuming discount rates that are up to two percentage points above or below the current valuation discount rate.

### State Plan

Discount Rate	Current				
	8.75%	7.75%	6.75%	5.75%	4.75%
Total Normal Cost Rate	6.39%	7.62%	9.29%	11.61%	14.85%
Member Contribution Rate	4.53%	4.53%	4.53%	4.53%	4.53%
Employer Normal Cost Rate	1.86%	3.09%	4.76%	7.08%	10.32%
Administrative Expense Load	0.29%	0.29%	0.29%	0.29%	0.29%
Total Employer Normal Cost Rate	2.15%	3.38%	5.05%	7.37%	10.61%
Total Amortization Rate	0.86%	4.40%	8.02%	11.73%	15.53%
Defined Contribution Hybrid Plan	1.06%	1.06%	1.06%	1.06%	1.06%
Total Employer Rate	4.07%	8.84%	14.13%	20.16%	27.20%
Change in Employer Rate	(10.06)%	(5.29)%	0.00%	6.03%	13.07%
Estimated Change in Annual Funding	(462,191)	(243,041)		277,039	600,481
Unfunded Liability	1,171,017	3,428,843	6,112,670	9,316,998	13,154,218
Funded Status	94.6%	85.7%	77.1%	68.9%	61.0%

Results based on June 30, 2021 actuarial valuation. Funded status shown on an actuarial value of assets basis.

# Impact of 2022 Appropriation Act Maintaining Prior Rates

- Maintaining the prior biennium rates will provide an additional \$32 million in funding for the State plan and \$345 million for the Teacher plan.

State Plan	
VRS Board Certified Rates FY 23/24	Appropriation Act Rates FY 23/24
<b>14.13%</b>	<b>14.46%</b>

- Requires \$32 million in additional contributions:
  - \$13.9 million General Fund
  - \$18.1 million Non-General Fund
- Lowers Unfunded Liability by nearly \$34 million over two years
- Lowers future rates annually by approximately 5 basis points.
  - Approximately \$48 million in additional savings over next 15 years

Teacher Plan	
VRS Board Certified Rates FY 23/24	Appropriation Act Rates FY 23/24
<b>14.78%</b>	<b>16.62%</b>

- Requires \$345 million in additional contributions:
  - \$138 million General Fund
  - \$207 million Non-General Fund
- Lowers Unfunded Liability by nearly \$382 million over two years
- Lowers future rates annually by approximately 30 basis points.
  - Approximately \$500 million in additional savings over next 15 years

# Impact of 2022 Appropriation Act Cash Infusions

- The Appropriation Act also included significant cash infusions which will bolster the funded status as well as have a positive impact on future employer contribution rates.

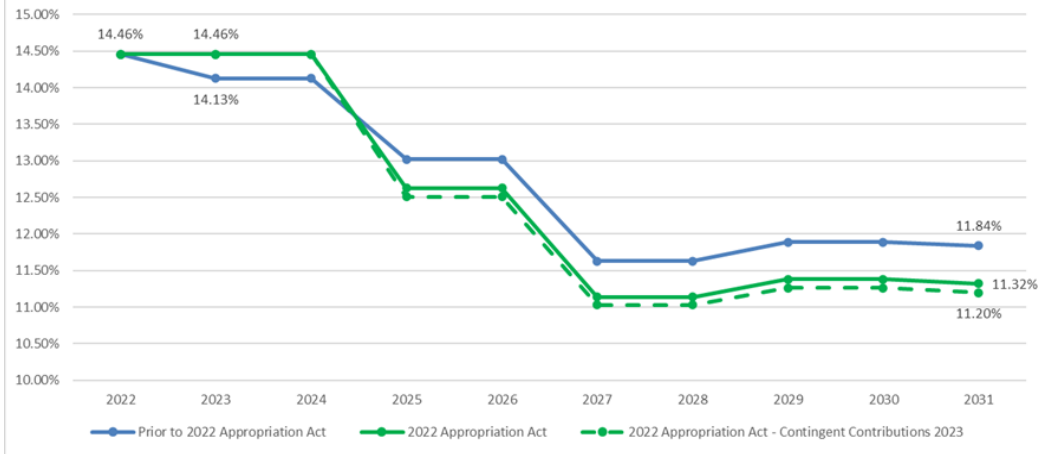
## The Appropriation Act provides over \$1 billion to reduce unfunded liabilities of state pension and OPEB plans.

