



Audit and Compliance Committee Meeting

Via GoToWebinar

Thursday, 6/3/2021

2:00 - 4:00 PM ET

- I. Welcome
- II. Public Comment
- III. Minutes of the March 16, 2021 Meeting
 - Meeting Minutes - Page 2*
- IV. Matters for Discussion with the Auditor of Public Accounts
 - Matters for Discussion with the APA - June 2021 - Page 7*
 - A. Update on the 2020 Employer Assurances Review
 - B. VRS' 2021 Financial Statement Audit Entrance
 - APA VRS Board Update and Entrance - Page 8*
- V. Audit Reports
 - A. Report 436: Optional Retirement Plan for Higher Education
 - Audit Report 436 - Page 31*
 - B. Report 437: Private Equity Program
 - Audit Report 437 - Page 50*
 - C. Report 438: Internal Equity Management Program
 - Audit Report 438 - Page 66*
- VI. Quarterly Reports on the Modernization Program - Phase 4
 - A. Report from Management
 - Management's Report - Page 98*
 - B. Report from Internal Audit
 - Internal Audit's Report - Page 109*
- VII. Quarterly Report on Fraud, Waste and Abuse Hotline Cases
 - Fraud, Waste and Abuse Report as of April 30, 2021 - Page 120*
- VIII. Miscellaneous Updates
 - A. Management's Quarterly Travel Expenses and Per Diem Report
 - Travel Expense and Per Diem Report and Memo - Q3 - Page 124*
 - B. Preparing for the FY22 Annual Audit Plan
 - C. Next Meeting Date: Monday, September 13, 2021 at 1:30 p.m.

Minutes

In accordance with Item 4-0.01 of Chapter 56 of the 2020 Special Session I Acts of Assembly of the *Code of Virginia* as it relates to conducting business during the COVID-19 pandemic, the Audit and Compliance Committee of the Board of Trustees convened electronically on March 16, 2021.

The following individuals participated electronically.

Audit and Compliance Committee Members:

Joseph W. Montgomery, Committee Chair
W. Brett Hayes, Committee Vice Chair
O’Kelly E. McWilliams, III, Board Chair (joined after the initial roll call)

Other Members of the Board of Trustees:

J. Brandon Bell, II
Michael P. Disharoon
William A. Garrett
Troilen G. Seward, Ed.S.

VRS Staff:

Patricia Bishop, Judy Bolt, Rick Brooks, Jeanne Chenault, Michael Cooper, Valerie Disanto, Barry Faison, Joshua Fox, Krystal Groff, Robert Irving, Curt Mattson, Matthew Priestas, Denise Rasmussen, Paula Reid, Kristy Scott, Jennifer Schreck, Jillian Sherman, Grace Wheaton and Cynthia Wilkinson

Auditor of Public Accounts: Zach Borgerding and Justin Ferrell

Department of Planning and Budget: Latosha Johnson

Joint Legislative Audit and Review Commission: Jamie Bitz

Virginia Senate Finance and Appropriations Committee: James Rosatelli

Mr. Montgomery called the meeting to order at approximately 2:00 p.m. and noted that given the current circumstances related to COVID-19, the Audit and Compliance Committee (Committee) was unable to meet in person. However, utilizing electronic means, the Committee could hold this meeting in accordance with Item 4-0.01 of Chapter 56 of the 2020 Special Session I Acts of the Assembly of the *Code of Virginia* as it relates to conducting business during a pandemic.

Mr. Montgomery then completed a roll call of each Committee member for attendance purposes:

Senator Bell – present
Mr. Disharoon – present
Chief Garrett – present
Mr. Hayes – present

Ms. Seward – present
Mr. Montgomery – present

PUBLIC COMMENT Mr. Montgomery noted that no individuals registered to provide public comment to the Committee.

Mr. McWilliams joined the electronic meeting.

MINUTES Upon motion of Senator Bell, seconded by Mr. Disharoon, the Committee approved the minutes of the Audit and Compliance Committee meeting held on December 10, 2020 upon the following roll call vote:

Senator Bell – aye
Mr. Disharoon – aye
Chief Garrett – aye
Mr. Hayes – aye
Mr. McWilliams – aye
Ms. Seward – aye
Mr. Montgomery – aye

AUDIT REPORTS The Committee received two audit reports from staff.

Audit Report 434 Mr. Priestas presented audit report 434 – Health Insurance Premiums and Credits which assessed the validity and accuracy of the retiree health insurance premiums withheld from retirees’ benefits, the transfer of such withholdings to the appropriate parties and the validity and accuracy of Health Insurance Credit payments. There was one written recommendation resulting from the review.

Audit Report 435 Mr. Priestas presented audit report 435 – Conformance with VITA’s Security Program. The review determined that VRS’ Security Policies and Standards are compliant with VITA’s Information Technology Security Program. There were no written recommendations resulting from the review and one recommendation outstanding from the prior year’s review.

The Committee discussed the standards VITA adopts and how they relate to VRS standards.

**ACCEPTANCE OF
AUDIT REPORTS** Upon motion of Mr. Hayes, seconded by Ms. Seward, the Committee accepted audit reports 434 and 435 as presented, upon the following roll call vote:

Senator Bell – aye
Mr. Disharoon – aye
Chief Garrett – aye

Mr. Hayes – aye
Mr. McWilliams – aye
Ms. Seward – aye
Mr. Montgomery – aye

**ANNUAL REPORT ON
CODE OF ETHICS** Mr. Cooper provided a brief overview of VRS' Code of Ethics and the training provided to personnel. Mr. Cooper confirmed all VRS staff had completed the annual code of ethics training as of today, but not by December 31, 2020. As a result, he noted process improvement opportunities were identified for future activities.

Mr. Mattson discussed the Investment Department's Code of Ethics and Conduct program, including the Investment Department's Trading Policy, which limits trades primarily to multi-investment funds and generally prohibits trading in single entity securities. Mr. Mattson then noted personal trading certifications have been received from all investment associates and were reviewed and found to be in compliance with the Department's policies.

**MODERNIZATION
QUARTERLY REPORT
- MANAGEMENT** Ms. Rasmussen presented Management's report on the Modernization Program - Phase Four. Ms. Rasmussen provided a timeline highlighting the progress of the Modernization Program over the past 10 years and updated the Committee on the Phase Four progress. Ms. Rasmussen discussed the ongoing development efforts, noting the development of member portal functionality, rollout approach for remaining features and recent pilot results for online retirements. The budget and cost updates as of December 31, 2020 were provided.

**MODERNIZATION
QUARTERLY REPORT
- INTERNAL AUDIT** Mr. Priestas discussed Internal Audit's Review of the Modernization Program - Phase Four indicating agreement with management's representations regarding the overall schedule, budget and scope of Phase Four. Mr. Priestas acknowledged management's continued thoughtful and cautious planned approach through implementation and afterwards, noting diligent management of resources across concurrent projects and organizational initiatives remains critical to realize this effort timely. Looking forward, VRS risk-adverse strategies indicate full release of all features to all members is tentatively set for Fall 2021 to ensure the integrity of VRS and its processing.

**AUDIT PLAN
PROGRESS AS OF
DECEMBER 31, 2020** Ms. Schreck reported on the progress of the annual Audit Plan as of December 31, 2020, the mid-point of the fiscal year. She noted there were some necessary changes to the planned timing of certain examinations.

**QUARTERLY REPORT
ON FRAUD, WASTE
AND ABUSE HOTLINE
CASES** Ms. Bolt presented the Fraud, Waste and Abuse cases investigated for the period November 1, 2020 through January 31, 2021. Ms. Bolt noted there was one case reported during the period. The case alleged abuse of short-term disability benefits and was determined to be unfounded and therefore closed.

**MISCELLANEOUS
UPDATES**

Management's Quarterly Travel Expense and Per Diem Report

Ms. Schreck noted management's quarterly travel expense and per diem report was available in the meeting package for the Audit and Compliance Committee's review.

Internal Audit's Review of the Cost of Living Adjustments

Ms. Schreck informed the Committee that Internal Audit has reviewed the amounts referred to as "Cost of Living Adjustments (COLA)" as calculated by VRS' actuary, Cavanaugh Macdonald Consulting, LLC, to be effective July 1, 2021. Ms. Schreck noted Internal Audit independently recalculated the "Cost of Living Adjustments" and found them to be valid and accurate. The results of this review were provided to the Benefits and Actuarial Committee and Board of Trustees in February 2021 to support the review and approval process for these adjustments.

Next Committee Meeting Date

Ms. Schreck noted the next meeting of the Committee is scheduled for June 3, 2021 at 2:00 p.m.

**MEETING
ADJOURNMENT**

There being no further business, Senator Bell motioned to adjourn the meeting which was seconded by Mr. McWilliams.

Mr. Montgomery adjourned the meeting at approximately 2:45 p.m. upon completion of the following roll call vote:

Senator Bell – aye
Mr. Disharoon – aye
Chief Garrett – aye
Mr. Hayes – aye
Mr. McWilliams – aye
Ms. Seward – aye
Mr. Montgomery – aye

Committee Chair

Secretary

Matters for Discussion with the Auditor of Public Accounts

VRS Annual Report

For informational purposes, you may wish to review VRS' most recent Annual Report, which includes VRS' 2020 Financial Statements and the APA's Financial Statement Opinion. Due to the voluminous nature, the report is not included in the meeting book, but can be found on VRS' website at the following link:

<https://www.varetire.org/pdf/publications/2020-annual-report.pdf>

APA's Report on Internal Control

The APA's Report on Internal Control for the 2020 Annual Report Audit found the financial statements were presented fairly, in all material respects; no internal control findings requiring management's attention; and, no instances of noncompliance or other matters required to be reported under Government Auditing Standards. This report can be viewed at the following link:

<http://apa.virginia.gov/reports/VirginiaRetirementSystem2020.pdf>

MATTERS FOR DISCUSSION WITH THE APA

Update on the 2020 Employer Assurances Audit

The APA will provide an update on the status of their 2020 Employer Assurances Audit, the results of which are expected to be reported out by the end of July 2021.

Entrance on VRS' 2021 Financial Statement Audit

The APA will entrance with the Committee on VRS' 2021 Financial Statement Audit.

For reference purposes, a list of some of the questions often posed to external auditors when entrancing are provided below. However, entrance meetings with the APA are typically informal, with questions posed as the Committee sees fit.

Typical Questions Posed to External Auditors When Entrancing:

- Do you anticipate any substantial changes in your audit approach, scope, standards, procedures, resources allocated, or other circumstances, which may significantly affect your examination?
- Are there any significant changes in generally accepted accounting principles or other changes which will significantly impact your examination, our financial reporting or your opinion thereon?
- Have you identified any possible changes in the character of VRS' activities? Have these changes, if any, affected your audit approach or scope?
- Are there any special areas in which you expect to focus?
- Are there any potential restrictions on your audit scope or other matters that could affect your audit opinion?
- Do you foresee any significant problems and, if so, how will they be handled?
- Are there any issues the Committee needs to be aware of or are there any areas where you require special assistance or cooperation from VRS?



2021 VRS Financial Statement Audit Entrance

June 3, 2021

Zach Borgerding, Audit Director

Auditor of Public Accounts

Employer Assurances: Refresher

- Audit work continues in support of financial reporting requirements for employers
- Assurances include:
 - Opinions on pension and OPEB amounts and employer allocations for cost sharing plans
 - Opinions on changes in fiduciary net position at the employer level for agent plans
 - Opinions on census data
 - Review of employer guidance concerning journal entries and disclosures

Employer Assurances: Status

- VRS schedules and resources have been provided and are currently being reviewed
- No matters requiring the Committee's attention at this time
- Expect to issue by end of July for pensions and OPEBs
- Employers are familiar with the process and anticipate these resources

2021 VRS Financial Statement Audit

AUDIT ENGAGEMENT ENTRANCE

Audit Logistics

- Timing:
 - Audit Period: July 1, 2020 – June 30, 2021
 - Audit Timing: June, 2021 – December, 2021
 - Must have sufficient, appropriate audit evidence by December 15th
- Audit Team:
 - Several audit team members are returning from the prior year
 - Continued use of co-in-charge model

Our Team

Zach Borgerding



- Director
- 13 years experience
- 6 years assigned to VRS
- CPA, CGFM, and CISA
- Previous projects: GMU, RU, Governor's Office, and VRBP

Justin Ferrell



- Supervisor
- 11 years experience
- 4 years assigned to VRS
- CPA, CISA and VCCO
- Previous projects: VCU, NSU, and Center for Innovative Tech.

Brian Deveney



- Supervisor
- 7 years experience
- 3 years assigned to VRS
- CPA, CISA, and MA with focus in data analytics
- Previous projects: Treasury, HEI Debt, and VSF

Erin Rodriguez



- Senior
- 3 years experience
- 3 years assigned to VRS
- BS in Accounting
- Previous Projects: Lottery, W&M, and UVAMC

Igor DeOliveira



- Associate
- <1 year experience
- Assigned to Compliance Assurance Specialty Team
- BS in Accounting
- Recent Project: VCCS

Kelci Simonsen



- Senior
- 5 years experience
- BS in Accounting and Finance
- Recent Projects: HE Federal, UMW, and DOC

Our Team (continued)

Taylor Collins



- Associate
- <1 year experience
- BS in Information Systems
- Assigned exclusively to audit systems security

Danese Seabourne



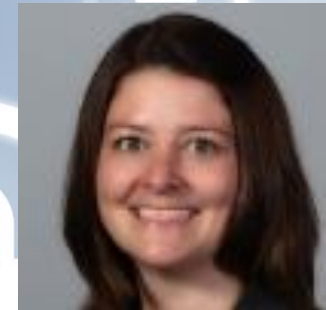
- Manager
- 6 years experience
- 5 years assigned to VRS
- BS in Computer Science and certified in info systems, CISA
- Assigned exclusively to audit systems security

Goran Gusavsson



- Director
- 25 years experience
- BS in Electrical Engineering and Computer Science, MA in ISS, CISM, and CISSP
- Manages all ISS audits and is primary reviewer of Danese's work

April Cassada



- Director
- 18 years experience
- BS in Accounting, CPA, CISA, and CITP
- Manages data analysis specialty team and reviews all data retrieval work

