



Virginia  
Retirement  
System

# VRS Overview

Presented to the Joint Legislative Audit  
and Review Commission

July 9, 2018

Presenters:

Mitchell L. Nason, Chairman, VRS Board of Trustees

Ronald D. Schmitz, Chief Investment Officer

Patricia S. Bishop, Director



## VRS Overview

- **Mitchell L. Nason**  
Chairman, VRS Board of Trustees

## Investments Overview

- **Ronald D. Schmitz**  
Chief Investment Officer

## Administration Overview

- **Patricia S. Bishop**  
Director



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# Remarks

**Mitchell L. Nason**

Chairman, VRS Board of Trustees



# Board Members



**Mitchell L. Nason, *Chairman***

Prince William County Department of Fire and Rescue

**Diana F. Cantor, *Vice Chairman***

Alternative Investment Management

**The Honorable J. Brandon Bell, II, CRPC**

Brandon Bell Financial Partners

**O'Kelly E. McWilliams, III**

Mintz Levin

**Wallace G. "Bo" Harris, Ph.D.**

University of Richmond

**Joseph W. Montgomery**

The Optimal Service Group,  
Wells Fargo Advisors

**W. Brett Hayes**

Wells Fargo Advisors Financial Network

**Troilen Gainey Seward, Ed.S.**

Dinwiddie County Public Schools  
(Retired)

**William H. Leighty**

Virginia Tech

More than  
**700,000**

members, retirees  
and beneficiaries  
as of December 31, 2017



**20<sup>th</sup>**  
**largest**

public or private  
pension system  
in the United States

**44<sup>th</sup>**  
**largest**

public or private  
pension system  
in the world

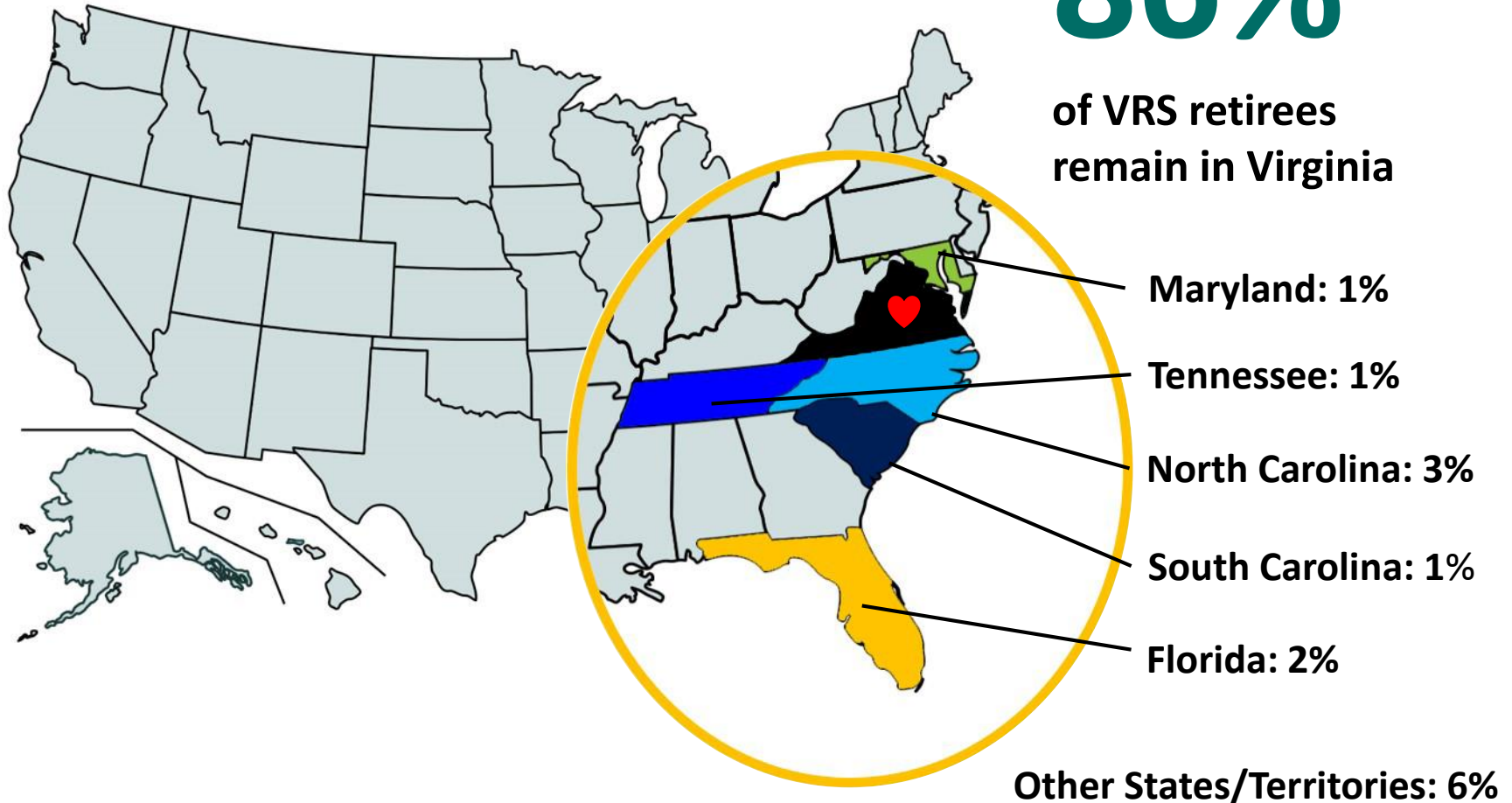




# Where VRS Retirees Live

# 86%

of VRS retirees remain in Virginia





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# Investments

**Ronald D. Schmitz**  
Chief Investment Officer



# VRS Investment Presentation Outline



- Total fund performance ending 3/31/18
- Returns through 5/31/18
- Fiscal year returns for the past 25 years, compared to the actuarially assumed return
- Asset allocation overview
- Update on the asset allocation policy
- Overview of internally managed assets
- Economic/market outlook



# Total Fund Performance as of March 31, 2018

Net of Fees



	10 Yr	5 Yr	3 Yr	1 Yr	Market Value (\$MM)
<b>Total Public Equity</b>	<b>6.5</b>	<b>9.8</b>	<b>7.7</b>	<b>13.3</b>	<b>32,668</b>
<i>Benchmark</i>	6.1	9.4	7.6	13.5	
<b>Total Investment-Grade Fixed Income</b>	<b>4.5</b>	<b>2.3</b>	<b>1.8</b>	<b>1.7</b>	<b>12,136</b>
<i>Benchmark</i>	3.7	1.8	1.2	1.2	
<b>Total Credit Strategies</b>	<b>6.7</b>	<b>5.7</b>	<b>5.5</b>	<b>6.9</b>	<b>12,487</b>
<i>Benchmark</i>	5.7	5.1	5.0	5.6	
<b>Total Real Assets</b>	<b>6.2</b>	<b>11.2</b>	<b>9.9</b>	<b>8.4</b>	<b>10,158</b>
<i>Benchmark</i>	5.9	9.3	8.3	6.7	
<b>Total Private Equity</b>	<b>9.7</b>	<b>15.0</b>	<b>14.4</b>	<b>21.4</b>	<b>7,549</b>
<i>Benchmark</i>	9.9	15.4	13.0	24.6	
<b>Total Strategic Opportunities Portfolio</b>	<b>n/a</b>	<b>3.9</b>	<b>3.5</b>	<b>7.2</b>	<b>1,825</b>
<i>Benchmark</i>	n/a	4.4	5.6	9.8	
<b>Total Fund</b>	<b>5.9</b>	<b>8.1</b>	<b>6.9</b>	<b>9.9</b>	<b>78,084</b>
<i>VRS Custom Benchmark</i>	5.5	7.7	6.6	10.0	

Total Plan return exceeds benchmark over the past three, five and 10 years.  
Outperformance versus benchmark over the past 10 years across most programs.

# Total Fund Performance as of May 31, 2018

Net of Fees



**DRAFT**

	10 Yr	5 Yr	3 Yr	1 Yr	Fiscal YTD	Market Value (\$MM)
<b>Total Public Equity</b>	<b>5.9</b>	<b>9.6</b>	<b>7.3</b>	<b>11.1</b>	<b>10.6</b>	<b>32,501</b>
<i>Benchmark</i>	5.5	9.1	7.3	11.8	11.4	
<b>Total Investment-Grade Fixed Income</b>	<b>4.6</b>	<b>2.4</b>	<b>2.0</b>	<b>0.0</b>	<b>0.0</b>	<b>12,133</b>
<i>Benchmark</i>	3.8	2.0	1.4	-0.4	-0.3	
<b>Total Credit Strategies</b>	<b>6.5</b>	<b>5.5</b>	<b>5.1</b>	<b>5.7</b>	<b>5.2</b>	<b>12,481</b>
<i>Benchmark</i>	5.2	4.9	4.5	4.0	3.9	
<b>Total Real Assets</b>	<b>6.1</b>	<b>11.3</b>	<b>10.1</b>	<b>8.8</b>	<b>6.4</b>	<b>10,254</b>
<i>Benchmark</i>	5.8	9.4	8.4	7.2	6.2	
<b>Total Private Equity</b>	<b>9.7</b>	<b>15.0</b>	<b>14.2</b>	<b>19.4</b>	<b>12.7</b>	<b>7,780</b>
<i>Benchmark</i>	11.0	14.1	11.6	20.4	17.9	
<b>Total Strategic Opportunities Portfolio</b>	<b>n/a</b>	<b>3.4</b>	<b>3.1</b>	<b>6.3</b>	<b>6.3</b>	<b>1,834</b>
<i>Benchmark</i>	n/a	4.6	5.6	9.1	8.4	
<b>Total Fund</b>	<b>5.5</b>	<b>7.9</b>	<b>6.7</b>	<b>8.4</b>	<b>7.3</b>	<b>78,770</b>
<i>VRS Custom Benchmark</i>	5.3	7.5	6.4	8.4	7.9	

FYTD return likely to be right around the 7% assumed rate.