- \$750 million appropriation in June 2022
  - Estimated cost savings of \$1.4 billion over next 20 years
- \$250 million contingent appropriation in June 2023\*
  - Estimated cost savings of \$509 million over next 20 years
- \$80.4 million appropriation in total for State HIC plans paid in two installments (June 2023 and June 2024)
  - Estimated cost savings of \$99 million over next 20 years

*\* Allocation of contingent \$250 million appropriation has not been set forth in the Act. Savings estimate assumes the contingent \$250 million will be allocated in similar fashion to the \$750 million appropriation.*

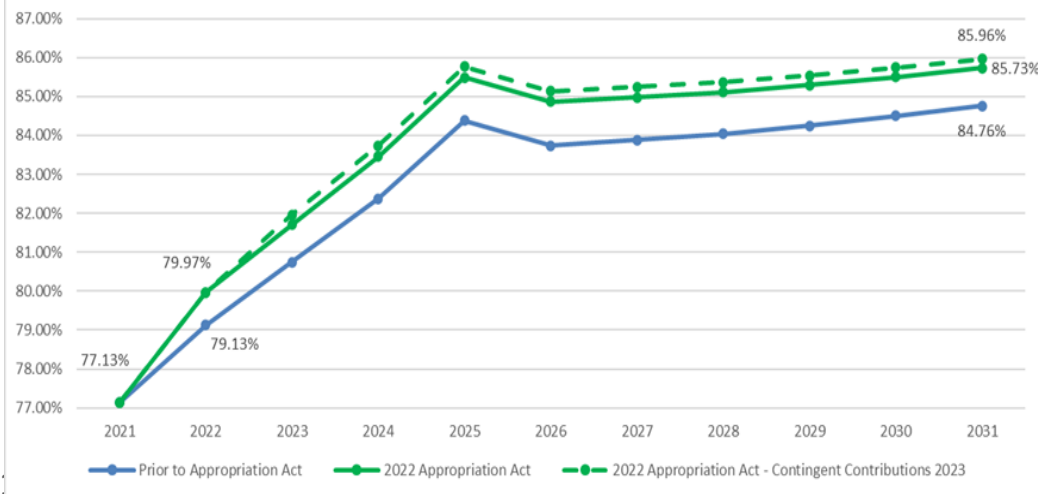
# Impact of 2022 Appropriation Act

State Plan Projected Employer Contribution Rates  
Impacts of 2022 Appropriation Act



- The Appropriation Act also included significant cash infusions which will bolster the funded status as well as have a positive impact on future employer contribution rates.