Audit Objectives

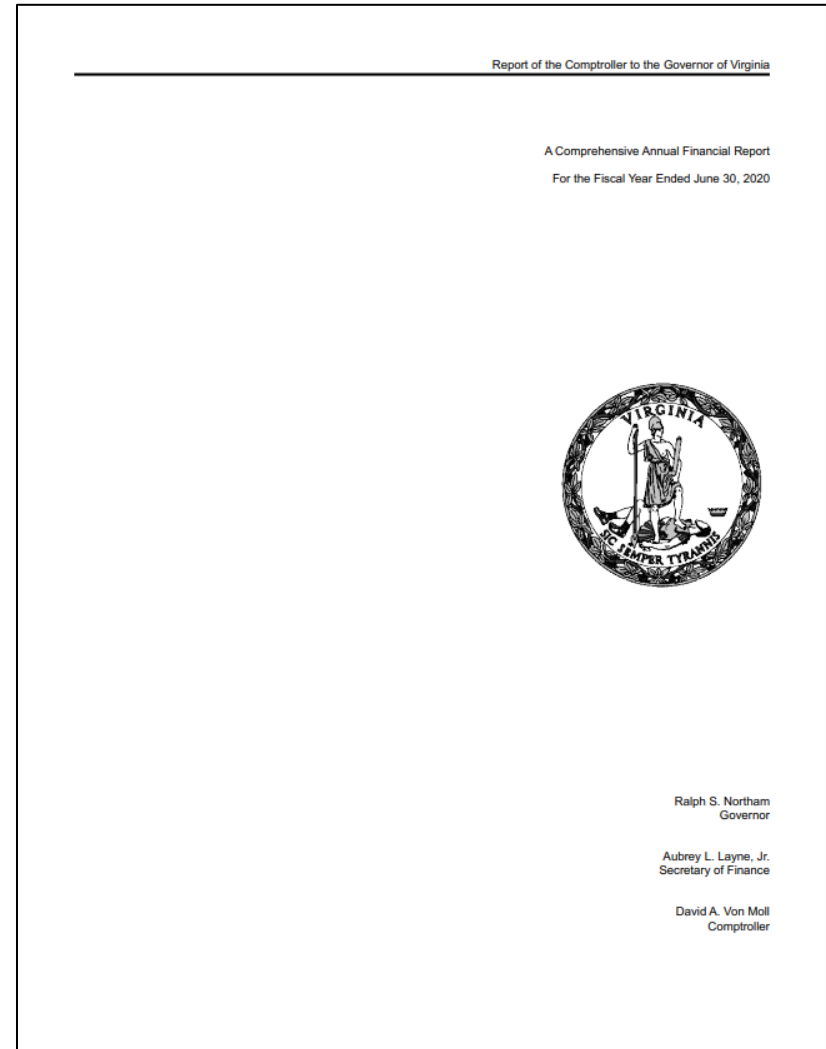
- **Basic Financial Statements**
 - Primary objective of audit is to provide an opinion on fair presentation in accordance with GAAP
 - We assess risk of material misstatement at the line item level and design an audit approach responsive to those risks
 - Procedures include a combination of tests of detailed transactions and balances, as well as internal control processes

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Audit Objectives

- **Virginia ACFR**
 - Objective of audit is also to ensure fair presentation of attachments and supplemental items submitted to DOA
 - Inquiries often require communication between VRS, DOA, and their respective audit teams
 - The VRS audit PM performs final review for both projects to ensure consistency
 - Team also considers internal control processes relating to the compilation of this information



Audit Objectives

- **Required Supplementary Information (RSI)**
 - We review for consistency with the basic financial statements
 - We perform limited procedures, including management inquiries and review of support
 - We do not provide an opinion concerning RSI

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Audit Objectives

- **Supplementary Information**
 - We provide an opinion that schedules are fairly stated ‘in relation to’ the basic financial statements
 - We reconcile the total schedule amount to the basic financial statements and sub-amounts to the general ledger system
 - We perform limited additional procedures, including management inquiry

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Audit Objectives

- **Other Information**
 - We review for inconsistency with the basic financial statements
 - We review for apparent material misstatements of fact based on knowledge of operations
 - We do not provide an opinion or any assurance whatsoever concerning other information

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Approach to Materiality

- We consider what is likely to affect the judgment of a financial statement user in order to:
 - Assess risk and design audit procedures
 - Evaluate misstatements in amounts and deficiencies in processes
- Includes quantitative and qualitative considerations
- Certain procedures are performed at a lower level of materiality in preparation for the employer-level opinions provided in support of GASB Statements 68 and 75

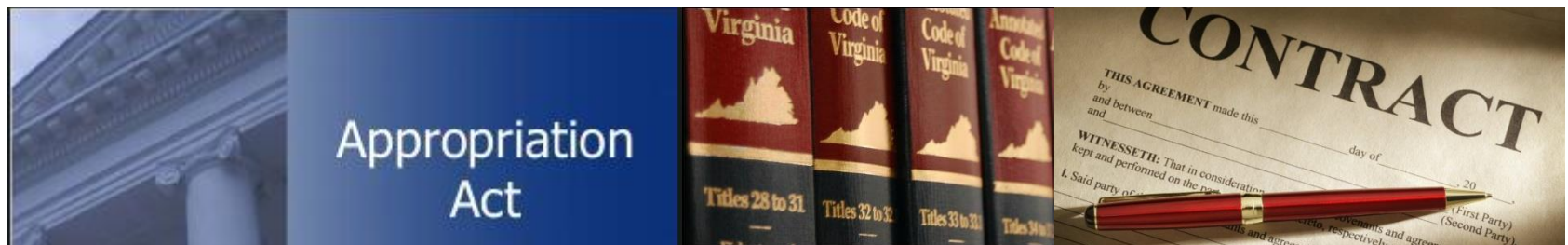
Approach to Fraud

- Team interviews personnel and assesses the risk of fraud
- Team looks for red flags and considers the potential for fraud as it relates to exceptions identified during fieldwork
- VRS is required to notify APA when fraud is identified



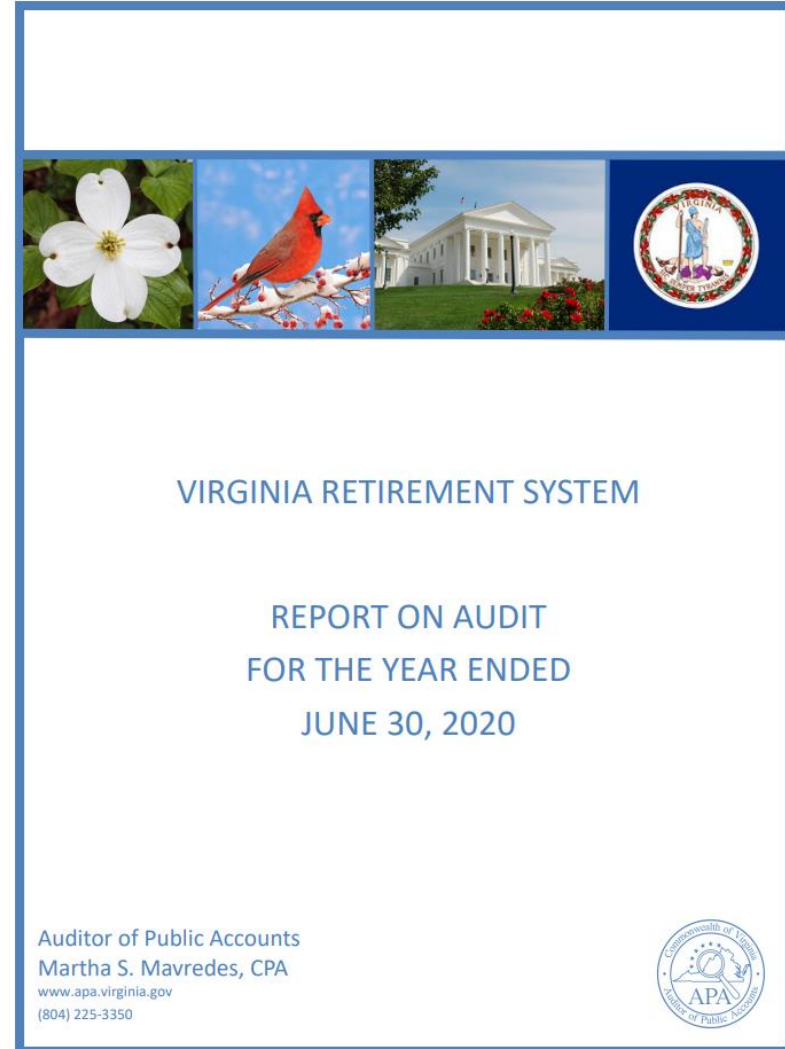
Approach to Compliance

- We consider the risk that potential non-compliance could have a material direct or indirect effect on the financial statements
- We assess management's processes
- We test compliance which we deem significant in the context of the audit objectives



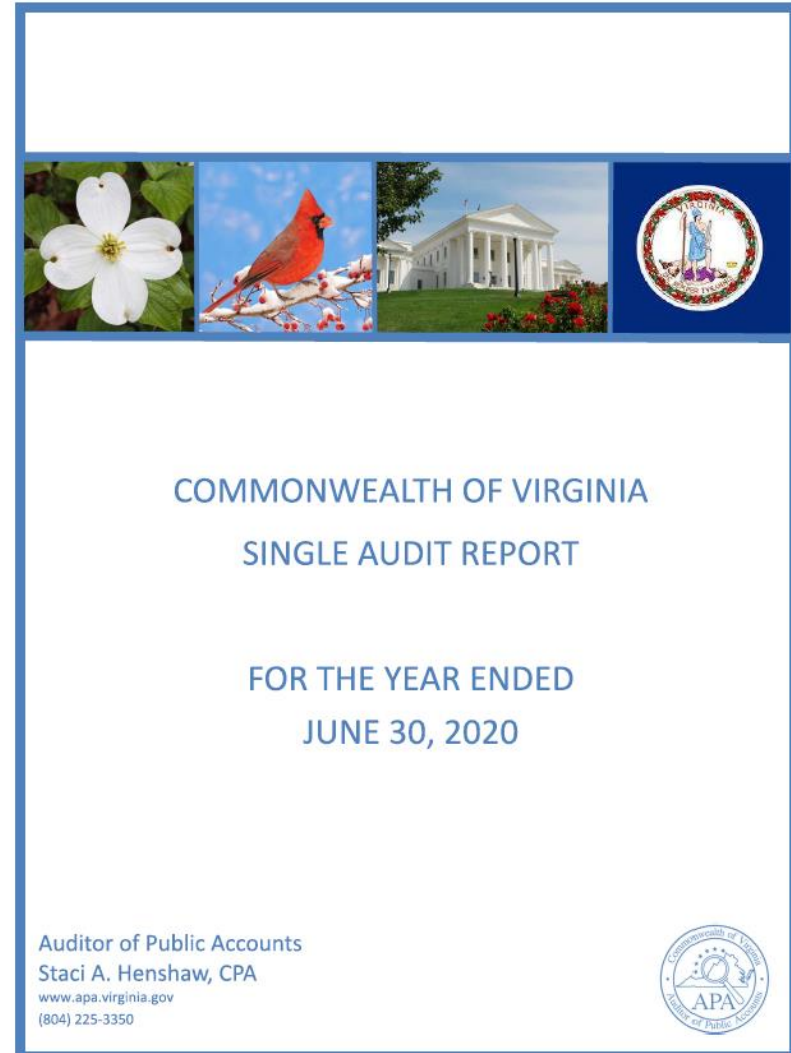
Audit Objectives

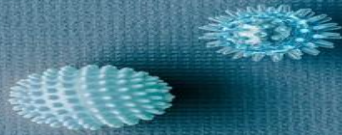
- **Report on Internal Controls and Compliance**
 - We do not provide an opinion on internal controls
 - We are required to report any findings that we deem to be significant deficiencies or material weaknesses
 - Though not required, we plan to issue this report the same week we release the audit opinion



Audit Objectives

- **Statewide Single Audit**
 - The Statewide Single Audit (SSA) report serves as the internal control report for the Commonwealth's Annual Comprehensive Financial Report
 - Findings included in the VRS internal controls report will be carried forward to the SSA report
 - VRS did not have any prior year findings requiring follow up





COVID-19

- We will work with management to ensure safety and to minimize disruption without sacrificing deadlines
- Inquiry access to VRS systems and secure transmission of electronic documents allows most procedures to be performed remotely
- We will continue to gain an understanding of any changes in the business environment and VRS processes in order to assess risk

Management Communication

- Entrance/Exit with Management
- Bi-weekly status meetings:
 - Financial
 - Investments
- When potential concerns are noted:
 - Confirm condition
 - Obtain response
 - Evaluate significance

Audit Committee Communication

- If you are aware of risks our audit should address, please share those with us
- Unless there are findings requiring your immediate attention, we will present our results to you at the conclusion of the audit
- If earlier communication is warranted, we will coordinate with internal audit to ensure the Committee is informed in a timely manner
- Terms of the engagement and representation letters

Questions?



Intended Use Statement

This presentation is intended solely for the information and use of those charged with governance and management, and is not intended to be, and should not be, used by anyone other than these specified parties.

Audit Reports



INTERNAL AUDIT

Report No. 436

Optional Retirement Plan for Higher Education

As of August 31, 2020

Highlighting VRS Core Values: *Integrity, Teamwork, Accountability* and *Agility* in Action

THIS REPORT IS INTENDED SOLELY FOR THE USE OF THE VRS BOARD OF TRUSTEES AND THE MANAGEMENT OF VRS AND IS NOT INTENDED FOR OTHER PURPOSES.



TRANSMITTAL LETTER

April 30, 2021

Dear Members of the Audit and Compliance Committee,

We have completed audit number 436, "Optional Retirement Plan for Higher Education." The main purposes of our audit were to evaluate the reasonableness and adequacy of monitoring activities and/or compliance responsibilities performed by VRS, and to determine the accuracy of plan distributions, financial activities and system interfaces.

We conducted our audit in accordance with the *International Standards for the Professional Practice of Internal Auditing*. These standards require that we plan and perform the audit to obtain sufficient and appropriate evidence to provide a reasonable basis for the conclusions based upon our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

This report was distributed to the VRS Director, Chief Investment Officer and members of management for review and comment. As our review did not result in a written recommendation, management did not provide a written response but expressed substantial agreement with our report.

We appreciate the cooperation and assistance of the Defined Contribution Plans and Investments Departments throughout this audit.

Respectfully Submitted,

A handwritten signature in black ink that reads 'Jennifer P. Bell Schreck'.

Jennifer P. Bell Schreck, CPA, CISA, PMP
Audit Director

Optional Retirement Plan for Higher Education Pg. 2 of 19

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EXECUTIVE SUMMARY

We conducted an examination of VRS' Optional Retirement Plan for Higher Education (ORPHE) for the period ending August 31, 2020. Our review determined that:

- monitoring activities and compliance responsibilities performed by VRS over the ORPHE plan were adequate,
- ORPHE plan distributions and financial activities were accurate, and
- system interfaces associated with ORPHE were handled appropriately.

The VRS Defined Contribution Plan (DCP) is reviewed separately as a part of the other various defined contribution plans administered by VRS.

While limited information regarding the DCP is included in the background of this report, activity related to ORPHE participants who chose the DCP as their investment option was outside the scope of this review.