# Total Fund Performance as of March 31, 2018

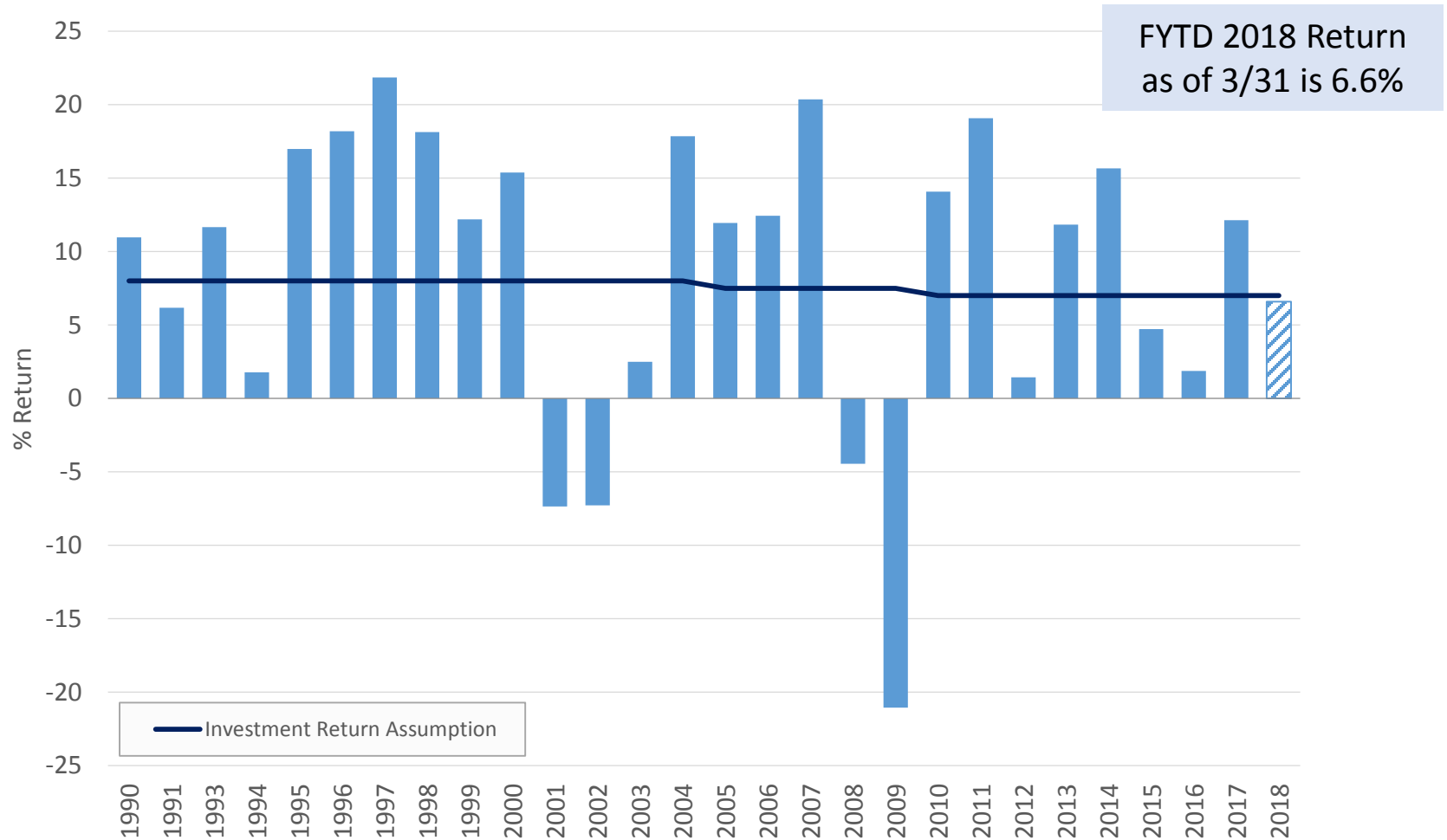
Net of Fees



	VRS Return	Benchmark
1-year	9.9%	10.0%
3-year	6.9%	6.6%
5-year	8.1%	7.7%
10-year	5.9%	5.5%
15-year	8.5%	8.0%
20-year	6.5%	6.0%
25-year	8.2%	7.7%