State Plan Projected Funded Status  
Impact of 2022 Appropriation Act



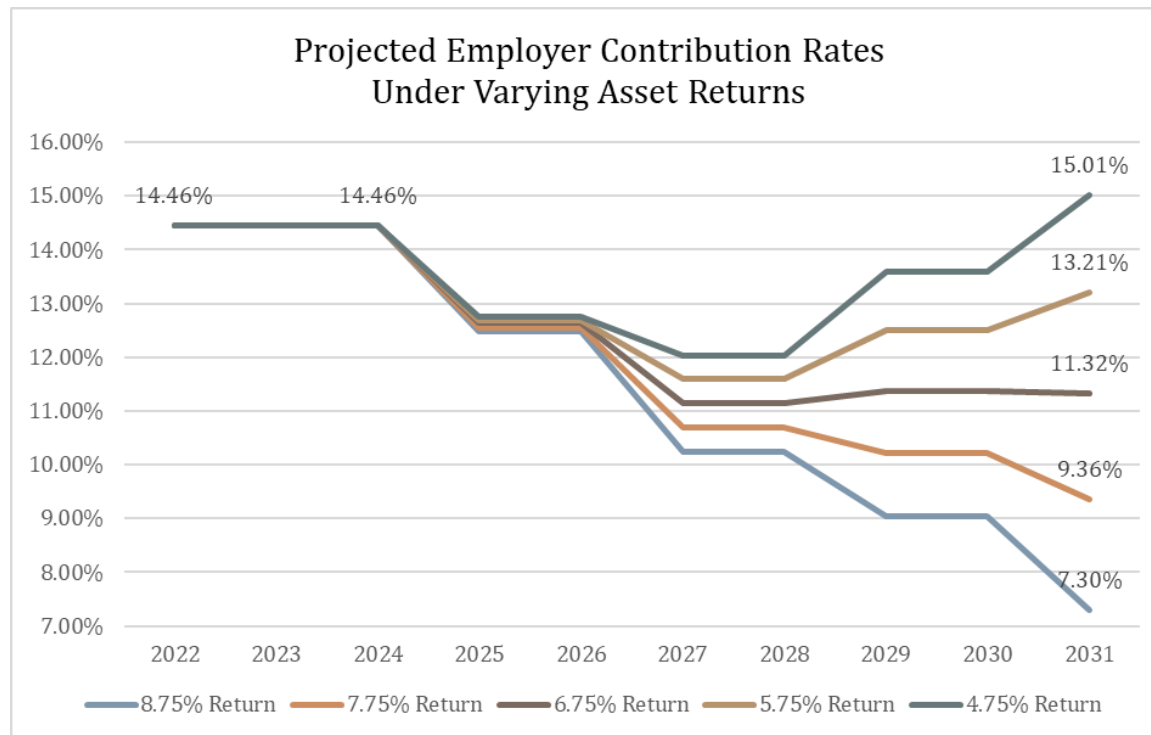
# Future Risk Analysis

## Possible Future Outcomes – Deterministic



- Investment returns will have a greater impact on the funding of the plans as VRS plans continue to mature.
- The exhibit below provides a range of expected employer contribution rates under varying rates of return from 4.75% - 8.75% over the next five years for the State plan.
- For example, if the fund returns 4.75% in each of the next five years, the contribution rate would be expected to increase to 15.01% by 2031.

### State Plan

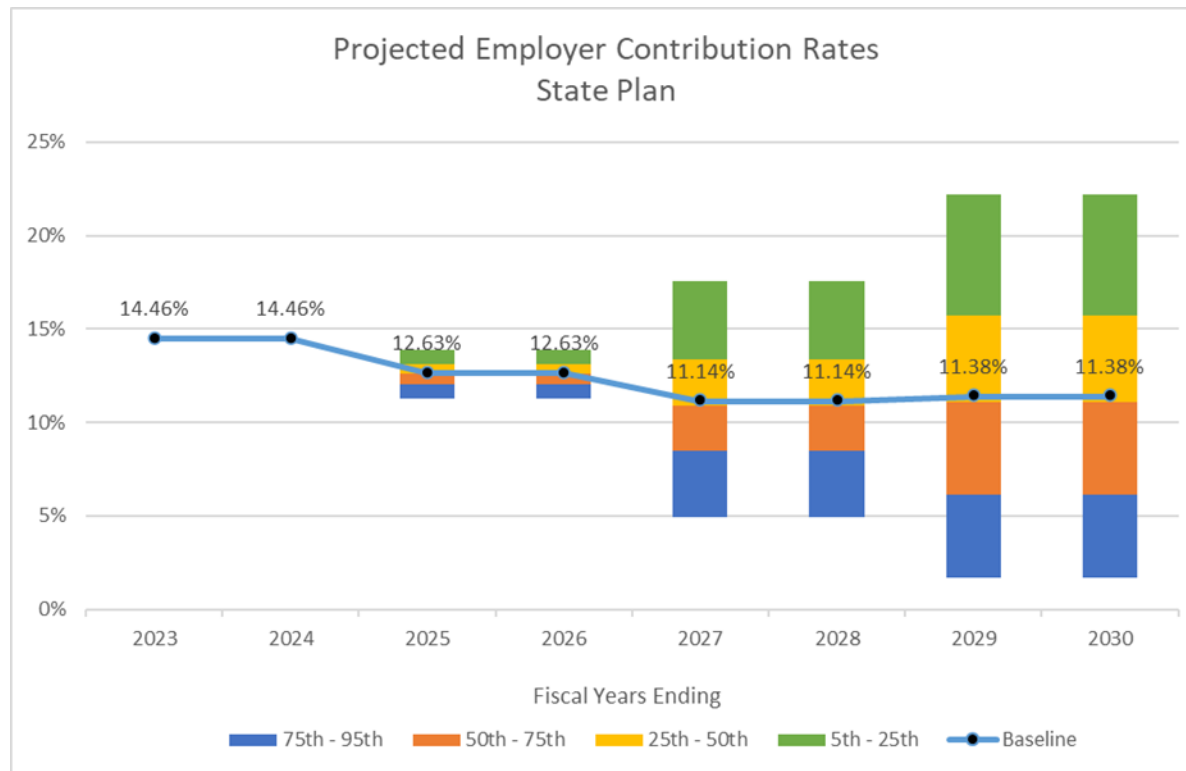




# Future Risk Analysis

## Possible Future Outcomes - Stochastic

- Stochastic outlook provides a range of possible returns based on 10,000 scenarios.
- There is a 50% probability that employer rates will be between 6.1% and 15.7% by FY 2030 with an expected employer rate of 11.38%.