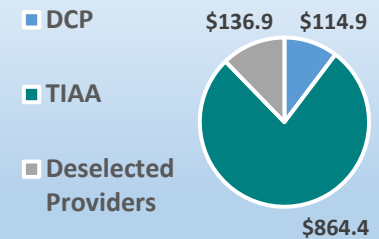
Management has made significant improvements to their monitoring processes since our prior audit in this area and should be commended for their efforts.

There are no written recommendations resulting from our review; however, we noted opportunities for minor enhancements to certain activities associated with ORPHE.

SNAPSHOT

As of **June 30, 2020**, ORPHE assets totaled **\$1.1 billion**, which are invested through the **DCP Plan**, **TIAA** or **deselected providers** as directed by the participant.

Assets as of June 30, 2020
(dollars in millions)



AUDIT ASSESSMENT

Overall, VRS provides appropriate oversight and management of ORPHE and its related third-party administrators.

Written Recommendations: 0

BACKGROUND

INTRODUCTION

The Optional Retirement Plan for Higher Education (ORPHE) was established in 1985 per Section 51.1-126 of the *Code of Virginia* with the first participants enrolling in the plan beginning in 1986. VRS became responsible for the operation of the plan in July 2000. ORPHE is a defined contribution plan in accordance with IRC 401(a). Participants in the plan are immediately vested.

ORPHE is designed for members who potentially could have multiple employers during their careers and would benefit from the plan's portability. The retirement benefit from the plan is based on the contributions paid into the plan, as well as any investment gains and losses on the contributions. The participant chooses the investments and assumes all the risks associated with the investments.

Eligible employees include presidents of participating public institutions of higher education, chancellors and presidents of the Virginia Community College System, and permanent, salaried teaching, research and administrative faculty members (full or part-time) of participating public institutions (adjunct faculty members are not eligible for ORPHE).

Eligible members are given the option to elect ORPHE (Plan 1, Plan2) or one of the VRS defined benefit plans (VRS Plan 1, Plan 2) or the VRS Hybrid Retirement Plan. The plan election options available to the member depend upon their membership date and existence of any applicable prior service.

They have a 60-day window to make their plan selection, beginning on their hire or rehire date. If they do not make their plan election within 60 days, they will automatically be covered under the applicable VRS defined benefit plan or Hybrid Retirement plan.

OPT-OUT INSTITUTIONS

Any institution of higher education may establish and maintain its own optional retirement plan for employees engaged in teaching, administrative or research duties, subject to approval by the VRS Board of Trustees (Board). Referred to as "opt-out institutions", VRS has no further duties or responsibilities with respect to such "opt-out plans".

Optional Retirement Plan for Higher Education Pg. 4 of 19

OTHER BENEFITS

Dependent on their individual **circumstances**, ORPHE **members may be eligible** to participate in **additional benefit** programs, including:

- Group Life Insurance
- Optional Group Life Insurance
- Health Insurance
(administered by Department of Human Resource Management)
- Health Insurance Credit
- Voluntary Group Long Term Care Insurance
- Contributions to their ORPHE Account while on Educational or Military Leave (subject to compensation received)

In addition, participants can **select** a joint and **survivor annuity option** if the participant wishes for their **benefit to continue** to a survivor upon their death.

HYBRID PLAN

A hybrid retirement plan is a combination of two types of plans: a defined benefit plan and a defined contribution plan. Contributions are made to both the defined benefit and defined contribution components of the retirement plan.

At retirement, members receive a monthly benefit that is paid from the defined benefit component of the plan and are eligible to receive distributions from the defined contribution component.

Currently, the College of William and Mary, George Mason University, the University of Virginia, including, UVA Wise and the Southwest Virginia Higher Education Center, Virginia Commonwealth University, the Virginia Institute of Marine Science and Virginia Tech have received approval and administer separate ORPHE plans for their faculty members. Faculty members at these institutions are eligible for the same other post-employment benefits described above, except for UVA faculty, who are covered under the institution's own life insurance plan.

ORPHE-eligible employees of opt-out institutions do not have access to myVRS for the purpose of plan election and continue to use paper forms for enrollment purposes. As with participating institutions, if an election is not made within 60 days of hire or rehire, they will automatically be covered under the applicable VRS defined benefit plan or Hybrid Retirement plan.

BUNDLED VS. UNBUNDLED

When it comes to **designing a defined contribution plan**, there are generally **two** provider **structures** which a plan sponsor may select, **bundled** or **unbundled**.

A **bundled** provider **delivers** investment management, recordkeeping, administration, and education **services**. (TIAA)

With **unbundled** providers, the plan sponsor may establish separate contracts for **one or more** of those **services**. (DCP/ICMA-RC)

PLAN CHANGES

There have been significant changes to the administration of the ORPHE plan since Internal Audit's prior review in this area.

Adjustment to Service Provider Approach

In 2015, after careful analysis and consideration of numerous factors, VRS decided to begin to transition from ORPHE's previous bundled structure, to primarily an unbundled structure. The shift was designed to achieve reduced fees and improved investment performance and services for the participants by allowing VRS to act with **agility** in the options offered to participants.

Recordkeeper RFP

This decision resulted in the need for a partnership with a Third-Party Administrator to act as a record keeper on behalf of the plan participants. Through a request for proposal procurement

process, ICMA-RC (now MissionSquare) was selected and approved by the Board to provide this service beginning April 1, 2016.

Shifting from Bundled to Unbundled

VRS also planned to deselect the existing bundled providers, TIAA and Fidelity, at this time. However, initial efforts to shift from the existing bundled providers met some resistance from the participant community. TIAA and Fidelity ultimately were left in place at that time with the understanding that VRS would be moving towards a flat fee structure.

Adding DCP

In January 2017, the DCP investment line up selected by VRS and administered by ICMA-RC was added as an investment option for participants.

Implementing Plan Selection Functionality

To support plan selection, VRS built the plan election process into myVRS, which launched December 2017, and enhanced the process to provide information to assist the participant's decision making. Through this functionality, once an election is made, it flows through to a Plan Election Acknowledgement Screen that employers get from VNAV. The process anticipates employers checking each pay period to see if there are any new participants to set up in their payroll and acknowledge that they have done so.

Planning for the Future

In 2018 educational meetings were held with employers to explain the issues with the plan and for them to understand why change was necessary and request feedback from these employers. The following year outreach meetings to faculty began. VRS put together a formal plan to deselect Fidelity as an option.

Restructuring and Deselecting Fidelity

Fidelity participants were given the option to keep their existing balance with Fidelity, and to pick a new provider (TIAA or ICMA-RC), or they could choose to move their existing balance to their new provider. The ability for new hires to select Fidelity stopped in June 2019; contributions to Fidelity for existing accounts stopped in January 2020.

ACTIVE PROVIDERS

TIAA
DCP (through ICMA-RC)

DESELECTED PROVIDERS

Fidelity
MetLife
AIG (formerly VALIC)
Empower (formerly Great-West)
T. Rowe Price

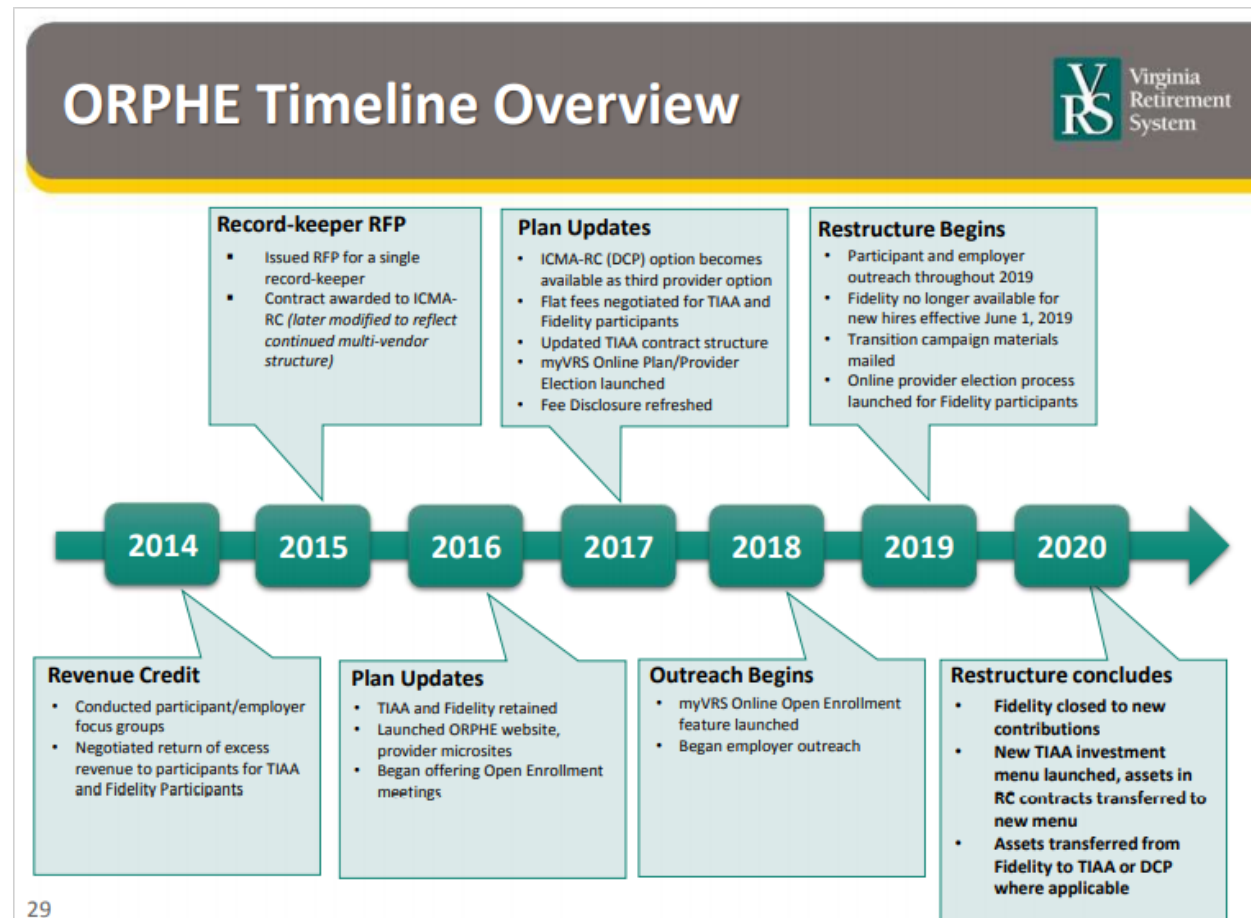
OVERSIGHT AND GOVERNANCE

ORPHE is **governed** by its own **Master Trust** document. **Two Investment Policy Statements** cover the **optional retirement plans** administered by **VRS**. **TIAA** falls **under** the **Investment Policy Statement for a Bundled Structure** and the **other** optional retirement **plans** fall **under** the **Investment Policy Statements for an Unbundled Plan Structure**.

The **Defined Contributions Plan Advisory Committee (DCPAC)** of the **VRS' Board** provides **oversight** for the ORPHE plan. The **DCPAC** members are **appointed** by the **Board**.

The **DCPAC meets** at least **three times** per year receiving **updates** on defined contribution **plan activities** (including ORPHE) and **reports** to the **Board** following each meeting.

The timeline below graphically depicts these changes.



29

Source: June 4, 2020 DCPAC Meeting, VRS Defined Contribution Plans 1st Quarter 2020 (January-March) Administrative Summary, page 29

Governance Changes

In addition to the above, there have also been governance related changes. The Investment Policy Statement supporting the Defined Contribution plans was split into two, one for a bundled plan structure and one for an unbundled plan structure.

Modifications to TIAA Investment Options

As TIAA is a bundled provider, TIAA is limited to what investments it can include on its investment platform. However, at the request of VRS, TIAA was able to offer Blackrock Investments to ORPHE plan participants.

MEMBERSHIP AND CONTRIBUTIONS

ORPHE is comprised of two plans, ORPHE Plan 1 and ORPHE Plan 2.

Members join ORPHE Plan 1 if their retirement plan coverage date is before July 1, 2010. Their employer contributes 10.4% of their creditable compensation each pay period to the member's account.

Members join ORPHE Plan 2 if their retirement plan coverage date is July 1, 2010 or later. Plan 2 members' employers contribute 8.5% and the member contributes 5% on a tax-deferred basis for a total of 13.5% of their creditable compensation being contributed each pay period. (Under Plan 2 the employer may contribute as much as 8.9% if approved by the institution's governing body and paid from non-state funds.)

As previously noted, vesting is immediate in the VRS administered ORPHE plans. Members can request distributions or roll over the plan balance once they are no longer employed in a position that provides retirement benefits through a plan administered or authorized by VRS, regardless of their age or how long they have been covered under ORPHE.

Money is tax-deferred until withdrawn. If withdrawn before age 59½ an additional penalty may be imposed. Additionally, participants can consolidate retirement plans by rolling over money from other retirement plans to their ORPHE account.

While participating in ORPHE, the member is eligible to participate in the Commonwealth's Deferred Compensation Plan, the Cash Match Plan and may also participate in any 403(b) tax-deferred plan offered by the institution. All new employees are automatically enrolled in the Deferred Compensation Plan at a semi-monthly amount of \$20 unless the employee contributes to their employer's 403(b) plan. In this instance, an employee may still choose to voluntarily enroll in the Commonwealth's Deferred Compensation Plan.

The table below lists the institutions that participate in VRS' ORPHE.

Colleges & Universities	Virginia Community College System	
James Madison University Longwood University Norfolk State University Old Dominion University Richard Bland College University of Mary Washington Virginia Military Institute Virginia State University	Blue Ridge Community College Central Virginia Community College Dabney S. Lancaster Community College Danville Community College Eastern Shore Community College Germanna Community College John Tyler Community College Lord Fairfax Community College Mountain Empire Community College New River Community College Northern Virginia Community College Patrick Henry Community College	Paul D. Camp Community College Piedmont Community College Rappahannock Community College Reynolds Community College Southside Virginia Community College Southwest Community College Tidewater Community College Thomas Nelson Community College Virginia Highlands Community College Virginia Western Community College Wytheville Community College
Other Institutions		
Institute for Advanced Learning & Research	The New College Institute	Southern Virginia Higher Education Center

INVESTMENT OPTIONS

Participants in ORPHE can invest through one of two providers: DCP, an unbundled provider whose records are kept by ICMA-RC, or TIAA, a bundled provider. The following gives a high-level provider option comparison.