Source: Bank of New York Mellon

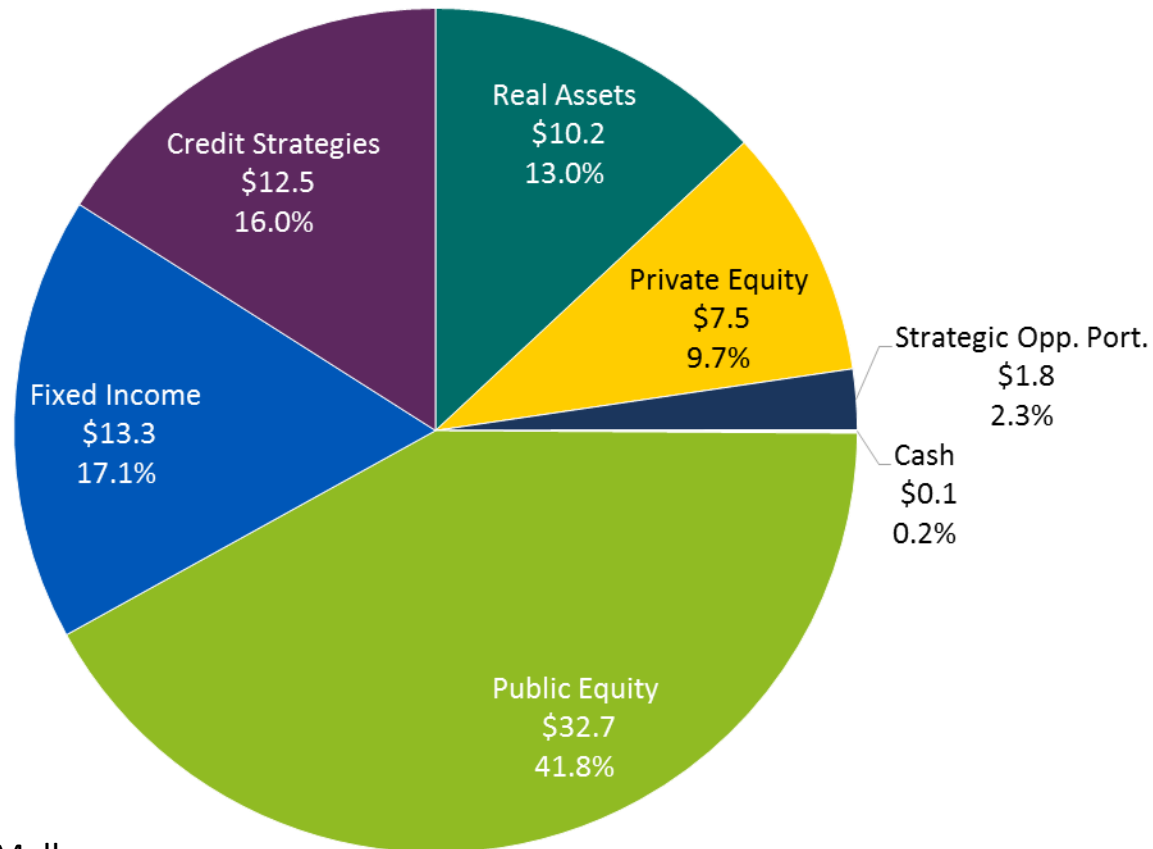
# VRS Fiscal Year Returns



# Asset Allocation as of March 31, 2018

**Total Fund Market Value = \$78.1 billion**

Dollar Amounts in Billions / Percent of Total Fund\*



Source: Bank of New York Mellon

\*Differences in totals are due to rounding



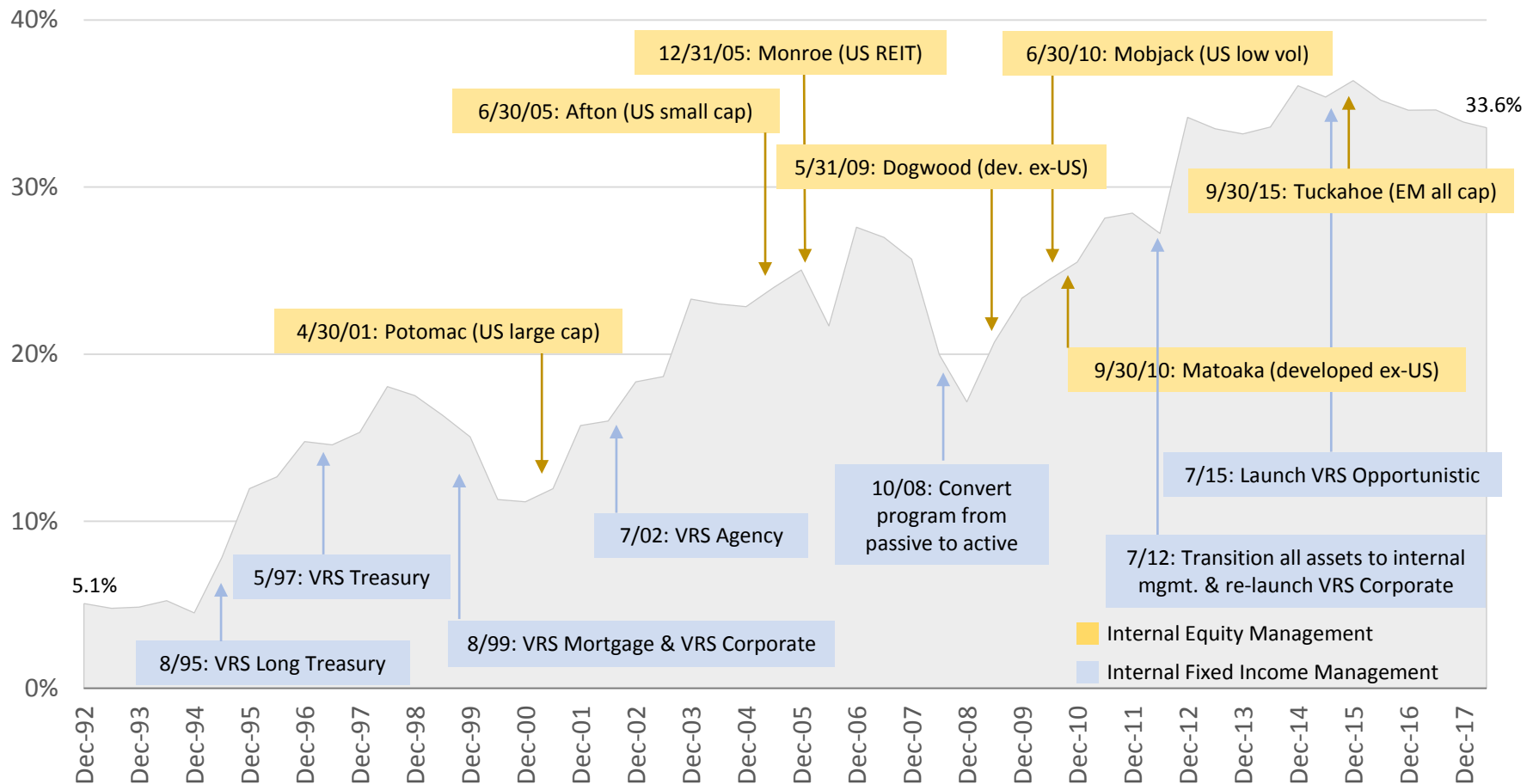
# FY 2019 Board Target Asset Mix

	FY 2018 Policy Targets	FY 2019 Policy Targets	Long-Term Policy Targets*
Public Equity	43%	40%	40%
Fixed Income	17%	16%	15%
Credit Strategies	17%	15%	15%
Real Assets	14%	14%	15%
Private Equity	9%	10%	15%
SOP	0%	n/a	0%
PIP	n/a	2%	n/a
MAPS	n/a	3%	n/a
Cash	0%	0%	0%

\*Will be re-adjusted during the next asset/liability study.

# History of Internal Asset Management

Internal Asset Management as a Percent of Total Fund



# Internal Asset Management (IAM)

## Mandates as of March 31, 2018



Asset Class	Objective	Assets (MM)
Equity	Passive, Non-U.S. Large Cap (Dogwood)	\$0.2
	Passive, Emerging Market Small Cap (Cardinal)	\$101.3
	Low Tracking Error, U.S. Large Cap (Potomac)	\$5,668.5
	Low Tracking Error, Non-U.S. Large Cap (Matoaka)	\$3,334.4
	Low Tracking Error, U.S. Small Cap (Afton)	\$595.4
	Low Tracking Error, U.S. REIT (Monroe)	\$558.1
	Low Tracking Error, Emerging Market Large Cap (Tuckahoe)	\$672.8
	Low Volatility, U.S. Large Cap (Mobjack)	\$1,198.5
	Low Volatility, Non-U.S. Large Cap (Piedmont)	\$1,596.0
	Rebalancing Account	\$870.1
	Global Passive Energy Overlay	\$0.6
	Currency Hedge (Overlay)	\$5,580.6
	<b>Subtotal</b>	<b>\$20,176.5</b>
Fixed Income	Mortgage and Asset-Backed Securities	\$4,433.8
	Investment Grade Corporates	\$3,931.7
	Treasuries and Agencies	\$3,711.3
	Fixed Income Opportunistic	\$51.1
	Rate Overlay	\$8.3
<b>Subtotal</b>		<b>\$12,136.2</b>
<b>Total</b>		<b>\$32,312.7</b>

# IAM Track Record as of March 31, 2018



		1 Year	3 Years	5 Years	10 Years	Inception*
Equity	Return	12.57	8.58	11.34	9.09	6.90
	Benchmark	12.26	8.42	10.58	7.86	6.03
	Excess	0.31	0.16	0.76	1.23	0.87
	Risk (TE)	0.63	0.86	0.92	1.11	1.01
	Info Ratio	0.49	0.19	0.83	1.11	0.86
Fixed Income	Return	1.66	1.73	2.23	4.47	5.68
	Benchmark	1.20	1.20	1.83	3.99	5.35
	Excess	0.46	0.53	0.40	0.48	0.33
	Risk (TE)	0.10	0.27	0.25	0.45	0.33
	Info Ratio	4.80	1.97	1.63	1.06	1.01

\* Equity Inception April 2001, Fixed Income Inception August 1995. These inception dates represent the current team's tenure.

- Global growth over the past year has been robust, supported by the synchronized global recovery, U.S. fiscal policy, and continued monetary support in many developed economies.
- The Federal Reserve has begun to raise interest rates, but financial conditions overall remain accommodative and inflation hovers near target levels.
- Equity markets have traded up over the past year on stronger earnings. Volatility is slightly higher following the historically low levels seen in 2017.
- Credit markets are being closely monitored with leverage levels elevated and spreads beginning to widen off cyclical lows.
- Real assets overall remain fundamentally strong, but pricing is above long-term averages and increases, particularly in real estate, have continued to moderate over the past year.
- Private Equity purchase price multiples continue to be high. Investor demand remains largely unabated and fund sizes continue to grow.

**Conclusion: With the economic recovery approaching its tenth year, late cycle behavior is becoming evident in the U.S.**





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# Administration

**Patricia S. Bishop**  
Director





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# VRS Membership Overview



# VRS Total Membership as of May 31, 2018



	Plan 1	Plan 2	Hybrid	Total
Teachers	79,895	33,864	38,426	<b>152,185</b>
Political Subdivisions	49,397	31,698	27,255	<b>108,350</b>
State Employees	40,086	16,798	20,505	<b>77,389</b>
State Police Officers' Retirement System (SPORS)	1,229	619	—	<b>1,848</b>
Virginia Law Officers' Retirement System (VaLORS)	3,600	5,127	—	<b>8,727</b>
Judicial Retirement System (JRS)	253	48	116	<b>417</b>
<b>Total Active Members</b>	<b>174,460</b>	<b>88,154</b>	<b>86,302</b>	<b>348,916</b>

**Total  
Active Members  
348,916**

**Retirees/  
Beneficiaries  
206,109**

**Inactive/Deferred  
Members  
149,682**

**VRS Total  
Population  
704,707**



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# Hybrid Retirement Plan



# Hybrid Retirement Plan

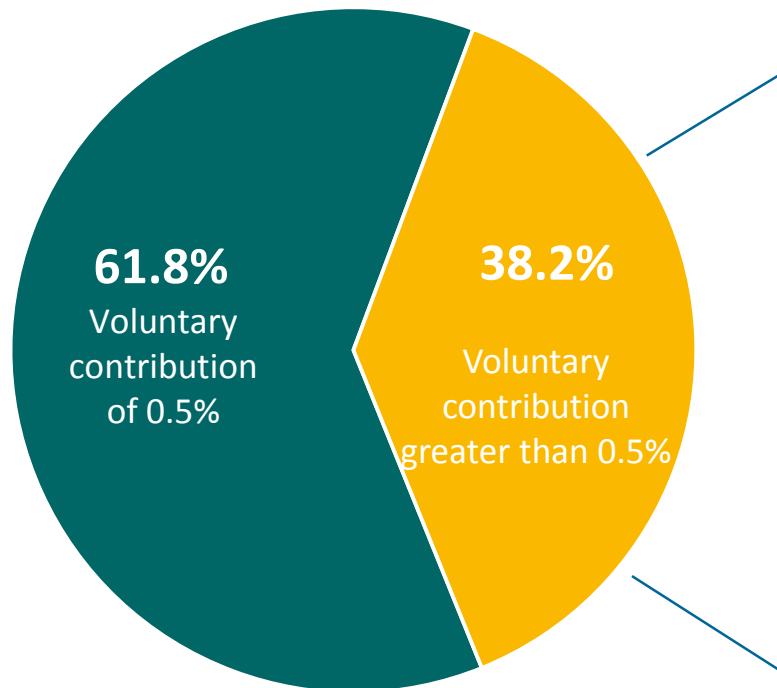


- Total combined balance in the Hybrid 401(a) Cash Match Plan and the Hybrid 457 Deferred Compensation Plan is \$287 million
- There are 49,055 hybrid members making voluntary contributions, or 58%
  - Of those, 22% (18,983) hybrid members actively elected a voluntary contribution

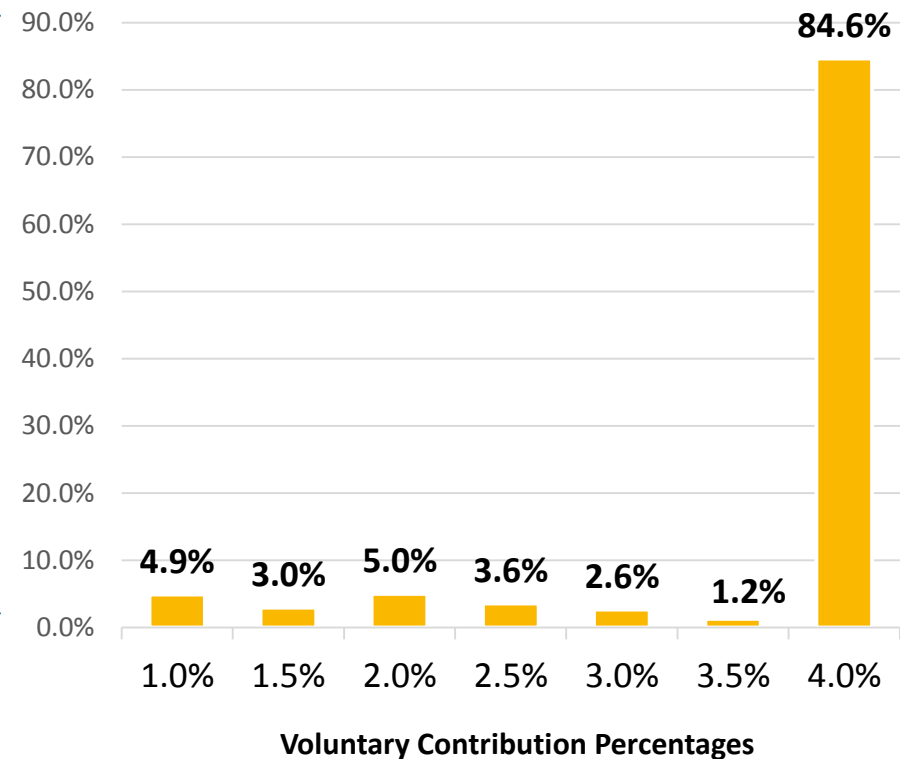


# Hybrid 457 Plan: Voluntary Contribution Elections

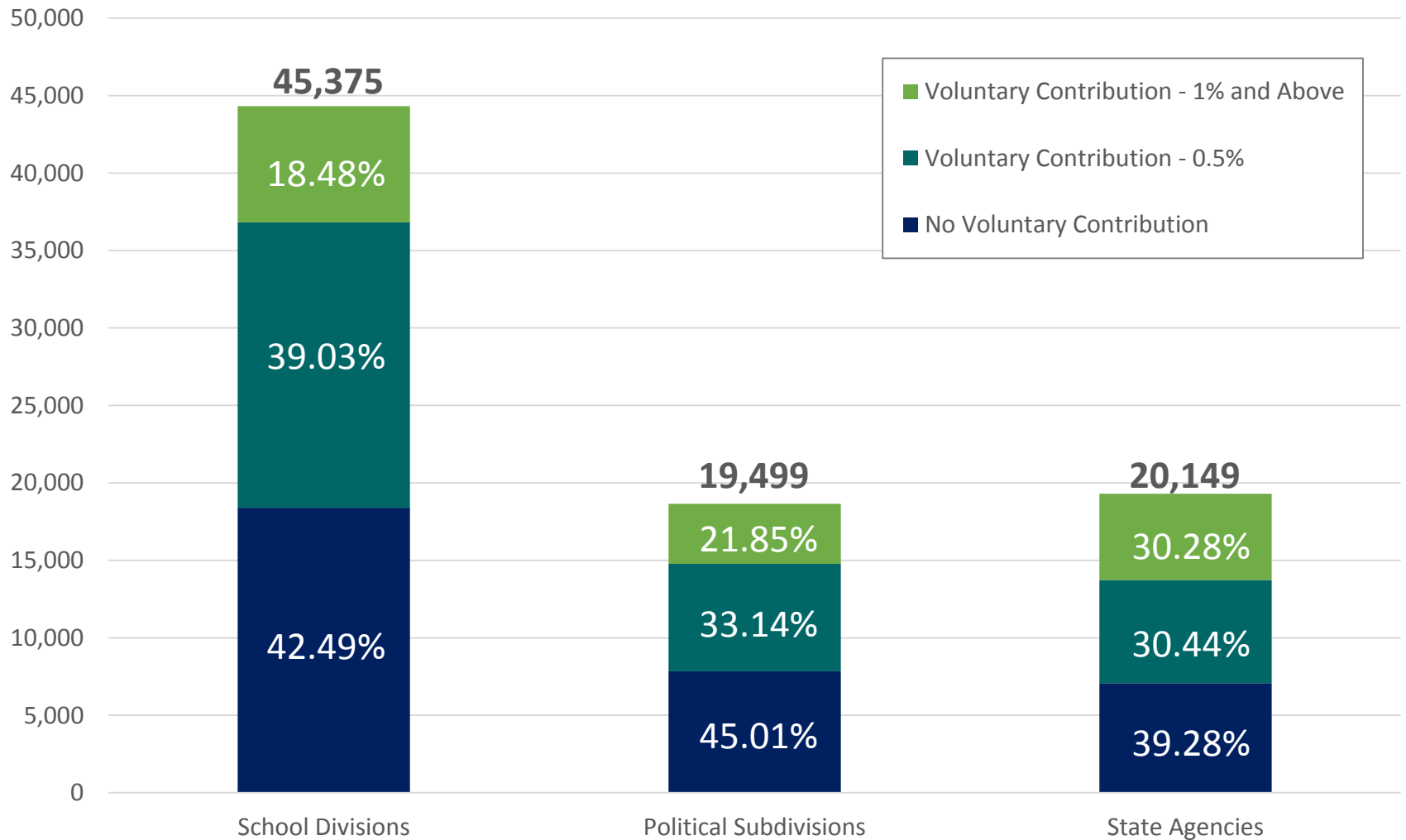
Additional information pertaining to  
active members making voluntary  
contributions, effective April 1, 2018



Active members with a voluntary  
contribution greater than 0.5%



# Hybrid Plan Members by Employer Type



Effective as of April 1, 2018

# Hybrid Plan Resources

**VS** Virginia Retirement System

Paycheck Calculator | Next steps 1

Hybrid Retirement Plan

Annual salary: \$36,000

Pay frequency: semimonthly

Are you married? Yes No

Withholding allowances: 1

Do you pay Social Security? Yes No

Choose your state: Virginia

Overview

A visual showing the effect on your paycheck.

Graph Table

Current: \$1,500 (GROSS), \$1,144 (NET)

New: \$1,500 (GROSS), \$1,144 (NET)

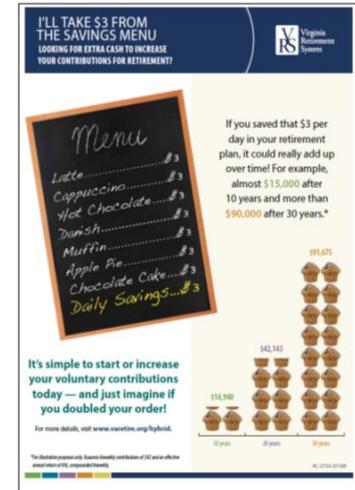
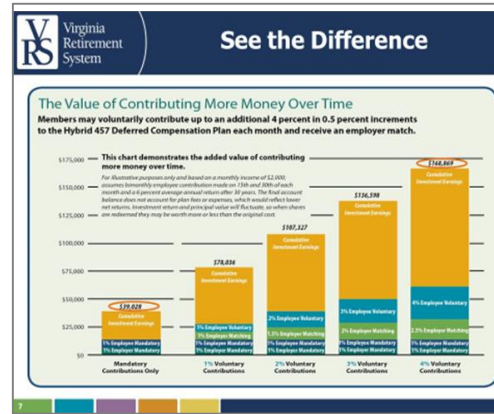
Hybrid voluntary contributions: 0.0% (Current), 0.0% (New)

Other pre-tax deductions: \$0 (Current), \$0 (New)

After-tax deductions: \$0 (Current), \$0 (New)

Built by AHC copyright 2017 | Disclaimer and Assumptions

lifetime





Developed an **employer toolkit** to assist in communicating plan provisions; importance of voluntary contributions.



Targeted messaging via a **postcard** to members not making voluntary contributions.



Mailed an **auto-escalation postcard** to members who would be auto-escalated 1/1/2017 to inform them of the escalation and providing instructions for increasing their contributions beyond auto-escalation or opting out.

## SmartStep

Implemented **SmartStep**, which allows members to increase their voluntary contributions at a date they choose.



Implemented the **hybrid paycheck calculator** so members see the change in their paycheck if making voluntary contributions.



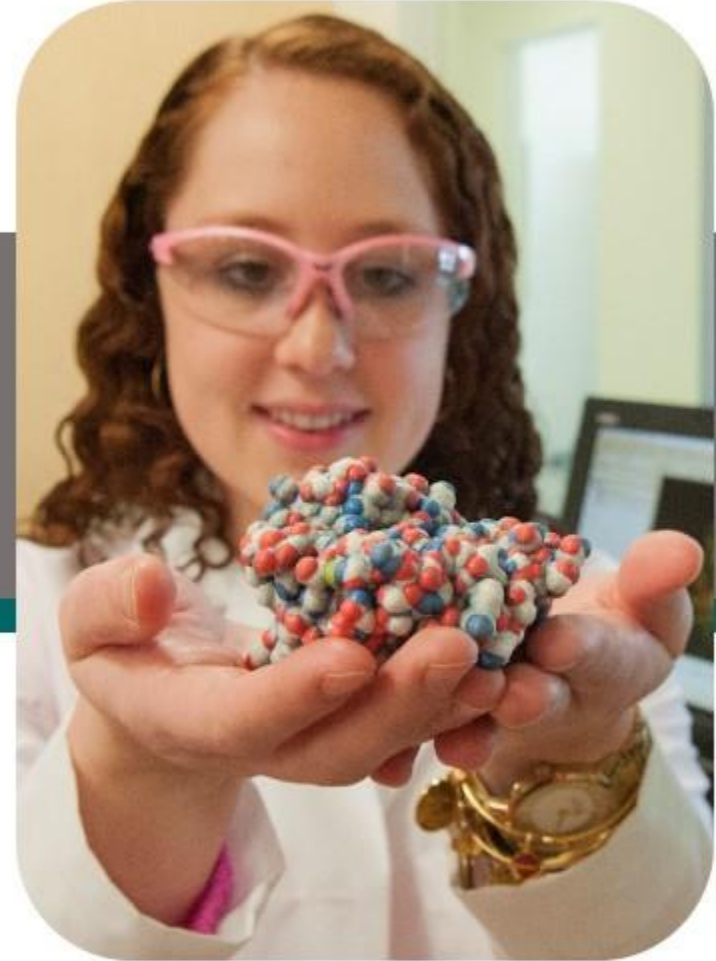
Implemented **enhanced voluntary contribution messaging** on account pages of members not making a voluntary contribution.





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# Financial Wellness



# Financial Wellness Features

## Courses

Learn the fundamentals of money management



## Calculators

Experiment with mortgage, budget, auto, student loan calculators



## Games

Play financial trivia and real-world simulator games



## Budget

Plan for expenses, set goals and keep your finances on track



## Live Webinars

Watch video webinars with financial wellness experts



## Scholarship Search

Find quality scholarships to help pay for school



## Student Loan Snapshot

Track all your student loans in one place in five minutes or less



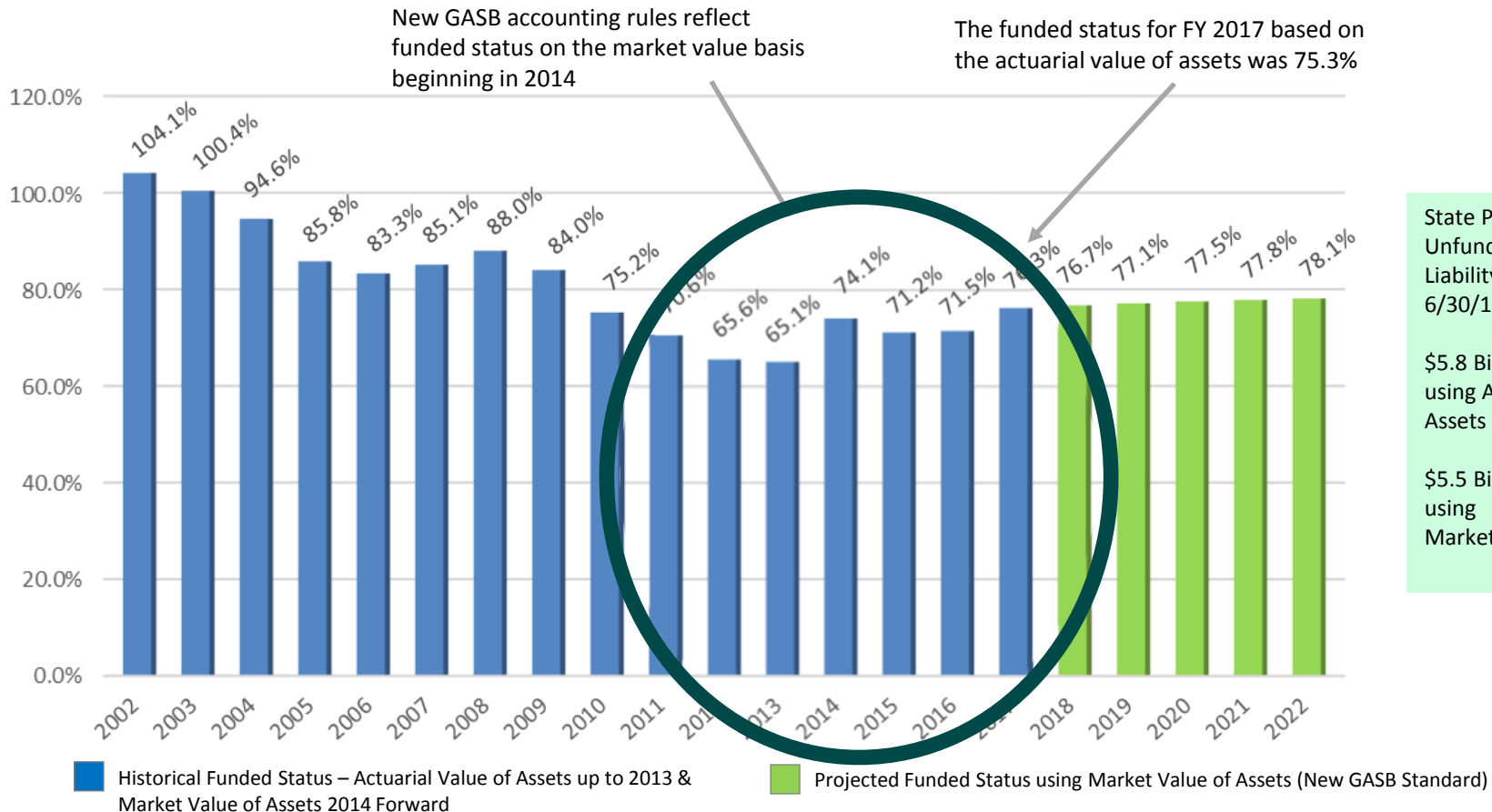


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# Funded Status and Contribution Rates



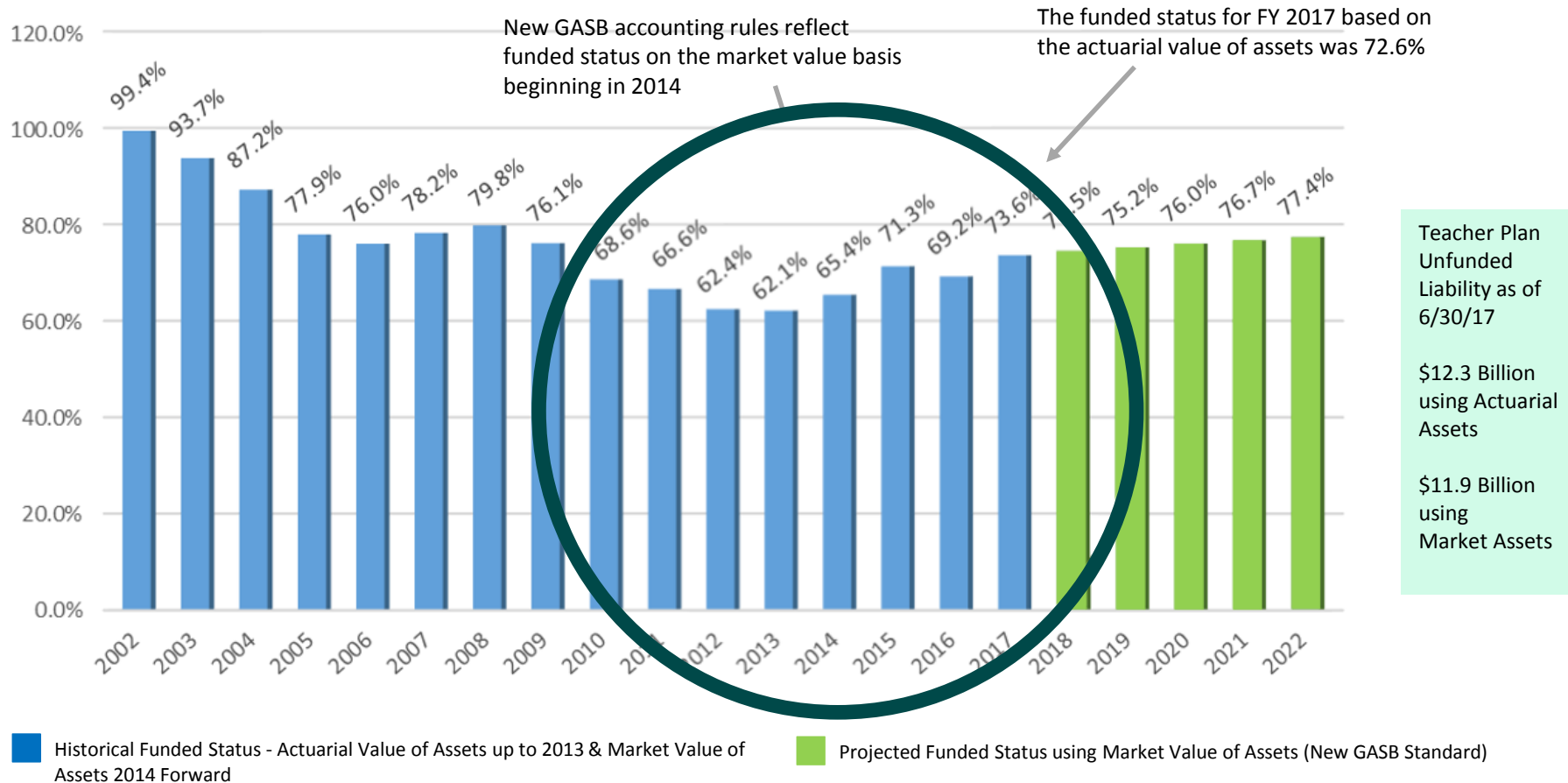
# Funded Status: State Employees



## Notes:

- Projected years' investment returns assume 7.0% with 2.5% inflation rate.
- New GASB Accounting Rules will reflect funded status using Market Value of Assets effective 6/30/14 for Plan Reporting and 6/30/15 for Employer Reporting.

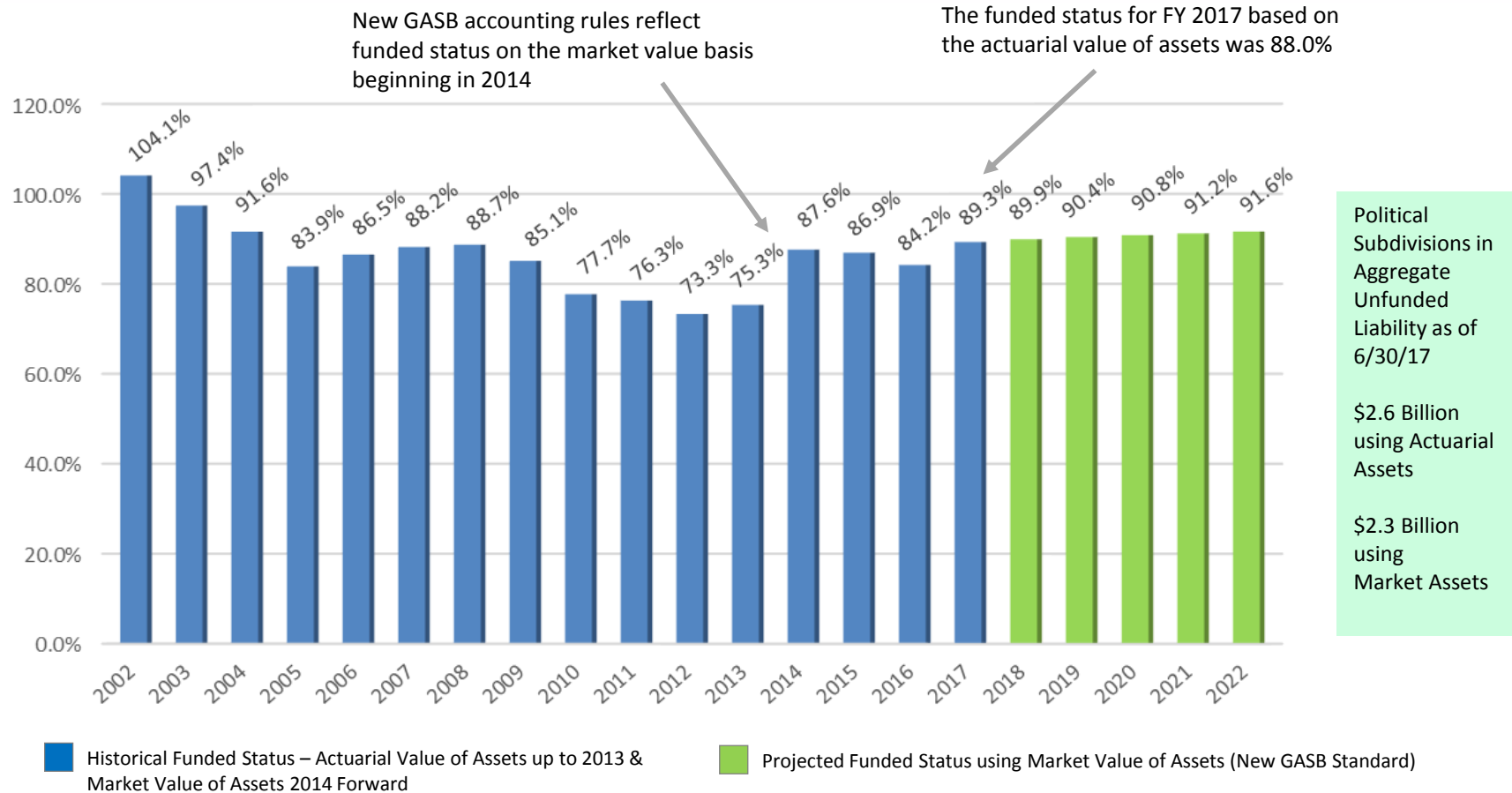
# Funded Status: Teachers



## Notes:

- Projected years' investment returns assume 7.0% with 2.5% inflation rate.
- New GASB Accounting Rules will reflect funded status using Market Value of Assets effective 6/30/14 for Plan Reporting and 6/30/15 for Employer Reporting.

# Funded Status: Political Subdivisions in Aggregate



## Notes:

- Projected years' investment returns assume 7.0% with 2.5% inflation rate.
- New GASB Accounting Rules will reflect funded status using Market Value of Assets effective 6/30/14 for Plan Reporting and 6/30/15 for Employer Reporting.

# Teacher Employer Contribution Rates



	FISCAL YEAR					
	2015	2016	2017	2018	2019	2020
Phase-In of VRS Board-Certified Rates Agreed Upon in 2012 Legislative Session	79.69%	79.69%	89.84%	89.84%	100.00%	100.00%
Expected Employer Rates Based on Phase-In Schedule	14.50%	14.06%	14.66%	14.66%	15.68%	13.85%
Employer Rates Based on 2017 Virginia Acts of Assembly, Chapter 836	14.50%	14.06%	14.66%	16.32%*	15.68%	15.68%

\* Rates include 100% funding of Board-certified rates in FY 2018. Payment of full rate one year ahead of schedule.

## Additional Notes:

- Above contribution rates are net of employee contributions.
- Teacher rates for FY 2016 decreased due to an additional contribution of \$192.9 million that was applied to the deferred contribution balance in FY 2015. The subsequent rates for FY 2017-20 were also lowered to reflect the accelerated repayment.



# State Employer Contribution Rates Reflecting Deferred Contributions Repayment



	FISCAL YEAR					
	2015	2016	2017	2018	2019	2020
Phase-In of VRS Board-Certified Rates Agreed Upon in 2012 Legislative Session	78.02%	78.02% (Modified to 90% Effective August 2015)	89.01%	89.01%	100.00%	100.00%
Expected Employer Rates Based on Phase-In Schedule	12.33%	14.22%	12.87%	12.87%	13.85%	13.85%
Employer Rates Based on 2017 Virginia Acts of Assembly, Chapter 836	12.33%	14.22%	13.49%*	13.49%*	13.52%	13.52%

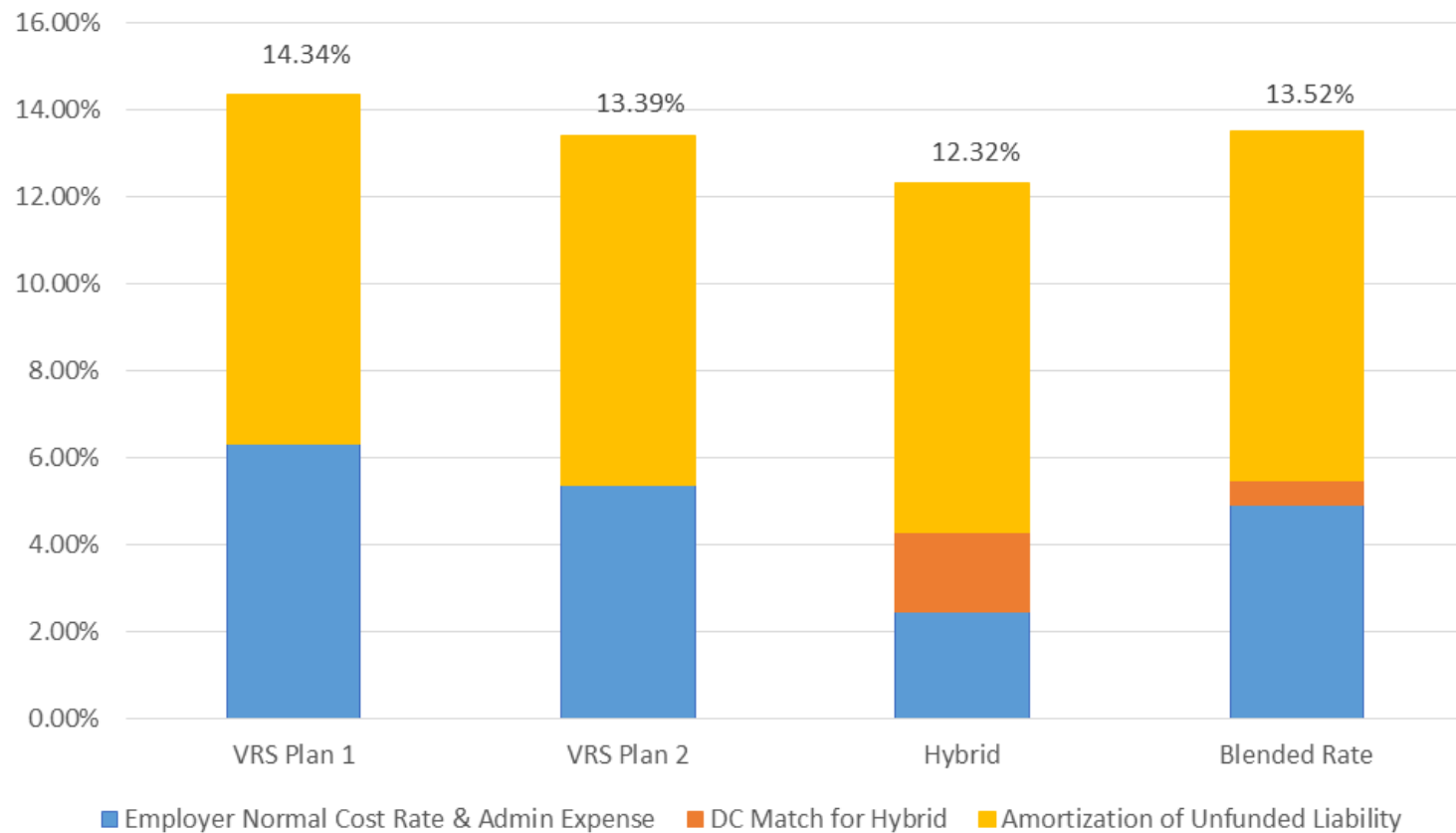
\* Rates include 100% funding of Board-certified rates in FY 2017-18 as well as reduction due to full repayment of 10-year deferred contributions from FY 2010-2012. Payment of full rate two years ahead of schedule.

## Additional Notes:

- Above contribution rates are net of employee contributions.
- State rate for FY 2016 was increased to 90% of Board-certified rate effective August 10, 2015, after favorable State revenues for FY 2015 allowed additional funds to go towards contributions.

# State Plan – Blended Employer Rate Impact of Pension Reforms

State Plan - Employer Contribution Rates FY 2019/2020





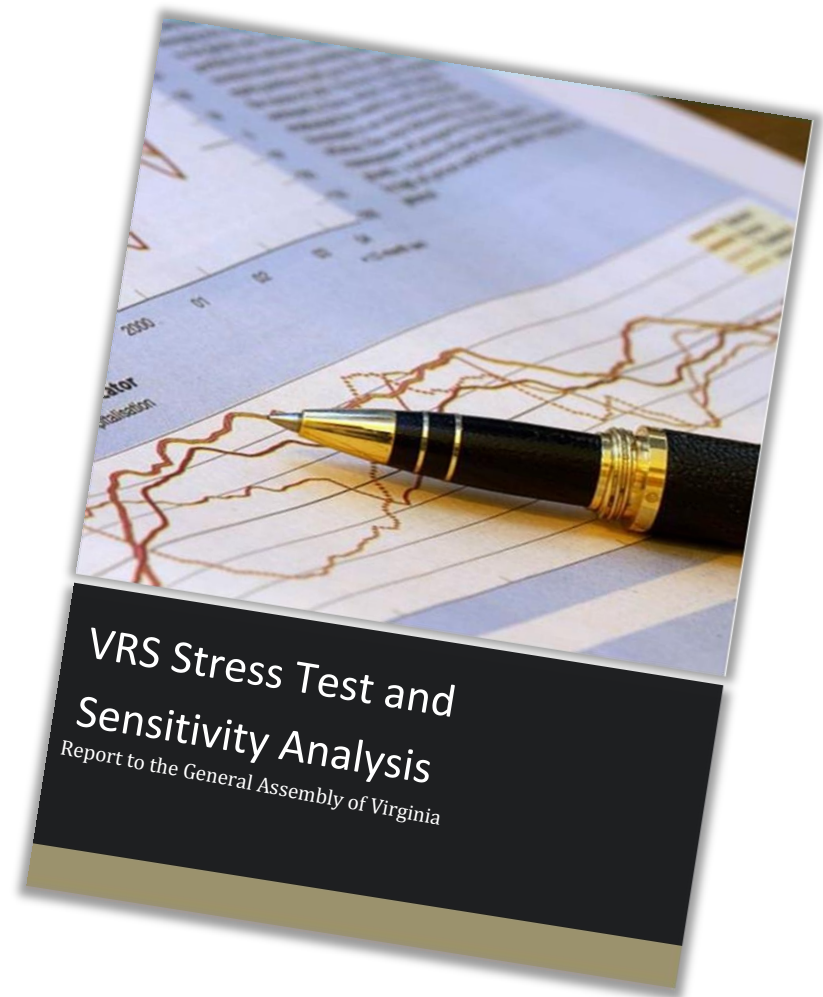
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# Sensitivity Analysis and Stress Testing



# Stress Testing Update

- VRS formally adopted a policy (HB 1768) to regularly report sensitivity and stress testing analyses to General Assembly members.
  - Stress testing report issued in June 2017.
  - 2018 report will be published in coming months.



# Sensitivity Analysis – Discount Rate

## State Plan

(\$ Thousands)

Discount Rate	Current 7.00%	6.75%	6.50%
Total Employer Normal Cost Rate	4.90%	5.38%	5.91%
Total Amortization Rate	8.04%	8.94%	9.84%
Defined Contribution Hybrid Plan Contribution	0.58%	0.58%	0.58%
Total Employer Rate	13.52%	14.90%	16.33%
Change in Employer Rate		1.38%	2.81%
Estimated Change in Annual Funding		\$55,712	\$113,442
Unfunded Liability	\$5,763,770	\$6,408,154	\$7,081,383
Change in Unfunded Liability		\$644,384	\$1,317,613
Funded Status	75.28%	73.30%	71.20%

# Sensitivity Analysis – Discount Rate

## Teacher Plan

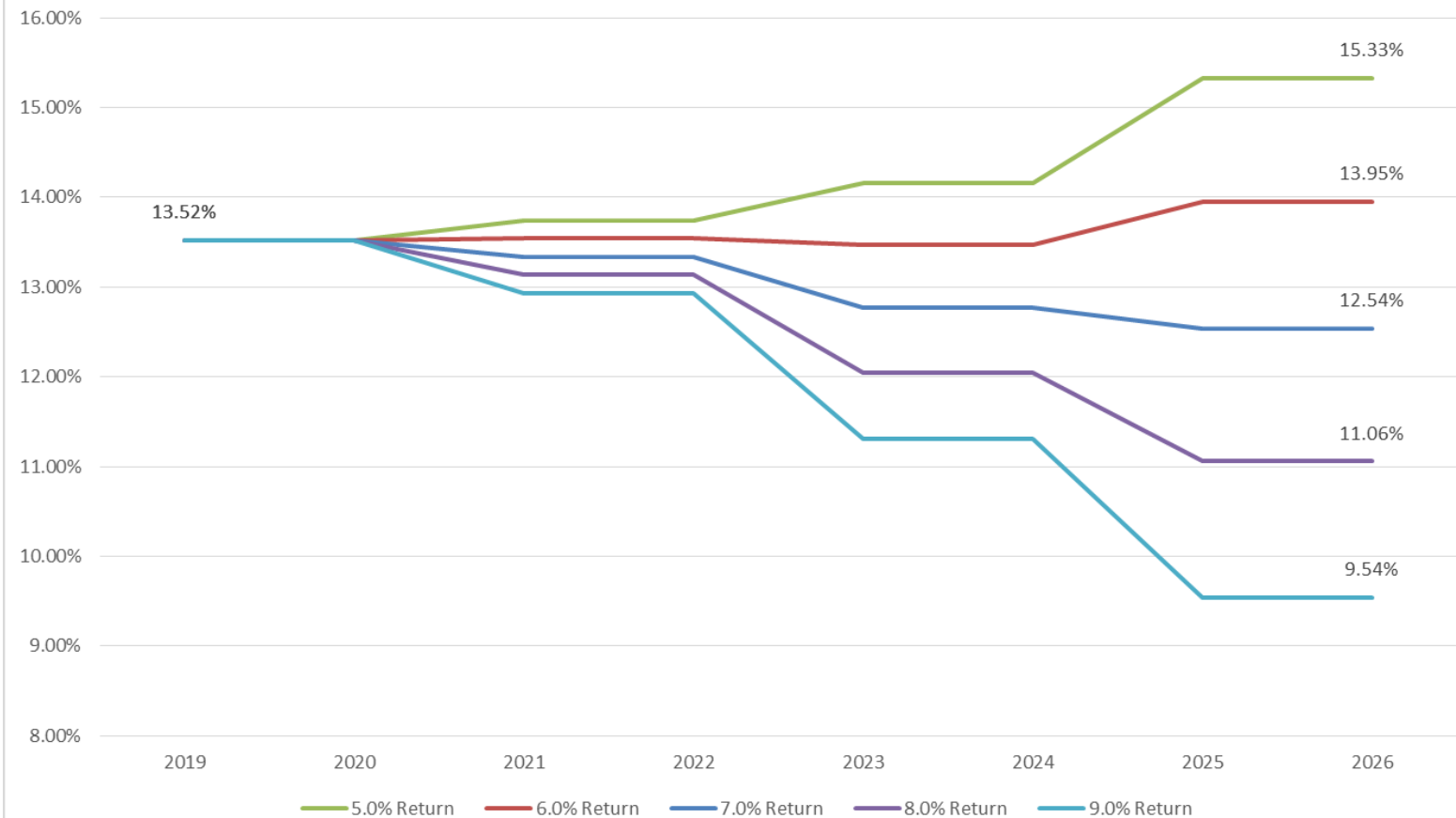
(\$ Thousands)

Discount Rate	Current 7.00%	6.75%	6.50%
Total Employer Normal Cost Rate	6.22%	6.88%	7.58%
Total Amortization Rate	9.02%	9.95%	10.91%
Defined Contribution Hybrid Plan Contribution	0.44%	0.44%	0.44%
Total Employer Rate	15.68%	17.27%	18.93%
Change in Employer Rate		1.59%	3.25%
Estimated Change in Annual Funding		\$125,919	\$257,382
Unfunded Liability	\$12,321,149	\$13,723,870	\$15,195,516
Change in Unfunded Liability		\$1,402,721	\$2,874,367
Funded Status	72.62%	70.40%	68.30%

# Sensitivity Analysis – Investment Returns

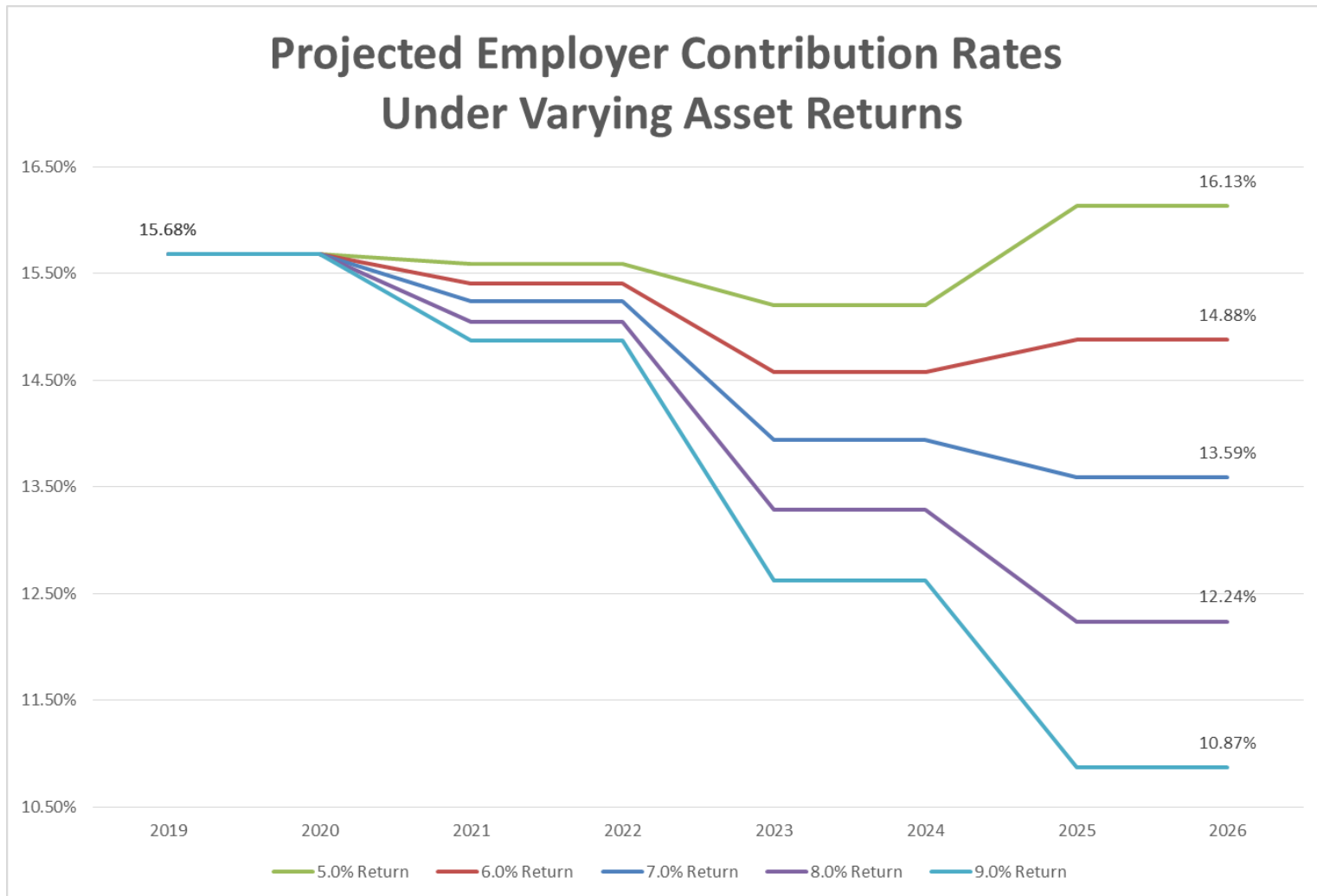
## State Plan

### Projected Employer Contribution Rates Under Varying Asset Returns



# Sensitivity Analysis – Investment Returns

## Teacher Plan







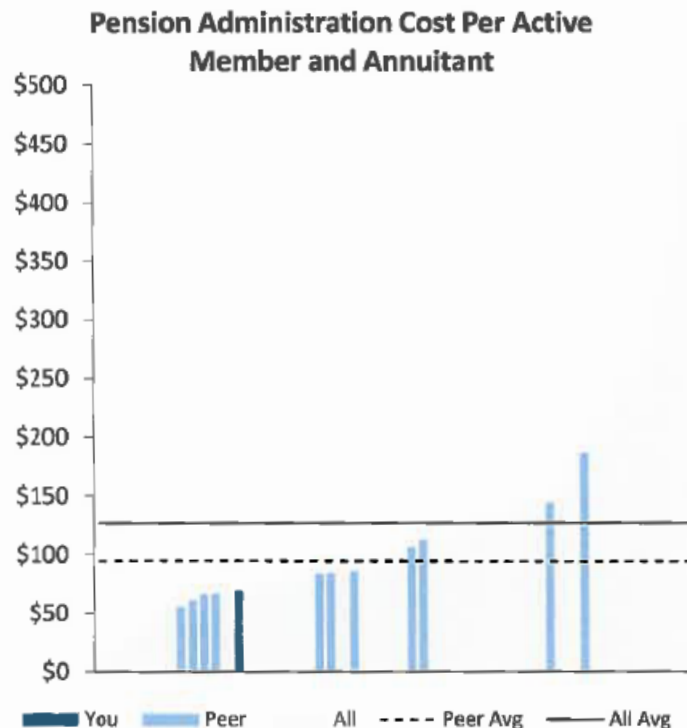
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# Benchmarking



# External Benchmarking: VRS Cost

**Your total pension administration cost was \$69 per active member and annuitant. This was \$25 below the peer average of \$94 and \$58 below the CEM Universe average of \$127.**

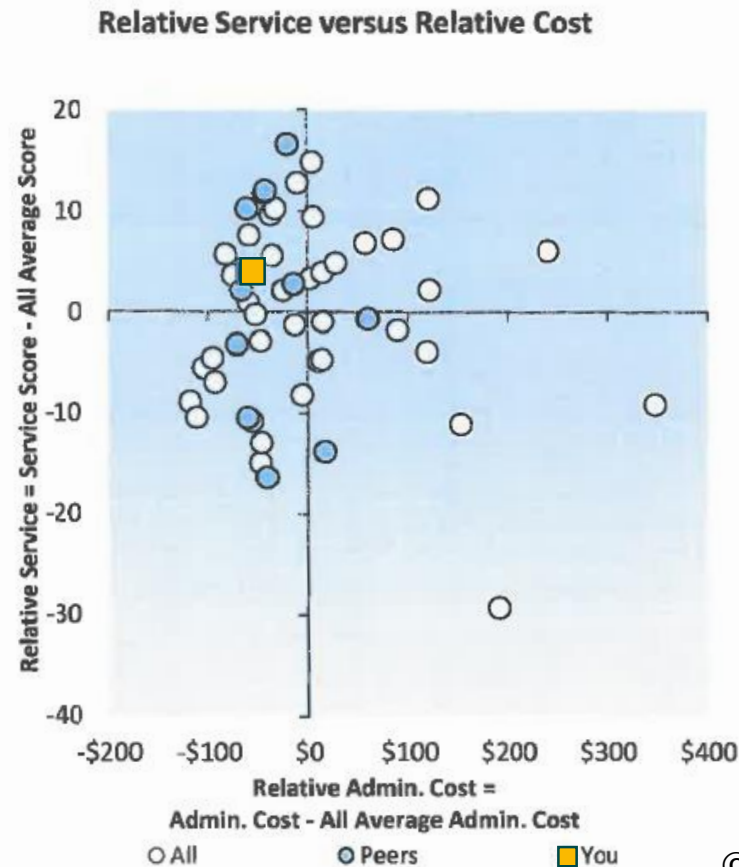


Category	\$ per Active Member and Annuitant		\$000s
	You	Peer Avg	
Member Transactions	7	13	3,813
Member Communication	9	17	4,996
Collections and Data Maintenance	6	7	3,327
Governance and Financial Control	4	6	2,225
Major Projects	14	7	7,350
Information Technology	18	25	9,630
Building	4	6	2,287
Legal	2	3	969
HR, Actuarial, Audit	4	9	2,277
<b>Total Pension Administration</b>	<b>69</b>	<b>94</b>	<b>36,875</b>

Your total pension administration cost was \$36.9 million. This excludes the fully-attributed cost of administering healthcare, and optional and third-party administered benefits of \$9.8 million.

# External Benchmarking: Service and Cost Relationship

The relationship between service and pension administration cost in the CEM universe:



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# Positive Impact of Pension Reform Efforts





- Hybrid Retirement Plan
  - Becomes predominant plan with over 50% of actives within next 4 years
  - Introduces risk-sharing between employer and employee
  - Lowers defined benefit risk to employers by approximately one-third
- Governor and General Assembly
  - Accelerated pay off of deferred contributions saved \$232 million
  - Funding 100% of actuarially determined contribution rates improves funded status
  - Actions improve health of plans and avoid adding future costs to the plans