Commonwealth of Virginia
July 6, 2021

Report to the Governor and the General Assembly of Virginia

VRS Oversight Report

July 2021

JLARC
JOINT LEGISLATIVE AUDIT AND REVIEW COMMISSION

Joint Legislative Audit and Review Commission

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Overview

The Virginia Retirement System (VRS) administers retirement plans and other benefit programs for state and local government employees. The two largest plans are the Teachers Plan and the State Employees Plan (Figure 1). Other pension plans include the retirement plans for 597 individual local political subdivisions and plans for state police officers (SPORS), other Virginia state law officers (VaLORS), and judges (JRS). VRS also administers several defined contribution retirement plans. In addition to retirement plans, VRS administers post-employment benefit programs. These include life insurance, sickness and disability, long-term care, and the retiree health insurance credit program.

VRS serves approximately 772,000 members, retirees, and beneficiaries. Active members include current state and local employees and teachers in Virginia's public school divisions. VRS also serves retirees, their designated beneficiaries, and "deferred" members, who are not actively employed and are not yet collecting benefits.

The financial assets used to pay VRS benefits are pooled in the VRS trust fund, which held $96.4 billion in assets as of March 31, 2021. In FY20, VRS paid $5.3 billion in retirement benefits and $430 million in other post-employment benefits.

VRS receives funds from three main sources: employer contributions, member contributions, and investment income. In FY20, VRS benefits paid and expenses exceeded additions to the trust fund by approximately $300 million. It is not unusual for this to occur in a mature plan, especially when investment income is less than anticipated.

Investment income is critical to the health of the VRS trust fund, typically accounting for over half of total additions in recent years. However, in FY20 investment income accounted for less than one-third of total additions. More recently, investment income increased significantly, and VRS investments generated a return of 28.3 percent for the one-year period ending March 31, 2021. The total annualized return over the 10-year period ending March 31, 2021 was 8.3 percent, which is well above the 6.75 percent long-term (30+ year) rate of return that VRS assumes for its investments.

FIGURE 1
VRS pension assets by plan

SOURCE: VRS 2020 valuation report.
NOTE: Figures show total actuarial value of assets attributable to each retirement plan as of June 30, 2020. Trust fund assets attributable to other benefit programs are not shown. Figure for local plans is the aggregate of assets for political subdivisions that participate in VRS. Local plans (in aggregate) hold more assets than the state employees plan because political subdivisions have historically fully funded the required contributions. The liabilities for the local plans (in aggregate) and the state employees plan are similar.

FIGURE 2
VRS fast facts

MEMBERSHIP as of March 31, 2021

349,468	Actively employed members[a]
227,025	Retired members & beneficiaries
195,511	Inactive members
772,004	Total

NET ADDITIONS for fiscal year ending June 30, 2020[b]

$2.9 billion	Employer contributions
$1.1 billion	Member contributions
$1.6 billion	Net investment income
-$5.9 billion	Benefits paid and other expenses[c]
- $300 million	Net additions[d]

ASSETS as of March 31, 2021

$96.4 billion
Total VRS trust fund assets

INVESTMENT PERFORMANCE as of March 31, 2021

	1 year	3 years	5 years	10 years
Total return	28.3%	9.5%	9.8%	8.3%
Benchmark	27.5%	9.3%	9.6%	7.9%
Excess return	+0.8%	+0.2%	+0.2%	+0.4%

SOURCE: VRS 2020 annual report and 2021 membership and investment department data.
a Active membership included 156,219 teachers, 108,798 local government and political subdivision employees, and 84,451 state employees, state police, law enforcement officers, and judges. Within the retirement plans are three benefit groups. Active membership by benefit group included 139,086 in Plan 1, 81,888 in Plan 2, and 128,494 in the hybrid plan. b Includes all additions and deductions to the trust fund for VRS retirement plans and other benefits programs. c Includes $5.3 billion in retirement benefit payments, $430 million in other benefits, $107 million in refunds, and $64 million in administrative and other expenses. d Does not sum because of rounding.

1. Trust fund investments

Management of the trust fund investments is one of VRS's core responsibilities. The VRS Board of Trustees sets investment policies for managing the trust fund, including the desired asset allocation and risk parameters for the fund. The investment department manages investment programs within the guidelines set by the board. The investment department manages approximately 30 percent of the assets in-house and contracts with external managers to manage other assets.

Investment performance and asset allocation

The VRS trust fund held $96.4 billion in assets as of March 31, 2021, an increase of $19.5 billion from a year ago. The large increase over last year reflects the decrease in assets in March 2020 due to the equity market decline caused by the COVID-19 pandemic and the subsequent rebound. Approximately $28.4 billion of the trust fund was managed in-house, including nearly all fixed income and some public equities, real assets, and cash. The remaining $68.0 billion was managed by external managers under VRS supervision.