Provider Type	Unbundled	Bundled
Record Keeper	ICMA-RC	TIAA
Plan Administrative Fees	\$30.50 flat fee annually	\$66.00 flat fee annually
Range of fees (All provider fees subject to change.)	0.01% - 0.59% annualized	0.01% - 0.83% annualized (Some funds may include investment and administrative expenses.)
Number of Investments Available (Target date fund series are treated as one option)	11	11



Default Investment Option	Target Date Funds	Target Date Funds
Self-Directed Brokerage Account	Yes	Yes
Annuities Available as a Plan Distribution Option	Yes	Yes
Dedicated Plan Representatives (Investment advice is not an authorized service for the ORPHE plan.)	Yes	Yes

In addition to the Target Date Fund Series offered by each provider, participants can take on more direction in their investment options by selecting from 10 individual investment fund options focused on treasury bills, bonds, stocks and real estate. Subject to eligibility requirements, they also have access to a self-directed brokerage account.

Since the previous audit, many of the TIAA proprietary funds were replaced with BlackRock funds. VRS offers many of these same BlackRock funds through the unbundled DCP plan. Prior to this restructure, VRS did not have a direct relationship with TIAA’s partner fund investment managers (American Funds, Vanguard, DFA), but now given the existing relationship that VRS has with BlackRock for the unbundled defined contributions plans, the VRS Investment Department has better ability to work collaboratively with TIAA and BlackRock should any concerns arise.

Of note, while TIAA’s record keeping platform must use the ‘proper’ BlackRock names, VRS in its the unbundled platform can “white label” the DCP fund names to reflect the nature of the investment. White labeling, considered an industry best practice, also provides the flexibility to change underlying fund managers as deemed necessary and appropriate. While the names of the funds differ due to white labeling, the investment options are generally the same. To illustrate, some of the TIAA Blackrock investment options are the same as those offered within the unbundled DCP (same fund and share class), one option is not the same, and some are the same strategy with a different share class. For example, DCP’s Target Date 2035 Portfolio is the BlackRock LifePath Index 2035 Fund O on the TIAA platform.

The chart on the following page shows the investment options available with TIAA and the DCP.



Target Date Portfolios	Target Date Portfolios
Retirement Portfolio Target Date 2025 Portfolio Target Date 2030 Portfolio Target Date 2035 Portfolio Target Date 2040 Portfolio Target Date 2045 Portfolio Target Date 2050 Portfolio Target Date 2055 Portfolio Target Date 2060 Portfolio Target Date 2065 Portfolio	BlackRock LifePath Index Retirement Fund O BlackRock LifePath Index 2025 Fund O BlackRock LifePath Index 2030 Fund O BlackRock LifePath Index 2035 Fund O BlackRock LifePath Index 2040 Fund O BlackRock LifePath Index 2045 Fund O BlackRock LifePath Index 2050 Fund O BlackRock LifePath Index 2055 Fund O BlackRock LifePath Index 2060 Fund O BlackRock LifePath Index 2065 Fund O
Individual Options	Individual Options
Money Market Fund Stable Value Fund Bond Fund High-Yield Bond Fund Stock Fund Small/Mid-Cap Stock Fund International Stock Fund Global Real Estate Fund VRSIP (VRS Investment Portfolio)	BlackRock Short-Term Investment Fund W BlackRock U.S. Debt Index Fund M BlackRock U.S. TIPS Fund M BlackRock Equity Index Fund J BlackRock Russell 2500 Index M BlackRock MSCI ACWI ex-U.S. IMI Index Fund M BlackRock MSCI ACWI IMI Index Non-Lendable Fund M TIAA Real Estate Account TIAA Traditional Annuity RC
Self-Directed Brokerage Account	Self-Directed Brokerage Account
TD Ameritrade	TIAA-CREF Self-Directed Account

ORGANIZATIONAL CHART

Defined Contributions Plans

Customer Services Director

DCP Administrator

Investments

*Managing Director
Global Investments*

Portfolio Manager

DISTRIBUTIONS

Participants can receive a distribution from their account upon separation from service, retirement or death, in which case the distribution is paid to the designated beneficiary. Federal regulations require participants to take a distribution at age 72 (or at age 70 ½ for individuals with a birthdate of June 30, 1949 or earlier).

Participants terminating their employment, may roll over their funds into an eligible retirement plan such as a 401(a), 401(k), 403(b), governmental 457(b) traditional IRA or Federal Employees Thrift Savings Plan that accepts such rollovers. If they leave the funds in their ORPHE account, at retirement there are various options available, including the purchase of an annuity, rollover to an eligible retirement plan, or a distribution of funds (lump-sum, periodic, or combination of both) from their account. Most distribution options can be changed at any time, as long as there is a balance in the account (with the exception of the purchase of an annuity).

VRS RESPONSIBILITIES

Administrative and Investment staff work together, demonstrating VRS' commitment to *teamwork and accountability*, to support ORPHE. The VRS Defined Contribution Plans (DCP) Administrator oversees the administrative aspects of ORPHE while a VRS Portfolio Manager is primarily responsible for the oversight of the investment options available to the participants in the plan.

Administrative Oversight

The DCP Administrator reports to the Customer Services Director and is assisted by a well-seasoned staff of employees. These employees are also responsible for various administrative aspects of the defined contribution components of the VRS Hybrid Retirement Plan, Deferred Compensation Plan, the Cash Match Plan and the other optional retirement plans administered by VRS. The duties performed by this department specifically for ORPHE include, but are not limited to:

- educating members and employers regarding the plan provisions;
- ensuring the accuracy of all communications regarding the plan;

- working with the providers and employers to ensure appropriate and accurate reporting of plan participant information;
- reviewing reports from the providers;
- holding periodic meetings with the providers;
- preparing and presenting regular reports to the DCPAC; and,
- providing oversight and monitoring of other aspects of the plan, as necessary.

Monitoring activities over the plan have increased significantly given the changes to the plan over the last few years. The department also reviews and approves all distribution requests for the plan.

Investment Oversight

The Portfolio Manager reports to the Managing Director – Global Investments in VRS' Investment Department. The Portfolio Manager maintains the Investment Policy Statement for the bundled defined contribution plans structure. Duties and responsibilities include but are not limited to:

- monitoring the investment performance and fees including comparison to related benchmarks;
- reviewing the performance reports and other investment information published by the providers for accuracy; and,
- preparing and presenting regular reports to the DCPAC and the Board and other committees, as necessary.

In addition to interacting with TIAA throughout the year, the Portfolio Manager also oversees the Annual Investment Questionnaire for TIAA and meets with TIAA annually to perform annual manager due diligence. Similar questionnaires are completed, and due diligence meetings occur for the unbundled plans.

FEES AND EXPENSES

Participant Administrative Fees

As previously noted, a flat administrative fee structure was implemented in 2017 as part of the plan enhancements that occurred. TIAA charges an annual participant fee of \$66 per person,

while ORPHE participants in the DCP pay an annual \$30.50 administrative fee, regardless of the number of DCP accounts for which ICMA-RC (now MissionSquare) provides record keeping services for the member.

Participating Employer Administrative Fees

Due to the exclusive benefit rule, VRS must charge administrative and investment oversight costs for ORPHE to participating colleges and universities. Annually, on June 30th, management runs a VNAV report which captures the employer and member details as of that date and supports the determination of the number of ORPHE participants by employer. The Budget Department provides Accounts Receivable with the per-participant fee and a manual bill is created for each participating university.

Opt-Out Institutions Surcharge

In fiscal year 2019, the Appropriation Act required higher education institutions with their own ORPHE plan, also known as Opt-Out Institutions, to pay a surcharge for non-teaching positions converted to ORPHE-eligible positions in order to help ensure these employers contribute equitably to the legacy unfunded liability of the state employee plan.

Annually, Accounts Receivable sends a letter and excel spreadsheet to the opt-out institutions requesting them to self-report the number of individuals to whom the surcharge applies. Once the information is received by VRS, a bill is created and sent to the institution for payment. For 2020, \$1.2 million was received for this surcharge.

SCOPE AND METHODOLOGY

ORPHE was reviewed to ensure proper monitoring and oversight exists over the program. While participants may choose either TIAA or DCP as their provider, only TIAA was reviewed as processes and procedures that include ICMA-RC are reviewed extensively during the Defined Contribution Plans Audit.

The primary purposes of this examination were to:

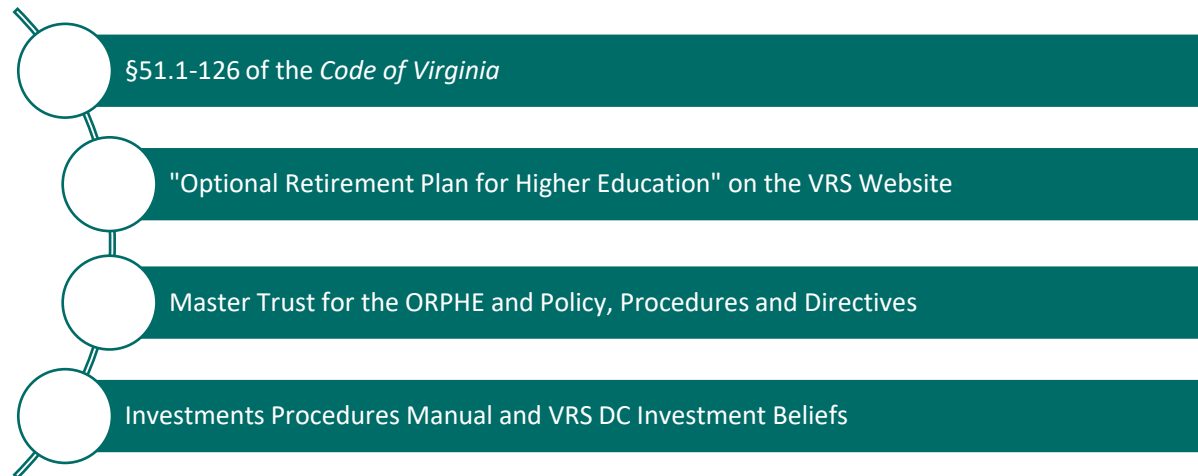
- Evaluate the reasonableness and adequacy of monitoring activities and/or compliance responsibilities performed by VRS for ORPHE;
- Ensure that financial activities supporting the ORPHE plan were accurate;
- Determine whether plan distributions were properly supported; and
- Review the accuracy of system interfaces pertinent to ORPHE.

GENERAL ASSESSMENT AND UNDERSTANDING

We obtained a general understanding of the Optional Retirement Plan for Higher Education as well as the controls by meeting with key individuals from each area. We also reviewed the applicable policies and procedures and other relevant documents.

MONITORING AND COMPLIANCE ACTIVITIES

Documentation related to program monitoring and compliance was examined to gain an understanding of the guidelines surrounding ORPHE. Documentation included:



INVESTMENT MONITORING

The **Annual Investment Questionnaire** for TIAA was **properly completed** and the **annual manager due diligence** occurred.

Evidence exists that the **Consolidated Performance Report** is **appropriately reviewed**, and **discrepancies** are **researched**.

Further, the most recent SSAE 18 System and Organizational Control (SOC) report for TIAA was examined to ensure the report was adequately reviewed by VRS staff and identified Complementary User Entity Controls were in place.

The contract between VRS and TIAA was reviewed for applicable performance metrics to evaluate TIAA's conformance to the terms of the contract. Metrics relevant to the audit were planned to be selected to determine if they were performed in accordance with the contract and monitored appropriately by VRS staff.

The process for Plan Failures (when a participant's plan selection does not match VNAV) was reviewed for reasonableness, and the process for adding participants to VNAV from opt-out universities was reviewed. A sample of the Provider Maintenance Reconciliation, which is performed to ensure that participant elections are accurate, was reviewed for accuracy. Various data points for ORPHE were reviewed for accuracy and consistency with expectations.

Finally, investment monitoring was considered to ensure that the annual investment questionnaire was complete, proper due diligence was performed, the consolidated performance report was analyzed properly, and discrepancies were appropriately researched.

FINANCIAL ACTIVITIES

Internal administrative fees were reviewed to determine the reasonableness of how they are allocated to universities participating in VRS' ORPHE. The annual billing was requested for review to evaluate the accuracy and to determine whether they were appropriately and accurately entered in the general ledger.

Further, the process surrounding the billing of opt-out universities for the surcharge for non-teaching positions was reviewed for reasonableness. Billing was recalculated for accuracy and the general ledger was reviewed for accuracy of the entries.

PLAN DISTRIBUTIONS

A sample of TIAA distributions was selected to determine whether the distribution was properly requested and supported. The sampled distributions were also reviewed for proper approval and to ensure that the VNAV record properly reflected the distribution.

SYSTEM INTERFACES

The process surrounding the daily file exchange from TIAA was reviewed for reasonableness. The daily file exchange from TIAA updates records for changes that have occurred and thus is only sent when there is a change. The file includes both active and separated participants.

CONCLUSIONS

GENERAL ASSESSMENT AND UNDERSTANDING

Overall, monitoring and compliance activities for ORPHE are sufficient. Further, management has established policies and procedures that support the effective and efficient operation of the plan.

MONITORING AND COMPLIANCE ACTIVITIES

Overall, monitoring activities and controls over ORPHE are sufficient and are operating as expected. SOC reports are appropriately reviewed for weaknesses and expected Complementary User Entity Controls are in place at VRS. Management has a process to properly correct plan failures when identified. Procedures for adding participants from opt-out institutions into VNAV are properly performed. Management is appropriately monitoring and managing plan selection by participants, taking steps to ensure their selection is accurately reflected in VNAV and working with appropriate parties (either internal or external) to correct such records when necessary.

The review did find that the contract between TIAA and VRS does not have established performance metrics identified. While metrics previously had been discussed and agreed upon, due to a miscommunication between VRS and TIAA, there were no metrics defined in the contract, nor being reported on or monitored at the time of the audit. Management is in the process of amending the contract to specifically include performance metrics and ensuring they are properly monitored.

FINANCIAL ACTIVITIES

Examination of the procedures for allocating internal administrative fees to participating institutions found that the billing process is reasonable. Similarly review of the procedure in place

to bill opt-out institutions for the surcharge for non-teaching positions found that the process was adequate.

However, when these items were requested for review it was noted that in some circumstances these annual billing activities were not completed timely. When brought to management's attention, they noted resource limitations had impacted typical processing behaviors for the period under review and took immediate action to address the untimely billings.

PLAN DISTRIBUTIONS

Evaluation of plan distributions found that distributions were properly requested, supported, approved and recorded in VNAV. Where appropriate, required documentation was present denoting termination of the participant from their position.

SYSTEM INTERFACES

Examination of system interfaces relevant to ORPHE found the process for managing those interfaces was reasonable.

FOLLOW-UP ON PRIOR REPORTS

There were no outstanding audit recommendations to consider.

RECOMMENDATIONS

We have no written recommendations to offer as a result of our review.

MANAGEMENT EXIT CONFERENCE

This report was distributed to Ms. Bishop, Mr. Schmitz and other members of VRS' management and staff for review and comment. They expressed substantial agreement with this report.

As there are no written recommendations, a written response from management is not required.

There were **no** written **recommendations** as a result of our **review**.

REPORT DISTRIBUTION

Submitted to the Audit and Compliance Committee at its meeting held
June 3, 2021

MEMBERS OF THE AUDIT AND COMPLIANCE COMMITTEE

Joseph W. Montgomery, Committee Chair
W. Brett Hayes, Committee Vice Chair
O'Kelly E. McWilliams, Board Chair

WITH COPIES TO:

OTHER MEMBERS OF THE BOARD OF TRUSTEES

J. Brandon Bell, II
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Troilen G. Seward

VRS EXECUTIVE LEADERSHIP

Patricia S. Bishop
Ronald D. Schmitz
Members of the Director's
Executive Committee

AUDITOR OF PUBLIC ACCOUNTS

Staci A. Henshaw

JLARC

Kimberly A. Sarte
Jamie Bitz

PRINCIPAL AUDITOR IN-CHARGE

Judy S. Bolt, CPA, CIA, CISA, CFE



INTERNAL AUDIT

Report No. 437

Private Equity Program

As of March 31, 2020

THIS REPORT IS INTENDED SOLELY FOR THE USE OF THE VRS BOARD OF TRUSTEES AND THE MANAGEMENT OF VRS AND IS NOT INTENDED FOR OTHER PURPOSES.



TRANSMITTAL LETTER

April 30, 2021

Dear Members of the Audit and Compliance Committee,

We have completed audit number 437, "Private Equity Program." The main purpose of our audit was to review the Private Equity Program to ensure due diligence and monitoring activities are adequate and align with the applicable Investment Policy Statements.

We conducted our audit in accordance with the *International Standards for the Professional Practice of Internal Auditing*. These standards require that we plan and perform the audit to obtain sufficient and appropriate evidence to provide a reasonable basis for the conclusions based upon our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

This report was distributed to the Chief Investment Officer and members of management for review and comment. As our review did not result in a written recommendation, management did not provide a written response but expressed substantial agreement with our report.

We appreciate the cooperation and assistance of the Investment and Operations Departments throughout this audit.

Respectfully Submitted,

A handwritten signature in black ink that reads 'Jennifer P. Bell Schreck'.

Jennifer P. Bell Schreck, CPA, CISA, PMP

Audit Director

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EXECUTIVE SUMMARY

We conducted an examination of the Private Equity Program within VRS' Investment Department as of March 31, 2020. Our review determined:

- Management's administration of the program complies with the Investment Policy Statements;
- Sufficient and appropriate due diligence and monitoring activities are occurring; and,
- Private Equity accounting transactions are accurate, reconciled and timely recorded by the Bank of New York Mellon (BNYM).

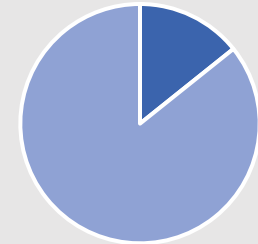
This review did not include an evaluation of the external manager fees related to the Private Equity Program, as the controls surrounding investment fees were addressed in a separate recently completed examination.

There are no written recommendations resulting from our review.

SNAPSHOT

The total **value** of the **Private Equity Program** as of **March 31, 2020** was **\$11.0 Billion**, representing **14.3%** of the **Total Fund**.

Private Equity Program vs. Total Fund Value



The Program's outstanding **Unfunded Commitments** for the period totaled **\$6.3 Billion**.

AUDIT ASSESSMENT
Adequate oversight and monitoring controls exist over the Private Equity Program.

Written Recommendations: 0

BACKGROUND

INTRODUCTION

The value of the Private Equity Program as of March 31, 2020 was \$10.97 billion, or 14.3% of the Total Fund. The Private Equity Program policy target as of March 31, 2020 is 11%, with an allowable range between 6% and 16%. Since inception, the Private Equity Program has generated an annualized net time-weighted return of 21%.

Program History

VRS has been investing in private equity since 1989. At inception, the Private Equity Program was primarily US focused. The portfolio expanded to include European investment managers in 1997 and Asian investment managers in 2014.

Program Goals

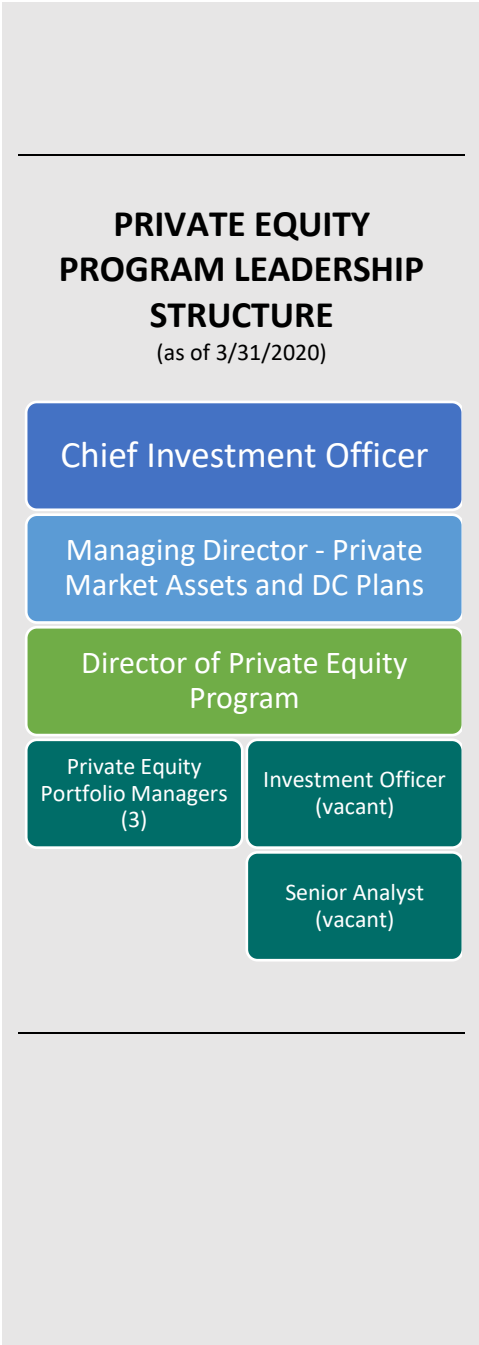
Investments in private equity are used to enhance the risk-adjusted return of the Total Fund. Broadly stated, Private Equity’s investment objective is to outperform the public stock market by a meaningful margin.

The Private Equity Program is expected to reduce the volatility of the Total Fund by investing in assets that do not have a high statistical correlation with the public stock market. The Private Equity Program also differs from most other VRS investment programs in that it is viewed as a higher risk asset with a higher return potential. The increased level of risk is due to several factors including limited liquidity, market values that are more difficult to establish and are determined less frequently, and higher fees than most other asset classes.

Private Equity Investment Accounts

Account Structures

The Private Equity Program typically invests through a variety of account structures such as, but not limited to, limited partnerships, separate accounts and other custom strategies.



TOP 10 MANAGERS

Apax

Apollo

Bain

CVC

General Atlantic

Grosvenor

Hellman &
Friedman

TA

TPG

Veritas

Co-investments

The Private Equity Program also actively supports a co-investment initiative. A co-investment is a minority investment in a company made by investors alongside a private equity fund manager. VRS' co-investment initiative started in 2013 and has grown in excess of \$1.1 billion, including over 40 investments, which were made with General Partners for which VRS had a strong existing relationship. These relationships focus on sourcing and executing opportunities alongside high conviction General Partners. VRS benefits greatly from using these investment vehicles as they typically have a no fees or carry arrangement. Co-investment opportunities are typically restricted to existing fund investors.

Investment Managers

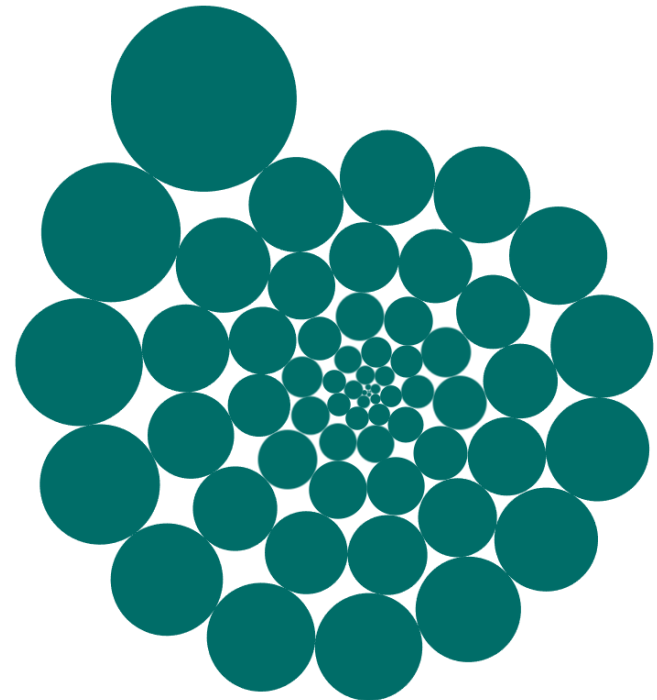
The diagram to the right illustrates the magnitude of the investment with the 60 individual external managers who make up the Private Equity Program. VRS may invest in one or more accounts with each external manager. The size of the circle corresponds to the combined market value of assets for each external manager, compared to the Private Equity Program as a whole, as of March 31, 2020. The largest circle in the graphic includes accounts that hold VRS' co-investments.

The top 10 manager relationships by market value are shown to the left, in alphabetical order.

Performance Benchmark

Management views Private Equity as a substitute for public equity. As such, Private Equity follows the same benchmark as the Public Equity Program. When the Public Equity Benchmark changes, the Private Equity Benchmark has a corresponding change so the benchmarks match. There may

Magnitude of Investment with External Managers



What is the MSCI All Country World Index?

It is a **stock index** designed to track broad **global equity-market performance**.

Maintained by **Morgan Stanley Capital International** (MSCI), the **index** is **comprised** of the **stocks** of about **3,000 companies** from **23 developed countries** and **27 emerging markets**.

be timing differences of when the changes are made based on asset class nuances; however, the benchmarks of the two program are strategically interrelated. All benchmark changes are reviewed and approved by the VRS Board of Trustees (Board).

Recent Changes in the Performance Benchmark

Effective January 2020, the Private Equity Custom Benchmark became the Morgan Stanley Capital International (MSCI) All Country World Index (ACWI) Investable Market Index (IMI) (net VRS tax rates) lagged by three months plus 250 basis points per annum with modified benchmarking during the increased allocation period.

The prior Private Equity Custom Benchmark was effective July 2013 and was the MSCI ACWI IMI with the Developed Market Currencies 50% Hedged customized for the VRS dividend withholding tax rates lagged by three months plus 250 basis points per annum with modified benchmarking during the increased allocation period.

While outside the audit period, in July 2020 the benchmark was adjusted to eliminate the 250 basis points addition per annum. Therefore, the current benchmark is the MSCI ACWI IMI Index (net VRS tax rates) lagged by three months with modified benchmarking during the increased allocation period.

INVESTMENT POLICY STATEMENTS

The governing document for the Total Fund is the VRS Defined Benefit Plan Investment Policy Statement, which the Board most recently approved in November 2018. Based on this policy statement, the overall investment objective of the VRS portfolio is to maximize return while managing risk within an acceptable range. The Board has delegated to the Chief Investment Officer (CIO) the authority to establish and modify as necessary the program level investment policy statements. Therefore, the CIO approves any material changes to the risk profile and/or the return objectives for the program.

The VRS Private Equity Program Investment Policy Statement was most recently updated in January 2020. This update included minor revisions from the prior Private Equity Program Investment Policy Statement dated July 2016. The Private Equity Program is expected to reduce volatility of the Total Fund by investing in assets that do not have a high correlation with public equities.

Since early 2020, manager meetings have primarily been held using remote technology due to the COVID-19 Pandemic.

The Private Equity Program Investment Policy Statement also defines program structure, risk analysis considerations, due diligence expectations related to hiring and monitoring, records retention requirements and program reporting, as well as non-compliance remedies and termination procedures.

Policy Statement Compliance Monitoring

The Private Equity Director prepares a quarterly Private Equity Program Guidelines report. This report contains five sections including investment category allocation, concentration guidelines, diligence guidelines and hire/termination guidelines, as well as file guidelines. Once completed, this report is provided to the Managing Director of Private Market Assets and DC Plans for review.

NEW INVESTMENT DUE DILIGENCE

Potential new investments and managers are identified through numerous avenues including: prior experience with the manager, referrals from other pension plans/managers, industry presentations, presentations to VRS staff, etc. The timing for identifying new managers is not pre-determined. Potential new managers will move through the due diligence process as suitable matches to VRS' investment needs and preferences are recognized.

Once a desirable match is identified, member(s) of the investment team will gather manager provided information and other background information through discussions with other managers, other investors, information service providers, etc. Based on an assessment of the information obtained, a determination will be made if a preliminary discussion with the manager should be scheduled.

When a preliminary discussion is desired, VRS will meet with the manager, who will present information regarding the fund and its investment strategy to VRS' investment professionals.

If the Investment Department is interested in the strategies offered by the external manager, it will begin to gather additional due diligence materials and monitor the manager's performance. This process can range from a few months to several years.

VRS DUE DILIGENCE SNAPSHOT



Once VRS determines it has a true interest in investing with the external manager, the Investment and Compliance Departments will perform an in-depth analysis of the manager and related due diligence in preparation of a written proposal. Assuming these due diligence activities do not uncover something adverse, the manager will be invited to formally present their investment opportunity. While a majority of investments that reach this stage are successful, it is also a possible outcome that information learned during the formal manager meeting would be indicative that the investment is not in alignment with VRS' goals and objectives (including fee structure) and the investment consideration would be discontinued.

As the due diligence process draws to completion, a VRS team member will prepare a written proposal (referred to as the Investment Recommendation Memorandum) with an overview of the investment and a description of numerous data points including: a summary of the investment; the firm offering it and its investment team; the strengths and weaknesses of the manager; key investment terms; asset reporting; valuation and custody; track record; risk factors; and, the proposed action plan.

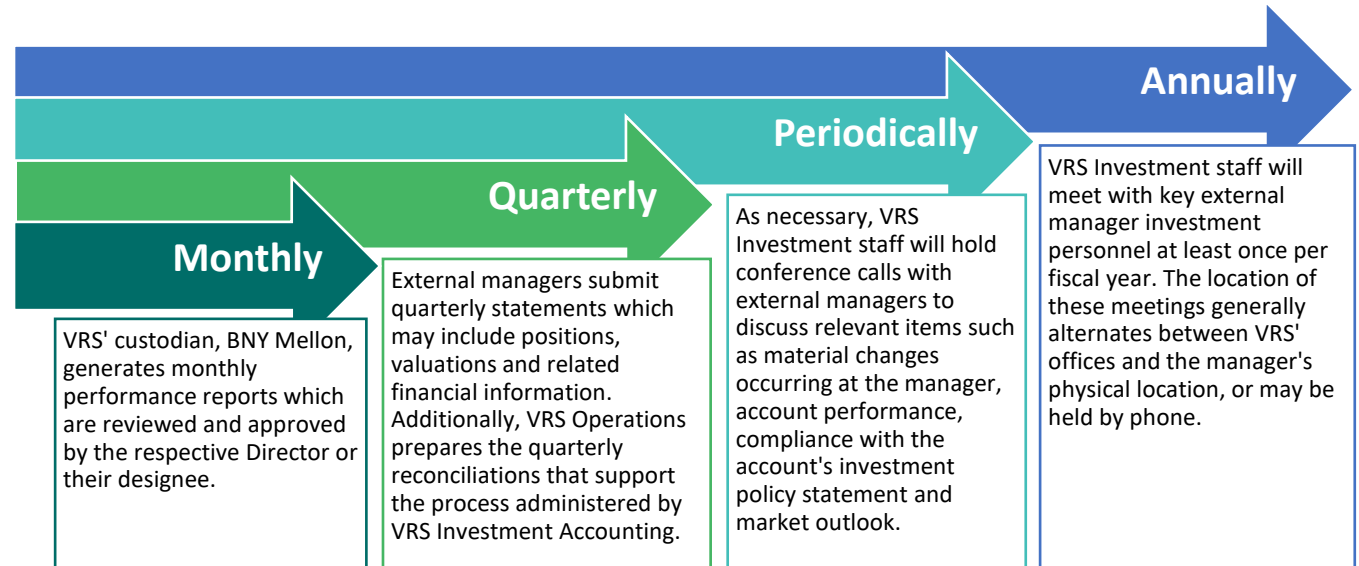
The Director of Private Equity, or his staff designee, will generally begin contract negotiations with the external managers to define the contract terms, including the commitment amount and related fees. Additionally, the Compliance Department will begin its separate due diligence process.

The Compliance Department's process begins with a due diligence questionnaire being sent to the prospective manager. The questionnaire allows the Compliance Department to evaluate numerous areas including such items as: ownership structure, material developments, SEC registration, description of back-office operations, external audit reports, third parties utilized by the manager, description of controls including cash and custody arrangements and disclosures of any regulatory actions taken against the manager. Key personnel biographical and criminal background checks are also performed for all new managers and, as deemed appropriate, for new investments with an existing manager. Finally, the Compliance Department will hold due diligence calls with executive leadership of the potential manager.

Assuming favorable due diligence results, a contract is executed by either the CIO or the Chief Administrative Officer upon approval of the investment by the CIO. Once an executed contract is in place, the manager is considered hired. However, an initial investment may not immediately take place, as the investment timing depends on the external manager's strategy.

DUE DILIGENCE AND MONITORING OF EXISTING INVESTMENTS

Monitoring existing managers is a continuous effort that draws both on quantitative and qualitative elements. To ensure managers are adequately monitored, a cycled approach is used. Additionally, given the nature of certain managers and their accounts, a range of available data points will be available. Therefore, the Director of Private Equity and support staff use their judgement to gather and consider information relevant to the monitoring process on a manager-by-manager basis. The following graphic provides a high-level illustration of the ongoing monitoring process.



In addition to the process depicted above, an annual supplemental questionnaire is completed by each external manager and submitted to VRS. The objective of the questionnaire is to provide the VRS team updated information regarding changes in qualitative and quantitative areas of the external manager's operations. The questionnaire generally also includes a "Contract/Agreement Compliance Certification Form" which must be signed by an authorized individual. This form certifies the manager acted in compliance with the terms and conditions set forth in any and all contract/agreements between the firm and VRS from inception through the date indicated.

COMMITMENTS

Outstanding commitments are tracked internally by VRS on its internal portfolio management platform to ensure adequate funding is available to fulfill managers' calls for capital. The accurate capture of commitments is also necessary to support financial reporting disclosure requirements in VRS' audited financial statements.

RECONCILIATIONS

Quarterly, VRS reconciles all private accounts to ensure the ending balances and transactions recorded by BNYM agree with the records of VRS and each external investment manager. For these accounts, VRS Investment Operations Department staff prepare, and the Investment Operations Manager subsequently reviews, the quarterly reconciliation. Once reviewed by the Investment Operations Manager, the Private Equity Director (or designee) approves the reconciliation as part of the overall quarterly reconciliation process.

The quarterly reconciliation is then submitted to VRS' Investment Accounting Department no later than 45 days after quarter end to ensure timely completion of the reconciliation in accordance with VRS' reconciliation policies and procedures. Upon receipt, the reconciliation is reviewed and approved by the Investment Accounting Department.

SCOPE AND METHODOLOGY

The primary purposes of our examination were to:

- Determine compliance with the Investment Policy Statements;
- Ascertain whether due diligence and monitoring activities are sufficient and appropriate; and,
- Ensure Private Equity accounting transactions are accurate, reconciled and timely recorded by the Bank of New York Mellon (BNYM).

GENERAL ASSESSMENT AND UNDERSTANDING

A general understanding of the Private Equity Program as well as the controls was obtained by meeting with key individuals. Applicable policies and procedures and other relevant documents were also reviewed.

INVESTMENT POLICY STATEMENT COMPLIANCE MONITORING

The monthly Private Equity Program Guidelines report as of March 31, 2020 was obtained for testwork. All report components and program structure ranges were reviewed to ensure agreement with the Private Equity Program Investment Policy Statement.

NEW INVESTMENT DUE DILIGENCE

A random sample of five accounts was selected to review new hire due diligence documentation out of a population of 10 new investment accounts that were initiated during the audit period. For each account reviewed, compliance with the following was evaluated:

- The external manager's investment strategy is in line with the investment objectives included within the Investment Policy Statements;
- An Investment Recommendation Memorandum was prepared, including sufficient information to support the recommendation;
- The Investment Recommendation Memorandum was approved by the CIO;
- All legal documents were reviewed and properly executed;

- Operational due diligence, including questionnaires and background checks, was completed; and,
- The investment was reported to the Investment Advisory Committee and the Board.

MONITORING EXISTING INVESTMENTS

A random sample of 10 accounts associated with existing Private Equity managers was selected to evaluate compliance with the monitoring procedures found within the Investment Policy Statements. For each account reviewed, compliance with the following was assessed:

- An annual manager meeting occurred;
- A completed annual supplemental due diligence questionnaire was obtained;
- A certification stating the manager acted in compliance with the terms and conditions set forth in any and all contract/agreements was obtained;
- Performance reports were reviewed and approved; and,
- Audited financial statements were obtained and included an unmodified opinion (as applicable).

COMMITMENTS

A random sample of 17 Private Equity accounts with outstanding commitments was selected to validate both the original and outstanding commitment amounts recorded in VRS' internal portfolio management system are accurate and agree to external managers' statements.

RECONCILIATIONS

Both the Operations and Investment Accounting departmental procedures related to the quarterly reconciliation process were obtained and reviewed for completeness and overall reasonableness. A random sample of 20 Private Equity accounts from the March 31, 2020 quarterly reconciliations was selected to assess whether each reconciliation agreed to supporting documentation, was completed timely and was properly approved.

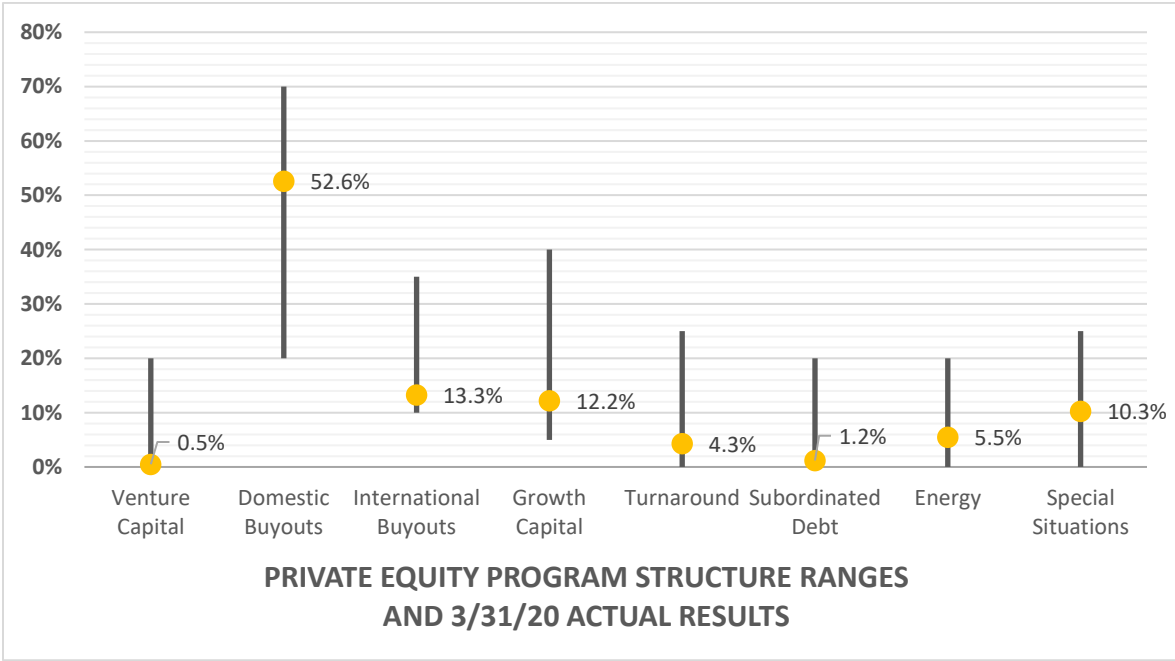
CONCLUSIONS

GENERAL ASSESSMENT AND UNDERSTANDING

Overall, VRS complies with the Private Equity Program Investment Policy Statement allowing for proper oversight of the Private Equity Program’s investment activities. The Private Equity Program Investment Policy Statement adequately defines the investment objectives, allowable strategies and risk analysis considerations, along with due diligence expectations related to hiring and monitoring. Minor observations which did not warrant attention in our report have been referred to management for their consideration.

INVESTMENT POLICY STATEMENT COMPLIANCE MONITORING

Our review of the Private Equity program guideline report as of March 31, 2020 found no exceptions. One of the main components of this report monitors the allocation across private equity investment types. As shown in the chart below, the actual program structure allocations as of March 31, 2020 were within the allowable ranges.



Overall,
VRS **complies** with the
Private Equity
Investment Policy Statement
allowing for **proper oversight**
of the Program's
investment activities.

NEW INVESTMENT DUE DILIGENCE

Overall, substantial and sufficient due diligence activities are being applied by the Investment and Compliance Departments. Due diligence results were adequately captured within the Investment Recommendation Memorandum and the Compliance External Manager Review documentation.

All new program accounts were communicated to both the Investment Advisory Committee and the Board.

MONITORING EXISTING INVESTMENTS

Overall, substantial and sufficient monitoring activities are being applied for existing Private Equity Program investment relationships.

COMMITMENTS

Private Equity Program commitment amounts recorded in VRS' system, including both the original and outstanding amounts, are materially accurate and agree to external managers' records.

Our review found that, occasionally, there are non-cash transactions that VRS is not made aware of by the manager. These transactions may affect the outstanding commitment balance reflected in VRS' system as well as the accurate presentation of unfunded commitments in financial reports. When non-cash transactions are identified, they are reclassified in the system so it reflects the correct unfunded amount. Timely posting of non-cash activity is critical to ensure the accurate reporting of outstanding commitments.

RECONCILIATIONS

Overall, the Operations and Investment Accounting Departments have appropriate quarterly external manager reconciliation procedures and processes in place to ensure all accounts are adequately reconciled. The March 31, 2020 Private Equity reconciliations reviewed were found to be adequately supported, completed timely and appropriately approved.



FOLLOW-UP ON PRIOR REPORTS

There were no outstanding audit recommendations to consider.

RECOMMENDATIONS

We have no written recommendations to offer as a result of our review.

MANAGEMENT EXIT CONFERENCE

This report was distributed to Mr. Schmitz and other members of VRS' management and staff for review and comment. They expressed substantial agreement with this report.

As there are no written recommendations, a written response from management is not required.

REPORT DISTRIBUTION

Submitted to the Audit and Compliance Committee at its meeting held
June 3, 2021.

MEMBERS OF THE AUDIT AND COMPLIANCE COMMITTEE

Joseph W. Montgomery, Committee Chair
W. Brett Hayes, Committee Vice Chair
O'Kelly E. McWilliams, III, Board Chair

WITH COPIES TO:

OTHER MEMBERS OF THE BOARD OF TRUSTEES

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Jamie Bitz

PRINCIPAL AUDITOR IN-CHARGE

Joshua G. Fox, CIA, CIDA, CFE

AUDIT SUPERVISOR

Kristy M. Scott, CPA, CISA, CIA



INTERNAL AUDIT

Report No. 438

Internal Equity Management Program

As of May 31, 2020

THIS REPORT IS INTENDED SOLELY FOR THE USE OF THE VRS BOARD OF TRUSTEES AND THE MANAGEMENT OF VRS AND IS NOT INTENDED FOR OTHER PURPOSES.



TRANSMITTAL LETTER

May 4, 2021

Dear Members of the Audit and Compliance Committee,

We have completed audit number 438, "Internal Equity Management Program." The main purpose of our audit was to review the Internal Equity Management (IEM) Program to ensure its activity is properly recorded and aligns with the Investment Policy Statement.

We conducted our audit in accordance with the *International Standards for the Professional Practice of Internal Auditing*. These standards require that we plan and perform the audit to obtain sufficient and appropriate evidence to provide a reasonable basis for the conclusions based upon our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

This report was distributed to the Chief Investment Officer and members of management for review and comment. As our review did not result in a written recommendation, management did not provide a written response but expressed substantial agreement with our report.

We appreciate the cooperation and assistance of the Investment, Operations, and Investment Accounting Departments throughout this audit.

Respectfully Submitted,

A handwritten signature in black ink that reads 'Jennifer P. Bell Schreck'.

Jennifer P. Bell Schreck, CPA, CISA, PMP
Audit Director

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EXECUTIVE SUMMARY

We conducted an examination of the Internal Equity Management Program within the Virginia Retirement System's (VRS) Investment Department as of May 31, 2020. Our review determined that:

- Management's administration of the program complies with the Investment Policy Statement; and
- Transactions and balances are reasonable and properly recorded.

In addition, our audit incorporated a review of other processes as they relate to Internal Equity Management activities, including cash and non-cash transfers, collateral management for over-the-counter derivatives, proxy voting, tax reclamations and filings with the Securities and Exchange Commission (SEC). We determined key processes for the other related areas reviewed here are operating as intended.

Overall, there are no written recommendations resulting from our review; however, we noted certain opportunities for minor enhancements to the tax reclamations and SEC filings processes.

SNAPSHOT

The **Internal Equity Management** (IEM) team **manages equity investment** accounts **in-house** as a **part of the Global Public Equity Program**.

The **value** of the **IEM Program** as of **May 31, 2020** was **\$12.2 Billion**, representing **14.9%** of VRS' **Total Fund**.

AUDIT ASSESSMENT

Adequate controls exist over Internal Equity Management and the related areas.

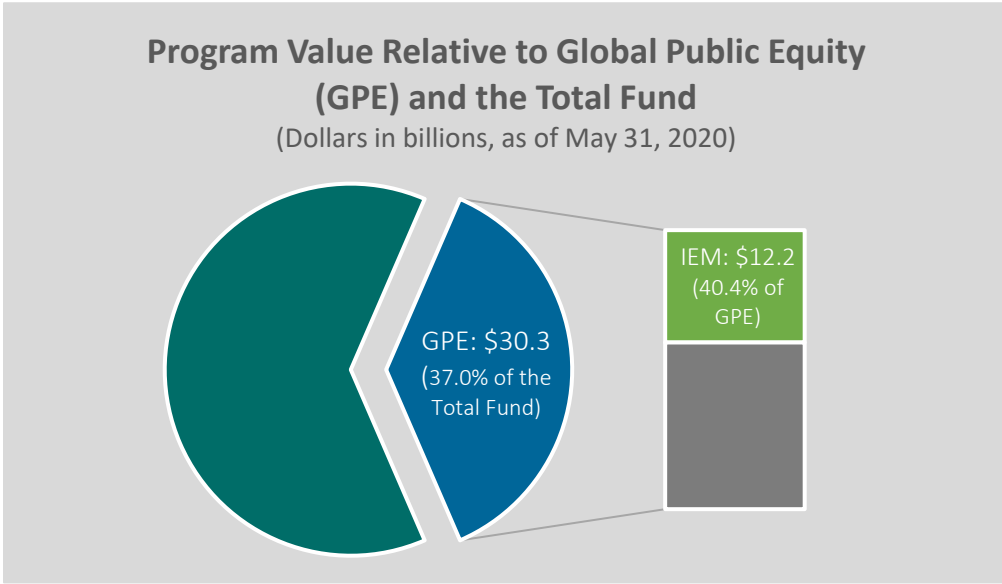
Written Recommendations: 0

BACKGROUND

INTRODUCTION

Equity investment accounts are managed in-house by VRS' Internal Equity Management (IEM) team, as a part of the Global Public Equity Program.

As of the audit date, May 31, 2020, the value of the Global Public Equity Program was \$30.3 billion, or 37.0% of the Total Fund. At that time, approximately \$12.2 billion or 40.4% of the Global Public Equity Program, was managed by IEM.



PROGRAM HISTORY

VRS has managed equity assets internally dating back to 1978. The IEM Program's current approach was launched in 2001 and, since its beginning, has focused on creating equity-oriented investment strategies that will outperform their benchmarks in a risk-controlled manner. By the IEM team managing assets directly for VRS, the Total Fund benefits from direct, regular communication and insights within the markets while generating savings in fees in comparison to externally managed accounts.

IEM INVESTMENT ACCOUNTS

Account Structures

IEM will typically invest through a variety of account structures such as:



Core Portfolio Strategies

The IEM team is authorized to make investment decisions, approve corporate actions, and execute day-to-day management decisions for the investment accounts representing the core portfolio strategies.

IEM's core portfolio investment accounts have varying strategies and investment objectives as described below.

Strategy	Investment Objective
Active (risk controlled and low volatility)	Deliver attractive risk-adjusted performance relative to the designated benchmarks.
Passive	Deliver low-cost, liquid replication of market indices.
Rebalance	Maintain reserve cash balance to meet cash needs of the Investment Department and provide a vehicle for short-term asset reallocation using equity and fixed income derivatives.
Transition	Facilitate the movement of assets within or between investment programs in an efficient manner.

GLOBAL PUBLIC EQUITY PROGRAM POLICY TARGET

As a **part** of the Global Public Equity Program, **IEM supports** VRS' efforts to **meet** the **policy target** set for the **overall program**.

During the audit **period**, the Global Public Equity Program **policy target** was **40%**, with an **allowable range** between **35%** and **45%** of the **Total Fund**.

However, in **July 2020**, the policy target was **updated** to **37.0%**, with an **allowable range** between **32%** and **42%** of the **Total Fund**.

Since 1988 (the start of the VRS relationship with its current master custodian), the **Global Public Equity Program** has **generated** a net time-weighted **return** of **8.8%**.

Additional Execution Services

As delegated, the IEM team is authorized to provide currency and equity execution services for investment accounts for other VRS investment programs, including Global Public Equity, Real Assets, Private Equity, and the Total Fund. For these investment accounts, the authority to make investment decisions generally rests with the respective teams over the noted investment programs. IEM provides execution services based on directions it receives from each team.

The accounts through which IEM executes these services focus either on providing hedging services to investment accounts not part of IEM's core strategies or achieving the investment objectives specified within the applicable program investment policy statements.

INVESTMENT POLICY STATEMENT

The governing document for the Total Fund is the VRS Defined Benefit Plan Investment Policy Statement. This document was updated and approved by the Board of Trustees (Board) on November 14, 2018. Based on this document, the investment objective of the VRS defined benefit plan portfolio is to maximize return while managing risk within an acceptable range.

The Board has delegated to the Chief Investment Officer (CIO) the authority to establish and modify as necessary the program level investment policy statements. Therefore, the CIO must approve any material changes to the risk profile and/or the return objectives.

The IEM Investment Policy Statement defines the Program's investment objectives and philosophy, structure, portfolio risk analysis, allowable and prohibited exposures, and reporting, as well as non-compliance remedies. Additionally, the appendices list the investment accounts, their benchmarks, IEM responsibilities, and other relevant investment account specifics.

Performance Benchmarks

IEM investments are measured against the Board approved benchmarks. The IEM Program is unique in that it does not have a broad-based benchmark, but rather has different benchmarks aligning with each of its distinct strategies and relevant asset classes.

ORGANIZATIONAL CHART



Organizational Structure and Support

During the audit period, there were changes to the reporting structure and the Director of IEM. The organizational chart on the left depicts the investment staff responsible for the administration of IEM as of 5/31/2020. In addition, during the audit period, two Investment staff functioned as portfolio managers for IEM as they were transitioning into new roles in the Investment Department.

IEM's activities are further supported by the Investment Accounting, Compliance and Operations Departments and the Portfolio Solutions Group.

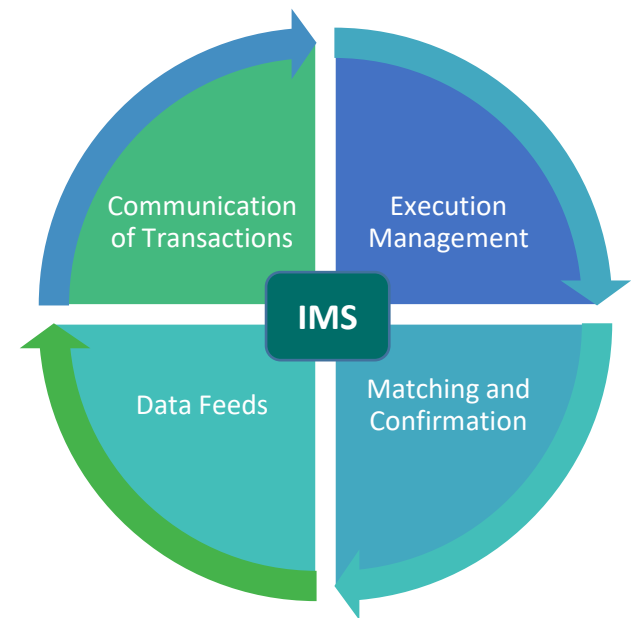
TRADE LIFE CYCLE AND RELATED ACTIVITIES

The IEM, Investment Operations, and Investment Compliance teams collaborate using a variety of technology tools and resources for performing and monitoring the trade life cycle and related activities.

Investment Management System (IMS)

VRS contracts with a vendor to use a single investment management system (IMS) platform for carrying out the trade life cycle, monitoring compliance with the Investment Policy Statement and agreed upon broker commissions, as well as several post-trade processes. The IMS has a suite of tools, is integrated with other systems, and receives and sends data to support VRS' investment management needs. The IMS is considered as the source of internal records for trades and corporate action elections made in-house by VRS staff.

The IMS is integrated with systems used to execute, match, and confirm trades and then



UNDERSTANDING SWIFT

SWIFT is the network that **banks** and other **financial institutions** use for transferring information **securely**.

Most major **financial institutions** use SWIFT, as it is considered the **gold standard** for **reliable** and **secure** financial **messaging**.

transmit trade details to VRS' master custodian, Bank of New York Mellon (BNYM). The IMS exchanges data with various pricing sources and BNYM to support automated reconciliations of cash and positions and communicate relevant corporate actions.

Integration of Execution Management Systems

Individual execution management systems (EMS) provide access to real-time market data and transmit an order to the market for trading. VRS has agreements with multiple EMS vendors, which are integrated with the IMS. Logical access for each EMS is distinct from IMS logical access. Within the IMS, the VRS Trading Desk selects which EMS to use based on the type of security (futures, equities, foreign currencies) included in the order.

Matching and Confirmation Platforms

VRS has agreements with vendors providing the platforms for automated matching and confirmation. Based on how these platforms are integrated into the trade workflow in the IMS, Investment Operations staff do not need logical access; however, the Investment Operations Manager has view-only permissions to verify each vendor's billings for these services.

If a trade cannot be successfully matched by one of the platforms, Investment Operations will research and resolve trades for domestic investment accounts while VRS has contracted with the IMS vendor for trading support services for global investment accounts.

Communication of Transaction

Currently, the IMS vendor has the agreement to use Society for Worldwide Interbank Financial Telecommunication (SWIFT) to send VRS' transaction details to the master custodian through the IMS, with Investment Operations staff not having the ability to access it. SWIFT uses an international standard for routing business transactions and identifying business parties called Business Identifier Code (BIC).

VRS has entered into a separate agreement with SWIFT for creation of its own BIC and will be migrating away from the use of the IMS vendor's SWIFT BIC in the future.

Due to the **COVID-19 pandemic**, in **March 2020** VRS shifted to a **remote work environment**.

The **Investment Accounting** and **Investment Departments** **adapted** their processes and procedures, as needed, in response to **remote work conditions**.

Related Activities

Broker Commissions

A broker is anyone who executes trades in the market on behalf of IEM. Brokers often are used for international securities since VRS does not have a 24-hour trade desk, but also are used at times for domestic securities. Broker agreements, while common for most of VRS' broker relationships, are not required in order for VRS to use a broker's services. The applicable SEC requirements and federal and state laws govern client and broker relationships regardless of the presence of a broker agreement.

Commissions are mutually agreed upon by VRS and the broker as part of each trade and are monitored by a record of the broker's information maintained in the IMS. VRS communicates this information to the IMS vendor as IEM begins new broker relationships or has changes to an existing broker relationship, such as a change in commission. As trades are executed, the IMS automatically checks for compliance of the commissions assessed with the information in the broker's record. For commissions that do not comply, research is conducted by VRS before the trade is confirmed and settled.

Corporate Actions

Publicly traded companies periodically issue corporate actions, which begin a process affecting securities issued by that company. Corporate actions can relate to a variety of different topics, such as issuing dividends or stock splits or changing a company's ownership or name. Involuntary corporate actions are automatically applied to the investments involved, while voluntary corporate actions require an investor's response before proceeding.

The IMS receives data feeds of corporate action data from multiple sources, including the master custodian. Investment Operations will perform quality checks over corporate action data for domestic investment accounts, while VRS has contracted with the IMS vendor to perform quality checks over corporate action data for global investment accounts. Generally, quality checks involve comparing the corporate action's details to another source and reviewing it for consistency. As the quality checks are completed, either Investment Operations or the IMS vendor will approve it within the system.

For involuntary corporate actions, similar to stages of the trade life cycle, the IMS is designed to provide automatic processing. For voluntary corporate actions, the IMS prompts an IEM Portfolio

Manager to make an election. The Portfolio Manager will view the corporate action and available options and make an election case-by-case, based on economic benefits and their investment expertise. If the IEM Portfolio Manager does not make an election before the corporate action's deadline, the default election in the IMS is automatically submitted and authorized.

COMPLIANCE WITH INVESTMENT POLICY STATEMENT

Internal Compliance Monitoring

The IMS has equity and account level rules based on requirements included in the IEM Investment Policy Statement. The rules are applied pre-trade as an IEM Portfolio Manager enters an order into the IMS, and then again after the order reaches the VRS Trading Desk and is executed.

Investment Compliance monitors exceptions to rules in the IMS and works with the IEM Portfolio Managers and VRS' Trading Desk to research and resolve.

BNYM Compliance Monitor

BNYM provides monitoring services checking for compliance of holdings in its custody in accordance with the requirements of the IEM Investment Policy Statement. BNYM runs reports semi-monthly (mid-month and month end) showing the results of its compliance monitoring activities.

Exceptions generated for IEM investment accounts are included as part of the Global Public Equity Program's BNYM Compliance Monitor reports. As such, the Global Public Equity team will contact the IEM Portfolio Managers when researching and resolving exceptions related to IEM investment accounts. The Director of the Global Public Equity Program reviews and approves the documentation of the exceptions, explanations, and their resolution.

Best Execution

Third party soft dollars are prohibited in the IEM Investment Policy Statement. The structure of commissions for IEM's broker relationships are "execution-only". IEM's commitment to execution-only trades aligns with its priority of best execution, keeping transaction costs down.

Soft dollars are a means of **paying brokerage** firms for their **services** through **commission revenue**, as opposed to through normal **direct payments**.

VRS defines **best execution** as the **process and price** that **results** in the **best overall performance impact**, taking into account **current** market **conditions**.

In some circumstances, IEM is able to take advantage of bundled research as part of its execution-only relationships with brokers. This allows IEM to access the broker's research resources at no additional cost beyond what is paid as execution-only commissions.

Best execution is also monitored on a quarterly basis through the VRS Trading Desk and IEM Portfolio Managers reviewing reports summarizing broker activity and transaction costs. These reports focus on reviewing prior period information and are complementary to the review of the pre- and post-trade transaction cost analyses occurring as part of the trade life cycle.

Ongoing Portfolio Risk Analysis

Risk analysis activities are performed by the IEM team as part of their day-to-day investment management and monitoring activities, using data collected from various sources. The IEM team also monitors performance as part of its portfolio risk analysis activities. The IEM Program Director will meet with the Chief Investment Officer and Managing Director Public Markets to provide periodic updates regarding portfolio risk and performance and share data, as applicable and requested. These meetings generally occur monthly and may also correspond with the Investment Department's reporting to the VRS Board of Trustees and its Investment Advisory Committee.

Monthly Performance Reporting

In addition, VRS' master custodian generates monthly performance reports for all asset classes which are reviewed and approved by the respective program directors or designees. The IEM Program Director reviews and approves these reports for the investment accounts included in the IEM Program's performance.

CASH AND NON-CASH TRANSFERS

Cash and non-cash transfers are used throughout the Investment Department , including IEM, to move assets to support managing the Total Fund in accordance with the VRS Defined Benefit Plan Investment Policy Statement and each Program's respective Investment Policy Statement(s).

Cash Transfers

A direction letter is prepared by Investment Accounting for all cash movements requested by the Investment Department staff. Investment Accounting obtains approval from the requestor(s),

and from an authorized signer from both the Investment Department and Administration before the direction letter is sent to BNYM for processing.

Non-Cash Transfers

Non-cash, or asset reallocation, transfers are used by the Investment Department to rebalance portfolios or to achieve strategic alignment by moving securities already held by the Total Fund. An asset reallocation transfer may be completed in combination with a cash transfer.

As the Investment Department determines a need for asset reallocation transfers, staff of each affected program prepare and communicate instructions directly to BNYM and Investment Accounting. BNYM then prepares an asset reallocation form for the request and sends it to the Investment Department and Investment Accounting for review and approval, before it is sent back to BNYM for processing.

DERIVATIVES

The IEM Investment Policy Statement permits investment in derivative instruments. Typically, IEM uses the following types of derivatives within its core portfolio strategies and when providing currency and equity execution services: futures, swaps and currency forwards. Counterparty risk for derivatives is assessed on an individual basis when making investment decisions and is mitigated through collateral management.

IEM's core portfolio strategies trade in stock index futures which are highly liquid, exchange-listed and regulated. Over-the-counter (OTC) instruments, such as swaps and currency forwards, are used in a more limited fashion. When providing currency execution services, IEM generally uses currency forwards; however, when providing equity execution services IEM may use stock index futures or swaps. Fixed income and equity derivative instruments may also be used in certain scenarios.

Once the trade life cycle is complete, with the transaction transmitted to and recorded by BNYM, the trade becomes part of VRS' exposure (positions) and VRS begins monitoring and managing the associated collateral.

Over-the-counter (OTC) is the trading of securities **outside of public exchanges** between **counterparties**.

ISDA agreements can consist of **Credit Support Annexes (CSAs)**, **Standard Settlement Instructions (SSIs)**, and **other customized schedules**, as applicable, **outlining the terms applied** to transactions **between** the identified **counterparties**.

Futures

Trades for futures are executed through public exchanges for individual investment accounts, with the related collateral managed on an individual account basis as well. VRS has a contract with a clearing merchant for futures trades initiated in-house by VRS staff. The clearing merchant acts as the liaison between the clearing house and VRS. The clearing houses set the prices for futures, as well as other requirements.

To monitor collateral for futures, VRS Investment Operations performed comparisons between the collateral calculated by the IMS and account statements provided by the clearing merchant daily.

RECENT OPERATIONAL ENHANCEMENT: Beginning in November 2020, the IMS automatically reconciles the collateral calculated by the IMS to data provided by the clearing merchant. If no differences exist, the details of the collateral transaction(s) flow to BNYM for recordation. If differences do exist, Investment Operations can access daily account statements from the clearing merchant and perform research, as needed, to resolve the differences.

Swaps and Currency Forwards

Trades for swaps and currency forwards are executed OTC for individual investment accounts, and the related collateral is managed on a total fund basis. Since trades for these securities do not occur through a public exchange, an International Swaps and Derivatives Association (ISDA) agreement must be in place between VRS and a counterparty before trades can occur. ISDA agreements provide governance over OTC transactions, with the goals being to promote transparency and higher liquidity among the parties involved. VRS has long-established ISDA agreements with major financial institutions, with no amendments to existing agreements or new agreements occurring during the audit period.

Collateral Management

Each counterparty views VRS as a single entity, with collateral for OTC transactions managed for the VRS Total Fund, not by individual investment account. Starting in 2018, VRS contracted with a vendor to add an OTC collateral management system (CMS). The CMS maintains a live connection with an independent source for valuing collateral, and has integrations with other systems to facilitate the exchange of collateral requests and their instructions between VRS and

its counterparties and between VRS and BNYM. Daily, VRS automatically pushes files from BNYM to the CMS to provide up-to-date information on exposures.

As part of its implementation, Investment Operations worked with the vendor to have terms from VRS' ISDA agreements entered into the CMS.

Investment Operations is responsible for communicating any changes to counterparties and ISDA agreements to the vendor.

The accuracy and completeness of each counterparty's agreement terms within the CMS drives the system's ability to perform automatic calculations and monitoring. Examples of automated processes performed by the CMS include: calculation and monitoring of collateral composition, movements and substitutions in accordance with the ISDAs. If VRS is due collateral from a counterparty, the CMS automatically sends out collateral call notices. If a counterparty is due collateral from VRS, Investment Operations is responsible for reviewing and approving the request within the CMS.

Custody of Collateral

VRS has a separate account at BNYM holding securities belonging to VRS, used for the sole purpose of pledging collateral to fulfill requests from all of its counterparties. Securities move in and out of this account as collateral requests are fulfilled and pledged collateral is returned. Since collateral in this account belongs to VRS, it is included in reporting for the VRS Total Fund.

VRS also has individual custody-only collateral accounts set up at BNYM that hold the securities pledged as collateral belonging to each of its 10 counterparties. Since this collateral does not belong to VRS, these accounts are not included in any reporting for the VRS Total Fund.

PROXY VOTING

The VRS Total Fund has a significant portfolio of equity holdings (approximately 8,000 securities) thereby positioning VRS as a shareholder in numerous corporations. As a shareholder, VRS has the opportunity to participate in corporate decision-making through its voting rights. VRS receives ballots from various corporations, addressing issues such as, but not limited to, buyout offers, election of board members, compensation packages, issuance of stock, etc.

Voting needs to occur by a specified deadline and requires research prior to casting the vote. VRS uses a third-party service provider to cast votes on VRS' behalf to ensure consistency and

alignment with the investment philosophy and investment policy. The third-party service provider supports institutional investors by completing detailed research prior to voting on key issues.

VRS Proxy Voting Policy

In 2018, the Board adopted a revised Proxy Voting and Securities Litigation Policy (VRS Policy). The VRS Policy emphasizes fiduciary responsibility, with VRS taking voting actions that are in the best interest of the plan's participants and beneficiaries. The VRS Policy mandates VRS to contract out the development of proxy voting positions to a proxy voting provider, based on a thorough review of the provider's proxy voting policies. In addition, the provider's proxy voting policies must be based on sound economic analysis and research.

The VRS Policy requires the proxy voting provider to vote all proxies with allowable exceptions, including commingled or mutual funds and certain separate accounts where proxy voting is part of the firm's investment strategy. In instances of these allowable exceptions, the VRS Policy requires VRS staff to review the proxy voting policies of the managers for these accounts to assess overall reasonableness and incorporate the results as part of the manager evaluation criterion. VRS staff are required to present a periodic review of the proxy voting provider to the Board.

Proxy Voting Providers

VRS has contracted with an external proxy voting provider to support the proxy voting needs of its overall Global Public Equity program. With rare exceptions, all Public Equity's internal mandates use this vendor for proxy voting, while eleven out of fifteen of Public Equity's external traditional mandates do the same. The internal rare exceptions may occur when VRS needs to instruct on votes pertaining to specific issues.

VRS' agreed upon proxy voting policy applies to all votes the proxy voting provider casts on VRS' behalf, regardless of whether the associated securities are included in an internally managed or externally managed investment account. For the entire Public Equity asset class, both external and internal mandates, the proxy voting provider handled the proxies for 64% of market value.

For external mandates not using VRS' provider, the individual investment managers choose how to handle their proxy voting based on their expertise and familiarity with the holdings in their investment accounts or due to the assets being commingled or in a limited partner structure. The arrangement to handle their own proxy voting is initially made when the relationship with the external investment manager is established, but the arrangement can change as VRS' equity holdings and relationship with the manager evolves.

Monitoring the Proxy Voting Provider

VRS' contract with the proxy voting provider is year-to-year on a calendar basis, with its renewal contingent on performance meeting VRS' proxy advisory and voting needs. Therefore, each fiscal year, the VRS Investment Department presents a corporate governance report to the Board. This report provides a summary of VRS staff's evaluation of proxy advisory and voting services for the fiscal year to ensure the services provided continue to meet VRS needs. Additionally, this report provides an overview of the usage of the proxy voting provider's services within the VRS Public Equity asset class. Generally, every few years the proxy voting provider will make a presentation to the Board, highlighting their policy and any changes as well as address any questions.

PROXY VOTING CORPORATE GOVERNANCE TEAM FORMED

In late calendar year 2020/early 2021, VRS formed a Corporate Governance Team, including staff previously involved with the proxy voting provider relationship. The team will be involved in interacting with the proxy voting provider, keeping current on proxy voting industry trends and practices, monitoring the provider's performance, renewal of the contract, and reporting out to the Board. The Global Equity Team will still be responsible for the day-to-day management of the relationship, but this new team adds an extra layer of involvement in the process.

RECONCILIATIONS

BNYM serves an integral role as VRS' master custodian, by maintaining the official accounting records for all investments and providing security settlement processing, asset custody, and income collection, as well as other investment and accounting related services. VRS and BNYM perform various reconciliation processes to support the accuracy and completeness of recorded IEM transactions and balances.

Daily

For each IEM investment account, the IMS performs automated reconciliations of its records for cash and positions to BNYM records. The IMS will generate exceptions for identified differences. Investment Operations is responsible for researching and resolving exceptions for domestic investment accounts, while VRS has contracted with the IMS vendor for researching and resolving exceptions for global investment accounts.

Continuation of trading and other activities in the IMS are not dependent on the resolution of exceptions generated from these reconciliations. All activities in the IMS can continue, with any unresolved exceptions carrying forward to the next day.

Monthly

BNYM

BNYM accounting associates assigned to the VRS relationship perform a review of all investment accounts by comparing investment positions and valuations recorded in BNYM's records with those reported by the investment manager or VRS staff. Discrepancies related to missing or stale prices or prices which fail pre-established account tolerance checks are researched and resolved with the investment manager or Investment Operations. Other discrepancies reviewed may include those related to differences in accounting or accrual methods.

Investment Operations – Net Asset Value (NAV)

Investment Operations reconciles the NAV between the IMS and BNYM records for all IEM domestic investment accounts, except the VRS Cash account. VRS also contracts with the IMS vendor to perform monthly NAV reconciliations between the IMS and BNYM records for all IEM global investment accounts. Upon receiving the reconciliations performed by the IMS vendor, Investment Operations performs a high-level review and comparison of the information to BNYM records for reasonableness.

Investment Operations – VRS Cash Account

Investment Operations reconciles cash and holdings for the VRS Cash account by comparing the information recorded in VRS' internal records to BNYM records. VRS' internal records of activity in the VRS Cash account are maintained in a database updated each day by Investment

Operations staff, using direction letters and other documentation supporting activity occurring in the VRS Cash account.

Investment Operations – VRS Collateral Inventory Account

Investment Operations reconciles the VRS Collateral Inventory account by comparing the information recorded in the CMS to BNYM’s records.

Investment Accounting

Investment Accounting reconciles all balances recorded in BNYM’s records on a consolidated basis to the VRS general ledger. “Consolidated basis” means this reconciliation is not performed by comparing individual investment account information between BNYM’s records and the general ledger, but rather by comparing summary information by line item.

Quarterly

Investment Accounting receives and reviews the reconciliations prepared as of quarter end by either the investment managers, Investment Operations, or the IMS vendor for all VRS investment accounts.

Investment Accounting reviews the reconciliations to ensure the balances identified as being from BNYM are consistent with BNYM reports and checks for any unusual items listed on the reconciliations, following up as needed with the investment managers or Investment Operations. Investment Accounting completes a quarterly reconciliation checklist documenting its review of all reconciliations received and distributes it to members of the Investment Department, the Chief Financial Officer, and Director.

TAX RECLAMATIONS

Income derived from investments in stocks or bonds, such as dividends and interest payments, is often subject to withholding tax, that is deducted according to the national legislation of the security issuer’s country. VRS, as an investor in foreign securities, often is in the position to claim the benefit of the tax agreement or treaty between the U.S. and the security issuer’s country, with the goal to ultimately reduce VRS’ tax withholding rate and impacts of double-taxation. Over the past decade, tax reclamation activity has accelerated as VRS has increased its investment in foreign securities.

The reclaim process is fully dependent on the local jurisdictions' tax processes and what the local custodian can provide as far as documentation and local filing assistance. The success of tax reclamations are not guaranteed, as they are contingent on how foreign jurisdictions decide to honor U.S. treaties. If a foreign jurisdiction chooses not to honor U.S. treaties, VRS has no recourse beyond pursuing the reclaim in an international court, which can be costly with no assurance that VRS will win.

In certain jurisdictions (typically first tier European and Asian markets), BNYM, as VRS' master custodian, has the ability to see how much has been withheld for taxes and the legal power to pursue these reclaims on VRS' behalf, with little involvement required by VRS. In other smaller and lower tier jurisdictions, considerably more involvement from VRS is required. Tax reclaims in these jurisdictions, often require a limited power of attorney to file the tax reclaim documents based on the BNYM trading data. Sometimes more in-depth data retrieval and aggregation is required to meet the jurisdiction's requests for supporting documentation.

When more involvement by VRS is needed, VRS gathers the needed information, and BNYM will then communicate the information through its various channels with local custodians. Given the growing activity in international markets, the Investment Department is in the process of evaluating specialized vendors to assist with VRS' ongoing tax reclamation efforts.

SEC FILINGS

VRS submits filings to the SEC related to its equity holdings, stock ownership, and brokers. The compilation and submittal of these filings is led by the VRS Regulatory and Legal team, with the assistance from the Investment Department staff, BNYM, and outside legal counsel, as needed.

SCOPE AND METHODOLOGY

The primary purpose of our examination was to determine whether activity for the IEM Program is properly recorded and aligns with the Investment Policy Statement.

With the relationship of the IEM team's responsibilities and services to the Global Public Equity Program and other investment programs, our examination also incorporated a review of key processes for the areas listed below:

- