Virginia Retirement System Reform
Stress Testing (HB 1768)
Hybrid Retirement Plan
Presentation to NCSL Southern Fiscal Leaders
October 20, 2017

Robert P. Vaughn
Director, House Appropriations Committee
Virginia House of Delegates
Findings of Stress Test and Sensitivity Analysis Report
Stress Testing and Sensitivity Analysis Mandate

• House Bill 1768 (Chapter 639 of 2017 Acts of Assembly) requires Virginia Retirement System to formally adopt a policy to regularly report sensitivity and stress testing analyses for members of the General Assembly.

• The analyses shall include projections of benefit levels, pension costs, liabilities, and debt reduction under various economic and investment scenarios.

• This initial report focuses on identification, quantification, and analysis of financial risks.
VRS provided a report in June 2017 that contained the following information:

- Pension Funding Basics
- Historical Review – 25-year lookback
- Future Risk Analysis

The full report can be accessed at: http://www.varetire.org/stresstest

Future updates are expected to be delivered with actuarial valuation results at year end.
Report Highlights

• Investment policy has met its long-term target rate of return over the past 25 years providing an average 8.3% return.

• Over the past 25 years pension contributions, on average, have been 25-30% less than what was actuarially required.

• Statewide plans will have higher than normal contribution rates until the legacy unfunded liability is paid off.

• Pension reforms have:
  • Lessened potential future liabilities
  • Introduced risk sharing with new members
  • Accelerated repayment of deferred contributions
  • Required payment of actuarially determined contributions
  • Provided mechanism to improve pension funded status
Pension Funding Basics - Funding

- Income for VRS plans comes from two sources: contributions and investment income.
- Contributions to VRS plans are shared between employers and employees.
- Investment returns on employer and member contributions are expected to cover roughly 67 percent of pension costs.
Pension Funding Basics – Funding Policy

- The VRS Board of Trustees has responsibility for setting the retirement plan funding policy and adopting contribution rates for the plans based on recommendations from the plan actuary.
- The recommended contribution rates for the state-wide retirement systems are communicated to the General Assembly, which has the final funding authority for the funding of these plans.
- Since 1992, the full actuarially determined contribution rates for the State plan have only been funded three times by the General Assembly, with the average amount contributed being approximately 72% of the required rate.
• The VRS Board of Trustees decides how to invest the contributions that are regularly deposited into the pension trust fund. Using the authority delegated to it from the General Assembly, the Board decides how to maximize investment returns at a prudent level of risk by developing an “investment policy."

• The VRS Board of Trustees adopts the long-term annual rate of return assumption for investments. The assumption is used to calculate contribution rates for the plans. As such, it becomes the investment "target" for the trust fund.

• The current long-term annual rate of return assumption used by VRS is 7.0%. A recent plan survey by the National Association of Retirement Plan Administrators (NASRA) indicated that the average rate of return assumption for the 127 public plans surveyed was 7.52% as of February 1, 2017.
Pension Funding Basics – Benefit Policy

- The General Assembly decides the benefits structure and plan design for pensions, and since 2010 has been actively involved in reforms in an effort to lower the risk and cost of benefits provided to VRS members.
- New plan designs put forth have lowered the cost for employers, and with the introduction of the hybrid plan in 2014, which includes a defined contribution component, have also introduced more shared risk with members.
- Pension reform efforts have mostly been applicable to future employees, which has had little impact on lowering the legacy unfunded liabilities of the current plans.
  - Nearly two-thirds of the cost to provide VRS benefits is to pay down unfunded legacy costs.

<table>
<thead>
<tr>
<th></th>
<th>VRS Plan 1</th>
<th>VRS Plan 2</th>
<th>Hybrid</th>
<th>Blended Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Benefit Normal Cost</td>
<td>9.64%</td>
<td>8.95%</td>
<td>5.17%</td>
<td>9.10%</td>
</tr>
<tr>
<td>Member Contribution Rate</td>
<td>5.00%</td>
<td>5.00%</td>
<td>4.00%</td>
<td>4.92%</td>
</tr>
<tr>
<td>Employer Normal Cost Rate</td>
<td>4.64%</td>
<td>3.95%</td>
<td>1.17%</td>
<td>4.18%</td>
</tr>
<tr>
<td>Employer Match to DC Plan</td>
<td>0.0%</td>
<td>0.0%</td>
<td>1.21%</td>
<td>0.10%</td>
</tr>
<tr>
<td>Administrative Expense</td>
<td>0.27%</td>
<td>0.27%</td>
<td>0.27%</td>
<td>0.27%</td>
</tr>
<tr>
<td>Total Employer Rate without</td>
<td>4.91%</td>
<td>4.22%</td>
<td>2.65%</td>
<td>4.55%</td>
</tr>
<tr>
<td>Unfunded Amortization Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount to Amortize Unfunded</td>
<td>8.94%</td>
<td>8.94%</td>
<td>8.94%</td>
<td>8.94%</td>
</tr>
<tr>
<td>Liability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Employer Rate</td>
<td>13.85%</td>
<td>13.16%</td>
<td>11.59%</td>
<td>13.49%</td>
</tr>
</tbody>
</table>
Pension Funding Basics – Benefit Policy