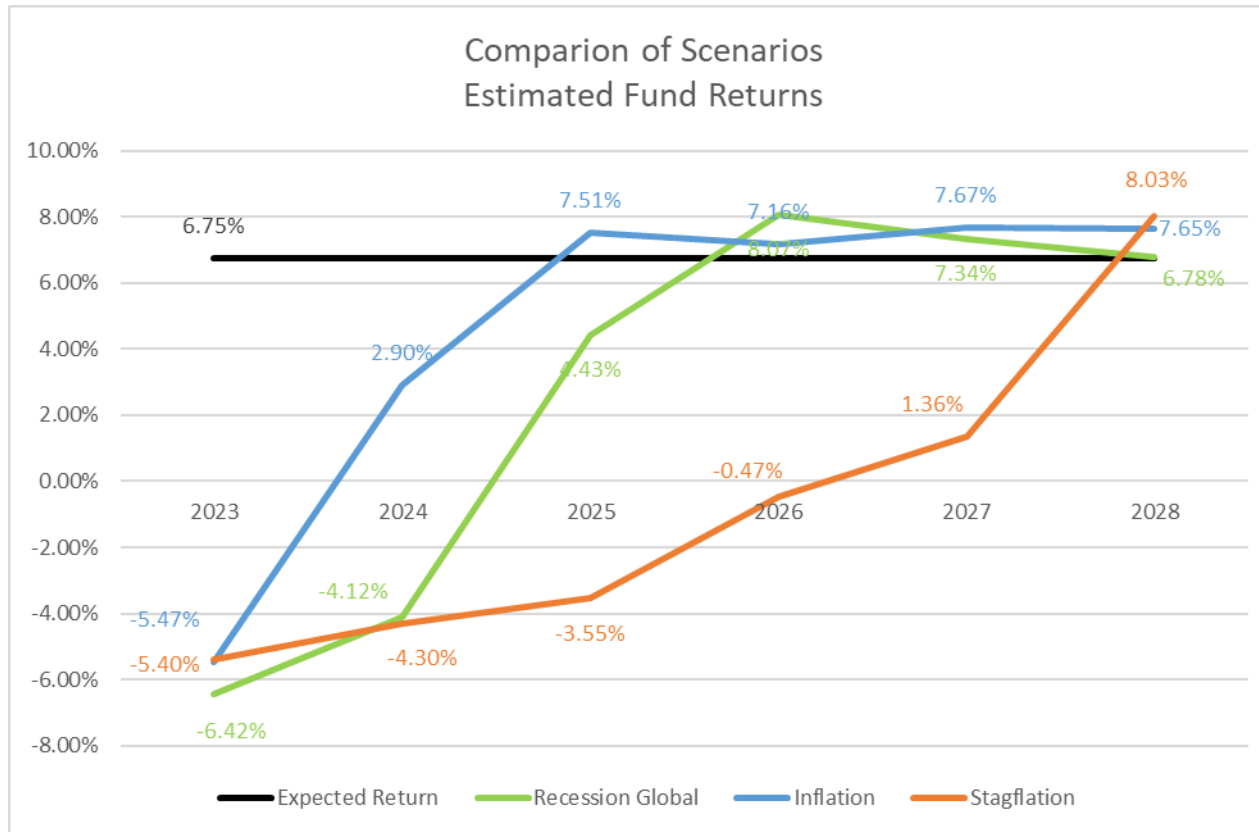
- Fiscal year 2022 saw a decline in the markets following the major rebound in 2021.
- An increase in gloomy developments during 2022 has caused market risks to materialize.
- With the risks tilted to the downside, the VRS investment team compiled three economic scenarios that provide a framing of global economic outcomes that could possibly occur over the next several years.

- Although merely illustrations, the scenarios help to highlight the vulnerability of the fund to unexpected market shocks and the magnitude by which these scenarios can quickly degrade funded status and accelerate employer contributions requirements.
- To assist in illustrating plausible impacts to the fund, the VRS investment team compiled several economic scenarios that provide a framing of possible global economic responses over the next several years.
- The following three illustrative scenarios are designed to show the magnitude of impacts on plan funding.

# Future Risk Analysis

## Illustrative Economic Scenarios

- Estimates of illustrative scenarios show the magnitude of impacts on plan funding.
- There is no degree of certainty that any of these three scenarios will correctly simulate what will happen over the next five years.



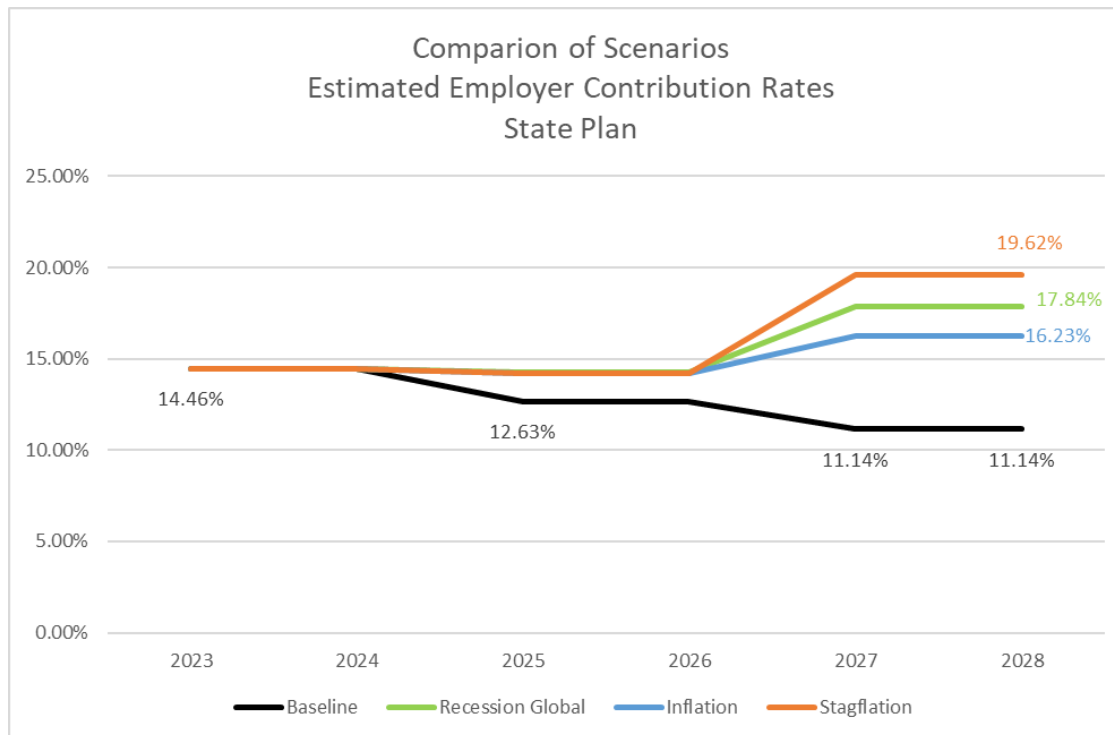
**Estimated Cumulative Return over next six years**

Inflation: 4.45%  
 Recession Global: 2.51%  
 Stagflation: -0.82%

# Future Risk Analysis

## Illustrative Economic Scenarios

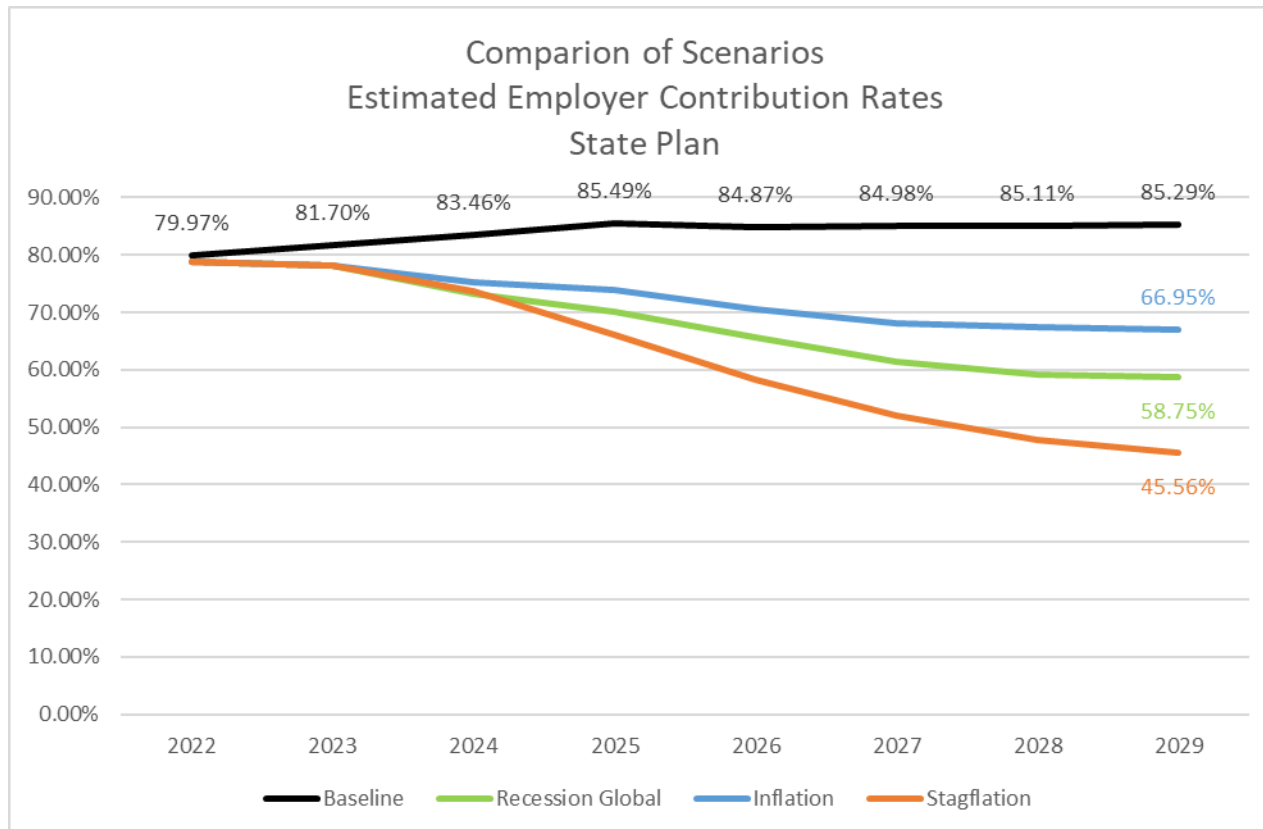
- Each of the scenarios modeled suggest contribution rates will increase in the future due to investment losses.
- Inflation, Recession, and Stagflation scenarios also factor in losses due to cost-of-living increases exceeding the assumed inflation rate of 2.5%.
- Full impact of increases are not immediate due to actuarial smoothing.



# Future Risk Analysis

## Illustrative Economic Scenarios

- Funded status is also expected to decline due to lower than expected returns simulated in the illustrative economic scenarios.
- The magnitude of the drop is impacted by the duration of returns below the assumed rate of return.



# Future Risk Analysis

## Strategies to Enhance Funding



- Opportunities exist to proactively address some of these concerns and to better position the retirement plans to provide financial stability for current and future members of VRS.
- Accelerating payback of the legacy unfunded liability has the potential to save billions in future employer contributions while enhancing the funded status of the retirement plans. As economic conditions permit, this could be achieved by:
  - Reducing amortization periods for remaining legacy unfunded payments.
  - Maintaining higher employer contribution rates when positive experience would allow for a reduction in employer rates as was recently done for the State and Teacher plans for 2023 and 2024.
  - Considering lump-sum contributions such as those recently provided from 2022 Appropriation Act for various plans to improve funded status and moderate rates.
  - Avoiding the expansion of benefits while plans remain underfunded.

- Due to the current economic conditions, including high inflation, slowing growth, and geopolitical developments, analysis of future impacts on the VRS fund will continue as new information becomes available.
- While actions taken by the Governor and General Assembly in 2022 including maintaining higher contribution rates and infusing additional dollars serve to improve plan health, these actions do not immunize the fund from downside risk because unfunded liabilities remain and economic conditions, especially in the near-term, are uncertain.
- VRS will continue to monitor the health of the plans and is committed to providing robust analysis for consideration by the Board and other key stakeholders.
- Asset Liability Study planned for early 2024 with investment team.