The VRS board adopts a **long-term return assumption** based on the advice of the Investment Advisory Committee, VRS investment staff and plan actuary, and surveys from investment managers and consultants. This is the rate of return expected over the next 30+ years, based on projections of future market performance.

The long-term return assumption is one of the key assumptions used to determine the plan's funded status and employer contribution rates. The current long-term return assumption is 6.75 percent.

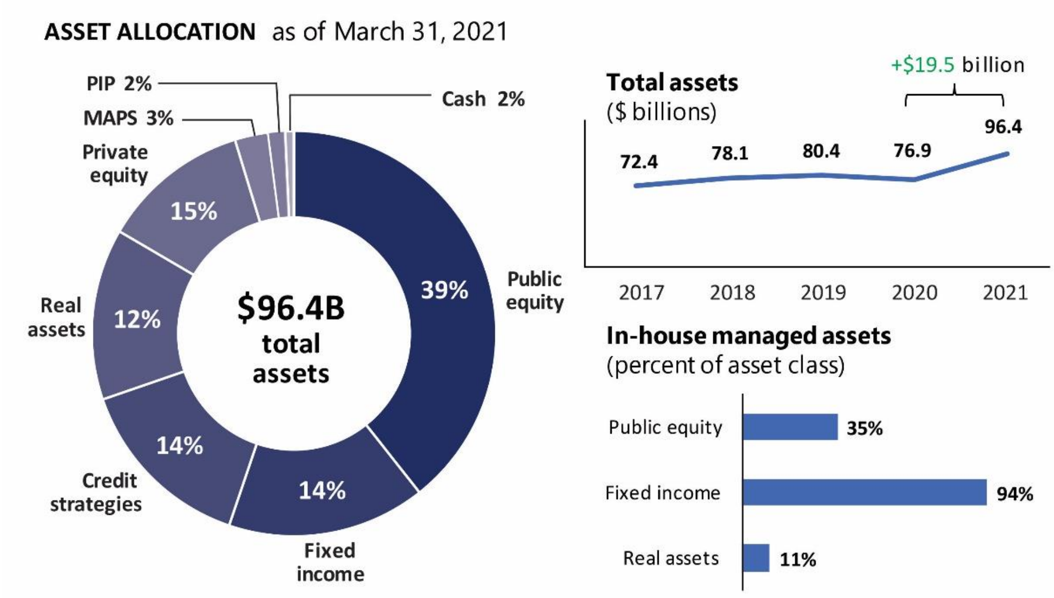
The total fund met or exceeded its investment benchmark for all periods ending March 31, 2021 (Figure 3). The trust fund's investment returns for all periods were also well above the 6.75 percent long-term (30+ year) rate of return that VRS assumes for its investments. Returns ranged from 28.3 percent for the one-year period to 8.3 percent for the 10-year period, reflecting the strong market in recent months.

Public equity. The public equity program is the largest VRS asset class, with $37.8 billion in assets. The program consists of stocks and other equity securities for publicly traded companies in the U.S. and globally. Public equity investments are typically higher risk than bonds and are expected to provide long-term capital growth. Thirty-five percent of the program's assets are managed in-house.

The public equity program underperformed its benchmark for the one-year, three-year, and five-year periods, but met or exceeded its benchmark for the fiscal year to date (first three quarters of FY21) and the 10-year period. The underperformance in the three- and five-year periods was largely because value strategies underperformed; the underperformance in the one-year period is because low-volatility strategies underperformed in the strong market environment, according to VRS. VRS staff indicated that the market rotation toward small cap and value strategies that they had anticipated has occurred, resulting in the strong performance relative to the benchmark for the fiscal year to date.

Private equity. The private equity program is the second-largest asset class, with $14.1 billion in assets.* Private equity is an alternative to traditional public equity and generally consists of ownership in companies not listed on public exchanges. Private equity investments are "opportunistic" investments intended to outperform public equity markets over the long term and enhance total fund returns. All private equity assets are managed externally. The program exceeded its benchmark for all periods except

FIGURE 3
Asset allocation and trust fund investment performance



TRUST FUND INVESTMENT PERFORMANCE
for the period ending March 31, 2021

	FY to date	1 year	3 years	5 years	10 years
Total fund	20.4%	28.3%	9.5%	9.8%	8.3%
VRS custom benchmark	19.8	27.5	9.3	9.6	7.9
Public equity	32.4	56.5	11.1	12.1	9.5
Benchmark	31.9	58.2	12.4	13.0	9.5
Private equity	36.4	23.6	17.1	17.1	15.0
Benchmark	49.5	19.7	14.3	16.0	14.2
Fixed income	0.9	6.3	6.1	4.3	4.2
Benchmark	-1.3	2.4	4.7	3.1	3.5
Credit strategies	13.8	20.7	7.0	7.9	6.2
Benchmark	9.2	19.7	6.0	6.9	5.6
Real assets	6.9	6.0	6.5	7.7	9.9
Benchmark	3.4	5.2	5.1	5.9	8.5
Multi-asset public strategies (MAPS)	16.2	24.3	n/a	n/a	n/a
Benchmark	12.1	21.5	n/a	n/a	n/a
Private investment partnerships (PIP)	20.2	6.2	7.1	7.5	n/a
Benchmark	20.9	13.0	9.1	8.7	n/a

SOURCE: VRS investment department data.
NOTE: Asset allocations do not sum to 100 percent because of rounding.

the fiscal year to date. The private equity program has achieved its intended purpose and outperformed the public market on an annualized basis over the 10-year period.

Fixed income. The fixed income program is the third-largest VRS asset class, with $13.2 billion in assets. The program consists of U.S. dollar-denominated securities, such as bonds and money market instruments, which pay a specific interest rate. The fixed income program also includes emerging market debt (EMD) and high yield (HY). Fixed income investments are typically lower risk relative to most other asset classes and are expected to generate steady returns even in down equity markets. Ninety-four percent of fixed income assets are managed in-house. The program exceeded its benchmark for all periods.

Credit strategies. The credit strategies program is nearly the same size as the fixed income program, with $13.1 billion in assets. The program includes investments in high-yield bonds, convertible bonds, bank loans, and direct lending. Credit strategies investments are intended to provide higher income than investment-grade bonds and better risk-adjusted returns than stocks. All of the program's assets are managed externally. The program outperformed its benchmark for all periods.

Real assets. The real assets program is currently the smallest of the five major asset classes, with $11.8 billion in assets.* The program includes investments in real estate, infrastructure, and natural resources such as timber. Real assets investments are expected to reduce volatility of the total fund by offering returns that do not have a high statistical correlation to the public equity market. Most VRS real assets are managed externally. The program outperformed its benchmark for all periods.

Multi-asset public strategies. The multi-asset public strategies program is a relatively new, small exposure portfolio, with $2.9 billion in assets. The portfolio includes dynamic strategies, which are opportunistic multi-asset allocation approaches. The portfolio also includes risk-based investments, which are uncorrelated, and diversifying strategies relative to the rest of the assets in the fund. The portfolio is managed externally and outperformed its benchmark for the one-year period and the fiscal year to date. The portfolio is too new to have performance or benchmarks for additional periods.

Private investment partnerships. The private investment partnerships portfolio is another relatively new, small exposure portfolio, with $1.8 billion in assets. The portfolio comprises multi-asset private investments and is managed externally. The portfolio underperformed its benchmark for all periods. (The portfolio is too new to have performance or benchmarks for the 10-year period.) The current underperformance is, in part, because the portfolio did not rebound to pre-pandemic levels as quickly as

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*Performance figures for the private equity and real assets programs, as well as the private investment partnerships portfolio, do not reflect managers' actual valuations of these investments as of March 31, 2021 because valuations of private assets have a timing lag behind other assets. Instead, performance figures are based on valuations as of December 31, 2020, adjusted for cash flows during the quarter that ended March 31, 2021.

public markets. However, this portfolio has consistently underperformed over the past year. VRS staff indicate they are monitoring this exposure closely.

Investment policies and programs

The VRS board sets investment policies, and the professionals in the investment department implement programs to fulfill those policies. In April, the board approved revisions to the VRS Defined Benefit Investment Belief Statements. The Investment Belief Statements, which the board initially adopted in 2015, are intended to help guide the strategic management of the VRS investment portfolio. The April revisions explicitly state VRS's fiduciary obligations as outlined in the *Code of Virginia*.

2. Defined contribution plans

VRS manages several defined contribution plans for its members. All state employees and many local VRS members are eligible to participate in one or more of the plans (Table 1). Participants in these plans have their own accounts, and individual participants determine how their money is invested from an investment line-up designed by VRS. The defined contribution plans are similar in structure to private-sector 401(k) plans and individual retirement accounts (IRAs).

Some of the VRS defined contribution plans are intended to provide primary retirement benefits, whereas others are intended as a supplemental benefit. The aggregate value of participant accounts held in the VRS-managed defined contribution plans was $7.0 billion as of March 31, 2021.

Plan performance

Participants in the VRS defined contribution plans may choose from 21 investment options available through the defined contribution plans (DCP). These options include (1) diversified target-date portfolios, (2) individual investment options, and (3) self-directed brokerage accounts. Participants pay a flat administrative fee every year and additional investment fees based on the options they select. Participants in the Optional Retirement Plan for Higher Education may invest in options available through VRS's DCP lineup or in options available through another provider, TIAA. Participants pay investment, administrative, and other fees based on the provider and investment options they select.