- If we project out future rates for the State plan under current plan assumptions, contribution rates are expected to remain around 14% of covered payroll level until the legacy unfunded liability is paid off in 2044, at which time employer rates are expected to show a significant drop.
Historical Review – Twenty-Five Year Lookback

• Recent market volatility has caused many to believe that investment losses have been the primary reason for the drop in retirement plan funded status.
• Over the period from 1992-2016, the fund has returned an average annual return of 8.28 percent, exceeding the assumed rate of return assumption for that period.
Historical Review – Twenty-Five Year Lookback

- In reality, the two major causes for the drop in funded status for VRS plans have been perennial underfunding of recommended contributions, along with the adjustments to long-term rates of return brought on by major changes in market outlooks due to the market crisis in 2008-2009.
Future Risk Analysis – Sensitivity Analysis

- Public pension plans have historically estimated future benefit liabilities using a discount rate that is based on estimated future investment returns of fund assets.

- In recent years this approach has come under mounting criticism by financial economists and public policy groups. These groups argue that a rate based on investment return assumptions vastly understates pension liabilities.

- In their view, the rate should be based on low risk, or even risk-free, bond rates to reflect the risk of the payments to plan members.

- VRS believes that if an estimated rate of return on assets is appropriately set, that it provides a far better measure of future plan costs and liabilities than using a risk-free or low-risk bond rate of return.
Future Risk Analysis – Sensitivity Analysis

- Discounting liabilities using a hypothetical bond rate reflects an estimate of the future *value* of these benefits to plan members, but does not reflect the actual cost of funding the benefit.
- Below is the estimated unfunded liability of the State plan under different discount rate assumptions, including an estimated risk free rate of 3.5%.
Future Risk Analysis – Sensitivity Analysis

- With the 10-year economic forecasts suggesting lower expectations in the near term, the cost impacts of smaller changes in the discount rate of 25 and 50 basis points reductions were also included in the analysis.

State Plan

<table>
<thead>
<tr>
<th>Discount Rate</th>
<th>7.00%</th>
<th>6.75%</th>
<th>6.50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Normal Cost Rate</td>
<td>9.30%</td>
<td>9.79%</td>
<td>10.31%</td>
</tr>
<tr>
<td>Member Contribution Rate</td>
<td>4.69%</td>
<td>4.69%</td>
<td>4.69%</td>
</tr>
<tr>
<td>Employer Normal Cost Rate</td>
<td>4.61%</td>
<td>5.10%</td>
<td>5.62%</td>
</tr>
<tr>
<td>Administrative Expense Load</td>
<td>0.26%</td>
<td>0.26%</td>
<td>0.26%</td>
</tr>
<tr>
<td>Total Employer Normal Cost Rate</td>
<td>4.87%</td>
<td>5.36%</td>
<td>5.88%</td>
</tr>
<tr>
<td>Amortization Rates for Unfunded Liabilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legacy Unfunded</td>
<td>10.88%</td>
<td>10.59%</td>
<td>10.31%</td>
</tr>
<tr>
<td>2014 Gain</td>
<td>-0.79%</td>
<td>-0.77%</td>
<td>-0.76%</td>
</tr>
<tr>
<td>2015 Gain</td>
<td>-1.17%</td>
<td>-1.15%</td>
<td>-1.13%</td>
</tr>
<tr>
<td>2016 Gain</td>
<td>-0.16%</td>
<td>-0.15%</td>
<td>-0.15%</td>
</tr>
<tr>
<td>Experience Study</td>
<td>0.11%</td>
<td>0.11%</td>
<td>0.11%</td>
</tr>
<tr>
<td>Change in Discount Rate</td>
<td>0.00%</td>
<td>1.12%</td>
<td>2.25%</td>
</tr>
<tr>
<td>Payback Rate</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Total Amortization Rate</td>
<td>8.87%</td>
<td>9.75%</td>
<td>10.63%</td>
</tr>
<tr>
<td>Total Employer Rate</td>
<td>13.74%</td>
<td>15.11%</td>
<td>16.51%</td>
</tr>
<tr>
<td>Increase Rate</td>
<td>0.00%</td>
<td>1.37%</td>
<td>2.77%</td>
</tr>
<tr>
<td>Estimated Increase in Annual Funding</td>
<td>54.8 Million</td>
<td>47.4</td>
<td>63.5</td>
</tr>
<tr>
<td>General Fund</td>
<td>23.4</td>
<td>3.5</td>
<td>47.4</td>
</tr>
<tr>
<td>Non-General Fund</td>
<td>31.4</td>
<td>63.5</td>
<td>63.5</td>
</tr>
<tr>
<td>Unfunded Liability Funded Status</td>
<td>$6.3 Billion</td>
<td>$6.9 Billion</td>
<td>$7.6 Billion</td>
</tr>
<tr>
<td>Funded Status</td>
<td>72.7%</td>
<td>70.7%</td>
<td>68.7%</td>
</tr>
</tbody>
</table>
Future Risk Analysis – Possible Future Outcomes

• Projecting future outcomes can be done under two sets of analyses, deterministic or probabilistic.

• Deterministic analysis assumes full certainty about future outcomes, particularly with future plan experience and assumptions including investment returns.

• Probabilistic analysis reflects the realistic view that pension plan investment returns, like the market itself, are volatile and uncertain. Rather than using an exact assumptions, the model uses probability distributions to provide a range of possible results based on these probabilities.
Future Risk Analysis – Possible Future Outcomes

- Expected future employer contribution rates for the State plan under a deterministic approach assuming the plan achieves the assumed 7.0% return in all future years.
- Deterministic projections can also be used to show the impacts of future underfunding. The chart below shows the potential impact on future employer contributions rates if only 80% of actuarially determined contribution was made each year in the future.
Future Risk Analysis – Possible Future Outcomes

- Deterministic projections can be used to show the impacts of future investment returns on employer contributions and plan funded status.
- The State plan currently has a rather large legacy unfunded liability, we are able to show that another large negative investment return now would have more adverse impacts than if the loss occurred closer to the legacy unfunded being paid off.
Future Risk Analysis – Possible Future Outcomes

- Using a probabilistic projection provides a range of possible results in the future.
- Based on running thousands of deterministic results we are able assign probabilities on where contribution rates may be in the future.
- For example, for the State plan in year 2036 there is a 50% chance that the contribution rate will fall within a range of 7.09% - 19.27%, with the 50th percentile being 15.0%.

*Stochastic modeling does not include matching contributions associated with the defined contribution component of the hybrid plan.*
Report Findings and Conclusions

• Understanding pension risk is a difficult, but necessary, aspect of understanding pension plans.
• From a wide range of possible future outcomes, actuarial valuations determine single-point measures of the pension liability and actuarially determined contribution.
• However in accepting these measures, it is also important to understand the range of possibilities and the associated risks:
  
  o Investment policy has met its long-term target rate of return of the past 25 years.
  o Over the past twenty-five years pension contributions, on average, have been 25-30 percent less than was actuarially required.
  o Benefit improvements and unfunded liabilities added significant costs to the statewide plans at the same time underfunding was decreasing income to the plans.
  o Past practices have created challenges in the short term, but pension reforms have lessened potential future liabilities and introduced risk sharing with new members. Statewide plans will have higher than normal contribution rates until the legacy unfunded liability is paid off.
Since 2010 the Commonwealth has undertaken a series of major pension reform initiatives and addressed plan costs and liabilities by:

- Implementing plan design changes, including the introduction of the Hybrid Retirement Plan.
- Committing to fully funding the actuarially required contribution rates by fiscal year 2019.
  - This occurred two years ahead of schedule for the State plans, and is scheduled to occur one year ahead of schedule for the Teacher plan.
- Accelerating payback of deferred contributions from the 2010-2012 biennium.
  - Paid back State plans 5 years ahead of schedule.
  - Paid down additional $193 million of Teacher deferred contribution balance in 2015.

The plan design changes mostly impacted new or future employees and therefore will show the greatest impact over time as new members enter into VRS.
Hybrid Retirement Plan Features and Tools
Review of Hybrid Benefit

- For the DB component, the Hybrid plan provides a lower multiplier than Plan 1 and Plan 2
  - 1% multiplier per year of service (resulting in income replacement of 30% after 30 years of service), compared to 1.7% (51% income replacement in Plan 1) and 1.65% (49.5% income replacement in Plan 2)

- Other retirement provisions for the Hybrid are identical to Plan 2 (i.e., Rule of 90, 5-year AFC, and COLA provisions)

- Hybrid members have a total 5% mandatory employee contribution across the DB and DC components:
  - 4% mandatory for the DB component
  - 1% mandatory for the DC component (which the employer must match with another 1%)

- Hybrid members may make additional voluntary contributions to the DC component of the plan, and receive employer matching contributions
Impact of Pension Reform on Plan Costs

• Amortization of unfunded liability represents over two-thirds of employer costs.
• Hybrid Retirement Plan costs, including employer match to DC component, lower than Plan 1 or Plan 2.
Hybrid Retirement Plan

- Total combined balance in the Hybrid 401(a) Cash Match Plan and the Hybrid 457 Deferred Compensation Plan is $193 million
- Due to auto-escalation there are now 51,438 hybrid members making voluntary contributions, or 75.4%
  - Of those, 14,004 hybrid members actively elected a voluntary contribution

68,198 active Hybrid Retirement Plan members as of July 1, 2017
Hybrid 457 Plan – Voluntary Contributions

Active members who have a voluntary contribution as of June 15, 2017

73.1%

26.9%

Active members with a voluntary contribution greater than 0.5%

21.6%

Voluntary Contribution Percentages

- 0.50%
- 1.00%
- 1.50%
- 2.00%
- 2.50%
- 3.00%
- 3.50%
- 4.00%
Factors Contributing to Participation Rate

• The largest group of hybrid members is under the age of 30
  • This age group has very high turnover and may not view VRS as part of their long term retirement plan

• 80% of hybrid members earn a salary less than $50,000

• Competing goals may be considered to be more immediate than retirement savings (e.g., health care, child care, student loans, aging parents, etc.)

• Plan 1 and Plan 2 do not require any action on the part of the member in order to receive the full benefit
  • Hybrid members must take a more active role in saving for their retirement
  • Encouraging members to take action and save for their retirement requires more robust communication and education efforts than in Plan 1 and Plan 2
Hybrid Retirement Plan

Helping members plan for tomorrow, today.

✓ **Auto-Escalation** – Implemented January 1, 2017; only 3.1% of members opted out
✓ **SmartStep** – Allows Hybrid Retirement Plan members to auto-escalate at a time they choose
✓ **Enhanced Active Choice** – Provides messaging to members to encourage action
Introducing SmartStep!

- SmartStep helps members save more for retirement by allowing them to set annual increases to their voluntary contributions.
- SmartStep helps members reach the maximum contribution at their own pace.
- Once members choose SmartStep, they do not have to log in to increase the contribution each year. SmartStep does the work!
- The more members save, the more they receive in matching employer contributions, benefiting from compounding of interest over time.
Participating in the Voluntary DC Under the Hybrid is Vital to Having Sufficient Income to Retire

- Analysis assumes DC has 6% rate of return while working and 4% during retirement.
- Income replacement % based on estimated final salary, which is assumed to be higher than AFC.
- For “Hybrid Max Contribution” employee must contribute 9% of their salary throughout their career; for other 3 plans, the employee contribution is 5%.

Estimated Income Replacement Based on 30 Years of Service - Enter At Age 35 and Retire at 65

- VRS Plan 1: 48.1%
- VRS Plan 2: 45.3%
- Hybrid Min Contribution: 33.4%
- Hybrid Max Contribution: 52.5%
Key Messages

- Pension reforms have effectively addressed the cost of benefits
- Hybrid Retirement Plan introduced risk sharing with employees and reduced potential for future unfunded liabilities
- Savings from pension reforms will be fully realized in the future as the hybrid plan becomes the dominant plan
- Legacy unfunded liability being amortized over closed 30-year period with 26 years remaining
- Future liabilities amortized over 20-year closed periods
Key Message

- Governor and General Assembly accelerated:
  - Statutory commitment to fund 100% of actuarially determined contributions
  - Repayment of deferred contributions from 2010-2012 biennium
    - Fully repaid state plans ($189 million) saves $26.5 million in future interest
    - Significant infusion ($193 million) into the teacher plan saves employers $34 million by reducing future payments to the teacher plan
  - Actions improve health of plans and avoid adding future costs to the plans
  - Accelerating the statutory schedule for paying the actuarially calculated and Board-certified contribution rates estimated to save $232 million in contributions over the next 20 years across all statewide plans