Defined contribution plans (DCP)

Target-date portfolios. Participants may select a diversified investment portfolio that reflects their target retirement date. These portfolios are the default for members who do not elect an investment option, and they include a broad spectrum of investments, such as stock, bond, and real estate funds. The mix of investments is automatically adjusted over time to become more conservative as the participant approaches retirement age. The target-date portfolios, which hold $2.5 billion in assets, met or exceeded nearly all of their performance benchmarks (Table 2). One option did not meet its one-year benchmark.

Individual options. Participants may select from one or more individual options to build a customized investment portfolio. The options include different stock, bond, money market, and real estate funds, and a fund that allows members to purchase units of the investments held by the VRS defined benefit trust fund. The individual options, which hold $3.3 billion in assets, met or exceeded all of their performance benchmarks (Table 2).

Self-directed brokerage accounts. The brokerage accounts allow participants to select from thousands of publicly traded mutual funds, exchange-traded funds, and individual securities. Participants who use brokerage accounts have full control over their investments, down to the individual securities held in their portfolio. The brokerage accounts hold $90 million in assets. Because all investment decisions are made by the account holders, VRS does not use performance benchmarks for the brokerage accounts.

TABLE 1
VRS defined contribution plans (as of March 31, 2021)

Plan	Description	Assets ($M)
Deferred compensation and cash match	State employees, and some local VRS members, can choose to make voluntary contributions to their Commonwealth 457 deferred compensation plan to supplement their retirement income. Eligible state employees receive a modest cash match from employers in their Virginia 401(a) cash match plan. [a]	$4,537
Optional plan for higher education [b]	Faculty and other eligible employees at public colleges and universities may make an irrevocable one-time decision to participate in this defined contribution plan instead of the State Employees Plan. Employers are required to make contributions to participant accounts, and employees hired after July 1, 2010, are also required to contribute.	$1,319
Hybrid	State and local members of the hybrid plan are required to contribute to their Hybrid 401(a) plan and can choose to make voluntary contributions to their Hybrid 457 plan. Employers make mandatory contributions to participant accounts and match a portion of voluntary contributions made by members. Members are also enrolled in the hybrid plan's defined benefit component.	$1,156
Other [c]	An optional retirement plan is offered as an alternative to political appointees (in place of the VRS State Employee plan) and to school superintendents in school divisions that have elected to have the plan (in place of the VRS Teachers plan).	$24

SOURCE: VRS administration and investment department data.
[a] Most political subdivisions do not have a cash match plan. [b] The following higher education institutions administer their own optional plans: George Mason University, Virginia Commonwealth University, the University of Virginia, Virginia Tech, and the College of William and Mary. Faculty at these institutions are not eligible to participate in the VRS optional plan for higher education. [c] The amounts held in the other plans are as follows: Optional Retirement Plan for Political Appointees, $24 million; Optional Retirement Plan for School Superintendents, $260,000; and Virginia Supplemental Retirement Plan for certain educators, $183,000.

Optional Retirement Plan for Higher Education

Participants in the Optional Retirement Plan for Higher Education (ORPHE) can choose to invest in the VRS DCP lineup or with TIAA. Under TIAA, participants may select a target-date portfolio (a diversified portfolio option), or they can build a custom portfolio from different stock, bond, money market, and real estate funds. TIAA also offers a self-directed brokerage account. As of March 31, 2021, the TIAA program held $1.0 billion in assets.

VRS updated the TIAA investment menu with new options in January 2020. The new options generally met or exceeded their benchmarks. One option failed to meet its benchmarks for all periods, and an additional option failed to meet the one-year benchmark (Table 2). Most TIAA assets (70 percent) are held in legacy options that are not available under the new menu. VRS no longer tracks performance for these options because they have been deselected by VRS. The proportion of funds in the

TIAA legacy options will decrease over time as new participants enter the plan and invest in the new options.

An additional $160 million in the higher education retirement plan is held with private deselected providers with whom VRS no longer partners. VRS does not track investment performance for deselected providers because participants can no longer contribute to them through the plan.

TABLE 2
Investment performance of VRS defined contribution plans

for the period ending March 31, 2021

	1 year	3 years	5 years	10 years
Options available for all plans				
Target-date portfolios				
Met or exceeded benchmark	9	9	9	8
Total number of options	10	9	9	8
Individual options				
Met or exceeded benchmark	10	10	10	10
Total number of options	10	10	10	10
Additional option under the higher education plan				
TIAA[a]				
Met or exceeded benchmark	16	16	16	14
Total number of options	18	17	17	15

SOURCE: VRS investment department data.
NOTE: (1) Total number of investment options reported for a given period can change because longer-term performance data is not available for newer options. (2) Performance of target-date and individual options is reported net of investment fees but not plan administrative fees. Performance of the additional options under the higher education plan is reported net of investment and embedded record-keeping and plan administration fees, where applicable. (3) Some funds are passively managed. Passively managed investment options are expected to trail their benchmarks by the expense ratio (fees) charged by the investment managers. Actively managed options are expected to outperform the market and were measured against the benchmark net of investment fund fees. Capital preservation investment options, such as stable value and money market funds, are expected to generate returns at or above zero and were assessed relative to that benchmark. a. Performance information does not reflect assets held through legacy TIAA contracts, which were in effect before 2017.

Plan management

VRS manages the defined contribution plans through contracts with private companies. These companies provide account administration and investment management services to plan participants. VRS's defined contribution plan activities are guided by the Defined Contribution Plans Advisory Committee. Two VRS board members serve on the committee, and the remaining members are appointed by the board. The committee provides guidance to the board and staff. In December 2020, based on the recommendation of the committee, the board approved amended and restated defined contribution plan documents.

3. Legislation enacted in 2021

Through legislative action, the General Assembly can adjust contribution rates and funding, benefits and eligibility, and other aspects of VRS retirement plans and benefits programs. The 2021 General Assembly enacted legislation and budget language that affect VRS (Table 4).

TABLE 3
VRS legislation and budget language enacted by 2021 General Assembly

HB 2181/SB 1251	**VRS-Requested Technical Amendments** Technical amendments to VRS-related provisions in the *Code of Virginia*. Include changing the required minimum distribution provisions to reflect recent changes in federal law and conforming terminology related to disability retirement.
HB 2312/SB 1406	**Virginia Cannabis Control Authority** Creates the Virginia Cannabis Control Authority. Employees of the authority will be VRS members, and special agents of the authority are eligible for Line of Duty Act (LODA) benefits.
HB 2322/SB 1469	**Opioid Abatement Authority and Fund** Establishes Opioid Abatement Authority and Fund. VRS will manage and invest the fund alongside the VRS Trust Fund.
HB 1818/SB 1275	**Emergency Medical Service (EMS) presumptions** Makes salaried or volunteer EMS personnel eligible for the hypertension and heart disease presumptions. Legislation is prospective only, effective July 1, 2021.
HB 2207/SB 1375	**Workers' Compensation presumptions** Adds COVID-19 as a workers' compensation presumption for firefighters, EMS personnel and law enforcement, correctional, and regional officers. Presumption covers death or disability on or after July 1, 2020 through December 31, 2021.
Item 277 (2020–2022 Appropriation Act)	**Repayment of Deferred Contributions** Provides $61.3 million to VRS in FY21 to pay off balance of deferred contributions from the 2010–2012 biennium in the teacher retirement plan a year earlier than expected, and $38.7 million in FY21 to increase funding levels of the health insurance credit program for state employees.
Item 492H (2020–2022 Appropriation Act)	**Annual Report on LODA Eligibility Determination** Requires VRS and the Virginia Department of Human Resource Management to annually report to the governor and General Assembly on LODA eligibility determinations.

SOURCE: Virginia Legislative Information System and VRS.
NOTE: Workers eligible for workers' compensation benefits may be eligible for other benefits overseen by VRS, including LODA and disability benefits.

4. Benefits administration and agency management

Administration of member benefits is one of VRS's core responsibilities. To carry out this and other duties, the agency must be effectively managed. Notable topics related to benefits administration and agency management include changes in actuarial assumptions based on an experience study conducted by the VRS actuary, a significant portion of hybrid plan members making no or very low voluntary contributions despite VRS's outreach efforts about the importance of making such contributions, and new VRS board member appointments.

Board approved changes to actuarial assumptions based on recent experience study, which may increase future contribution rates

In April, the board approved changes to several actuarial assumptions for the VRS plans based on recommendations from the VRS plan actuary, Cavanaugh Macdonald Consulting (CMC). These changes may decrease the funded status for the plans and increase employer contribution rates during the next actuarial rate-setting valuation. The funded status of the state employee retirement plan is estimated to decrease by approximately 1 percentage point (from 75 percent to 74 percent based on the June 30, 2020, valuation), and the employer contribution rate for the defined benefit portion of the plan is estimated to increase by approximately one percentage point (from 13.58 percent to 14.46 percent based on the June 30, 2020 valuation). This increase in contribution rates would be equivalent to approximately $39 million in additional employer contributions annually.

JLARC is required to conduct a **quadrennial actuarial review** of VRS under the Virginia Retirement System Oversight Act (§ 30-81). The review is to be conducted with the assistance of an actuary and to be produced once every four years. The purpose of the audit is to provide the General Assembly with an overview of the soundness of the actuarial assumptions, policy, practices, and reporting for VRS. Gabriel, Roeder, Smith & Company (GRS) was hired by JLARC to conduct the 2018 review.

The revised actuarial assumptions will be implemented in the June 30, 2021 valuation, which will be used to set contribution rates for the 2022–2024 biennium. The increase in the employer contribution rate needed to account for the new assumptions could be reduced if investment returns continue to be strong.

CMC's recommended changes to assumptions were based on a recent experience study CMC conducted for the period covering July 1, 2016 to June 30, 2020. The *Code of Virginia* requires an experience study to be performed at least once every four years to validate the plans' actuarial assumptions, compare the VRS experience to those predicted by the assumptions, and make necessary adjustments. CMC's recent experience study also considered and implemented recommendations from the 2018 actuarial audit of VRS conducted by JLARC's independent actuary, Gabriel, Roeder, Smith and Company (GRS). (The appendix provides a letter from VRS detailing how GRS's key recommendations from the 2018 actuarial audit were addressed in the recent experience study.)

The most significant changes CMC recommended are to the plans' mortality assumptions (below). CMC's recommended changes will have the effect of assuming future generations of plan members live longer than current plan members. The first two changes were also recommended for consideration by GRS in the 2018 actuarial audit:

- Use a "generational mortality improvement" assumption, which uses a mortality projection scale that assumes future generations will live longer, rather than the "margin" approach that VRS had been using, which applies the same mortality assumption to all future years.

- Use a benefits weighted (liability weighted) approach rather than a headcount weighted approach, which assumes that individuals with a higher benefit will live longer.
- Use mortality tables released by the Society of Actuaries in 2019 specifically for public sector employees rather than adjusting the mortality tables for corporate plans.

The mortality assumption change is the primary driver of the estimated lower funded status and increased contribution rates. However, changing the assumption will reduce the likelihood of large rate increases resulting from mortality assumption changes in the future.

Another notable recommendation was to assume that most members leave active membership (e.g., due to retirement, termination, death, or disability) midyear rather than at the beginning of the fiscal year (teacher retirements being the exception because they tend to occur at the beginning of the fiscal year). This change was also recommended for consideration by GRS in the 2018 actuarial audit.

The experience study did not find a need to change most of the economic assumptions, including the inflation assumption and VRS's long-term return assumption of 6.75 percent.

Over half of hybrid plan members are not making a voluntary contribution or are making the minimum contribution

The hybrid plan combines elements of a traditional defined benefit retirement plan with a 401(k)-style defined contribution plan. Hybrid plan members include most state employees, teachers, and local employees hired on or after January 1, 2014, and make up slightly more than one-third of the total active VRS membership as of March 31, 2021. (State employees in the SPORS and VaLORS plans, and local employees with enhanced hazardous duty benefits, are not eligible to participate in the hybrid plan.) The hybrid plan has lower costs and liabilities for the state than the defined benefit plans it replaced. Therefore, it is expected to gradually reduce costs for the state and most localities as it covers an increasing proportion of the workforce. The plan also transfers a higher proportion of investment and longevity risk from employers to plan members.

To help ensure adequate savings at retirement, members of the hybrid plan should consider making voluntary contributions to the defined contribution portion of their plan. Hybrid plan members are required to contribute 1 percent of their salary to their defined contribution component. Hybrid plan members may make additional voluntary contributions of up to 4 percent of their salary and receive an employer match, thereby enhancing their retirement savings. Hybrid plan members who do not make adequate

Hybrid plan members contribute a total of 5 percent to 9 percent of their salary toward their retirement benefits.

Members must contribute 4 percent of their salary toward their defined benefit component.

Members are required to contribute 1 percent of salary to their defined contribution component and may voluntarily contribute up to an additional 4 percent.

Employers also are required to contribute to a member's defined benefit component at the actuarially determined rate. Employers are required to contribute 1 percent of a member's salary toward a member's defined contribution component and up to an additional 2.5 percent in matching contributions, based on a member's voluntary contributions.

voluntary contributions will likely not meet an income replacement target of approximately 80 percent of their pre-retirement income.*

An **automatic escalation** of 0.5 percent occurs every three years for voluntary member contributions to the defined contribution component of the hybrid plan, as required under statute (§ 51.1-169 C.3). Members are not subject to the automatic escalation if they opt out or if they are already making the maximum 4 percent voluntary contribution.

As of March 31, 2021, over half of hybrid plan members were not making a voluntary contribution or were making the minimum voluntary contribution of 0.5 percent of their salary. (Conversely, approximately a quarter of hybrid plan members were making the maximum voluntary contribution of 4.0 percent.) The percentage of hybrid plan members making no or very low contributions will likely increase until the next statutory automatic rate escalation in January 2023, because new employees tend not to initiate a voluntary contribution when they start employment. VRS has conducted numerous educational and outreach efforts to increase voluntary contributions. However, a plan change, such as automatically enrolling new employees at a minimum voluntary contribution rate or having more frequent automatic escalations, is likely needed to increase and sustain voluntary contributions rates. Increasing voluntary contribution rates would increase state and local costs because employers match these contributions.

VRS board member appointments

The VRS board is a supervisory board that is directly vested with authority for administering and overseeing most aspects of the retirement system. The board includes nine members, five of whom are appointed by the governor and four of whom are appointed by the General Assembly. The board delegates day-to-day management responsibilities to the VRS director and chief investment officer.

The Honorable J. Brandon Bell, II was reappointed by the governor in April 2020 for a second term. His new term will expire in February 2026. Bell is president of Brandon Bell Financial Partners and serves as one of the statutorily required subject-matter experts appointed by the governor.

Michael P. Disharoon was appointed by the governor in July 2020. His term will expire in February 2025. Disharoon is a principal and portfolio manager at Palladium Registered Investment Advisors and serves as one of the statutorily required subject-matter experts appointed by the governor.

Susan T. Gooden, PhD, was appointed by the governor in July 2020. Her term will expire in February 2024. Gooden is a dean and professor at the L. Douglas Wilder School of Government and Public Affairs at Virginia Commonwealth University. She serves as the higher education representative appointed by the governor.

John M. Bennett was appointed by the General Assembly's Joint Rules Committee in May 2021. His term will expire in February 2026. Bennett is the former vice president of finance at Virginia Commonwealth University and serves as the state employee representative appointed by the legislature.

*80 percent replacement target takes into account social security benefits and assumes 30 years of service. Actual voluntary contributions needed to meet income replacement target varies with members' income levels and annual investment returns. Hybrid plan members who make the maximum 4 percent in voluntary contributions could potentially receive retirement benefits greater than Plan 1 or Plan 2 members with higher-than-expected investment returns.

Appendix

Following is a letter from VRS indicating how key recommendations from a 2018 actuarial audit performed by Gabriel, Roeder, Smith & Company (GRS), JLARC's independent actuary, were addressed in a recent experience study.

Virginia Retirement System

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Patricia S. Bishop
Director

June 10, 2021

Mr. Hal E. Greer
Director, Joint Legislative Audit and Review Commission
919 East Main Street
Suite 2101
Richmond, Virginia 23219

Dear Hal:

VRS recently received results from the quadrennial experience study covering fiscal years 2016-2020. The study is required by statute and includes reviewing assumptions and methods used in performing valuations for benefit plans administered by VRS. While the Board has received results of the study, the final report containing the detailed analysis and documentation is still several weeks from being finalized.

As requested recently by JLARC staff, we are providing an update to the findings and recommendations provided by Gabriel, Roeder, Smith & Company (GRS) during their 2018 Quadrennial Actuarial Audit of VRS. Many of these items are covered as a part of normal practice during a quadrennial experience study. While GRS had no material findings, they included some recommendations for further review or refinement. All of the GRS recommendations from the 2018 VRS Quadrennial Actuarial Audit Report were reviewed carefully and considered for implementation where appropriate.

The basic purpose of an experience study is to determine whether the actuarial assumptions currently in use have adequately anticipated actual experience and if they remain valid for projecting future experience. This information is used to evaluate the appropriateness of continued use of the current actuarial assumptions or to inform decisions regarding assumption changes where necessary. All assumptions are developed in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the applicable Actuarial Standards of Practice (ASOPs) adopted by the Actuarial Standards Board (ASB). Please note that the ASOPs allow for the actuary to use *professional judgment* when selecting methods and assumptions, conducting analysis, and reaching conclusions. The standards recognize that different actuaries can reasonably reach different conclusions when faced with the same facts.

Cavanaugh Macdonald Consulting, LLC, the VRS Plan Actuary, responded to the recommendations of the GRS Audit report with a letter dated June 25, 2018, which was included in the JLARC VRS Quadrennial Actuarial Audit. Cavanaugh Macdonald addressed many of the recommendations made by GRS at that time. Below are additional comments related to a few of the more prominent recommendations made by GRS that were reviewed as part of the recent quadrennial experience study.

Investment Return – GRS Recommendations

- *We recommend VRS continue to review the investment return assumption giving due consideration to both short-term and long-term investment horizons.*
- *We recommend CMC include additional information in the next experience analysis report documenting the weighting of the short term and long-term investment horizons.*

VRS completed an Asset Liability Management (ALM) study in 2019, which culminated in a recommendation to lower the assumed long-term rate of return from 7.00% to 6.75%.

Due to the uncertainty surrounding the potential for and timing, length, or severity of a near-term recession, a discount rate based on a blend of short- and long-term expectations warranted a lowering of the plans' long-term investment rate of return assumption. Historically, investment return assumptions have targeted the median of the expected range of outcomes. However, reflecting a blended discount rate to incorporate near-term uncertainty in the markets required selecting a discount rate below the median expected long-term rate. VRS selected a discount rate closer to the 40th percentile of future returns, providing approximately a 60% chance of achieving the long-term rate of return over time.

Salary Increases and Payroll Growth – GRS Recommendations

- *We recommend VRS continue to review the payroll growth assumption giving due consideration to both actual historical plan experience between 2008 and the time of the next experience study, and future expectations.*
- *We recommend VRS continue to review the step-rate increases for State Employees, Teachers and VaLORS and consider assumptions that more closely follow the pattern of salary increase experience based on years of service.*
- *We recommend VRS continue to review whether an increase assumption of 4.50 percent (2.00 percent in excess of price inflation and 1.00 percent in excess of wage inflation) is appropriate for the Judges.*
- *We recommend showing salary increase experience on a combined basis for males and females in the experience study report (consistent with the assumption).*

Careful consideration is given to payroll growth assumption as VRS has been monitoring this measure for many years. The payroll growth assumption is used in determining total covered payroll over which to amortize the unfunded actuarial accrued liability. Payroll growth is impacted by two factors:

(1) the size of the group (number of active members); and

(2) the general wage increase assumption.

While no recommendation was made by the Plan Actuary at this time to change the current payroll growth assumption, we continue to monitor the State and VaLORS plans for future consideration since they have shown slight decreases in head count over the study period.

With respect to salary increases, the Judicial Retirement System rate was lowered from the current 4.50% assumption to 4.00% and experience for all plans was provided on a combined basis for males and females. The remaining step-rate increases were determined to be a relatively good match with experience over the review period. Given the somewhat random nature of salary increases at the State level, this assumption tends to be complicated and warrants careful consideration as changes can be impactful to liabilities.

Mortality – GRS Recommendations

- *We have the following recommendations when the mortality assumptions are next reviewed:*
  - *Continue to consider if a generational mortality improvement assumption (to reflect future expected mortality improvements) is appropriate*
  - *Analyze mortality experience on a benefits weighted or liability weighted basis*
  - *Review the credibility of the experience in adjusting the standard base mortality tables (especially for smaller plans such as SPORS/VaLORS and pre-retirement and disabled mortality)*

Mortality tables are a fundamental assumption in actuarial valuations and have received a lot of attention over the last decade. VRS has historically used a margin approach on a headcount-weighted basis using one of the more recent tables developed by the Society of Actuaries adjusted using credible mortality experience from our plans. During the last experience review in 2017, Cavanaugh Macdonald did consider the generational tables but made the decision to wait for the new mortality table being developed by the Society of Actuaries that would be the first table based solely on public sector mortality experience (PUB-2010) in part due to concerns over the validity of the SOA projection scales.

After thorough review of the new tables, Cavanaugh Macdonald recommended moving to the PUB-2010 tables effective with the June 30, 2021 valuations. In addition, they also recommended using the amount-weighted PUB-2010 tables and a generational mortality projection scale. Generational mortality tables tend to reflect actual life expectancies of plan members more accurately and since future mortality improvements are built into the tables, future updates to the mortality assumptions tend to be on a smaller scale compared to the margin approach. Amount-weighting assumes the age at death for retirees with larger benefits are weighted more than the age at death for retirees with smaller benefits. This weighting results in tables with longer life expectancies than tables based on a headcount-weighted basis.

Note that many of the recommendations from GRS were related to actuarial report content or documentation. While this falls outside the scope of the experience study, we wanted to make you aware that all of these changes have already been implemented in VRS reports:

- *Update the gain/loss analysis to have consistency between the gain/loss schedules and the new unfunded liability arising from the 2017 actuarial valuation, as shown in the amortization schedules*

- *Check the plan provision sections of the June 30, 2017, VRS Actuarial Valuation Report for completeness*
- *Provide details on the sources of actuarial gains and losses*
- *Provide an explanation of the development of the actuarial value of assets*
- *Clarify the level of employer match for contributions made to the DC plan*
- *Provide more information on the contribution timing adjustment*
- *Include funded ratio in the funding valuation reports with additional discussion, as necessary, to explain differences in funding and accounting results*
- *Either explicitly value the cash refund feature or value the cash refund feature by assuming a certain period and also clearly disclose the assumption for the assumed form of payment for benefits in the actuarial report*
- *Add additional information to the actuarial valuation reports for at-risk political subdivision plans, including:*
    - *A description of the purpose of the additional funding charge for at-risk plans*
    - *A description of how the additional funding charge for at-risk plans is calculated*
    - *The specific amount of the additional funding charge*
    - *The amortization charge as a percentage of payroll excluding the additional funding charge (based on the amortization schedule shown in the report)*

Upon completion of the final experience study report, VRS can provide a list of the remaining GRS recommendations and a reference to where the analysis related to each recommendation can be found in the final experience study report or actuarial valuation report, if applicable.

I hope this follow-up information relating to the GRS 2018 Quadrennial Actuarial Audit is of assistance, and we will provide additional detail once the 2016-2020 VRS quadrennial experience study report is finalized.

Sincerely,

Patricia S. Bishop

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Director

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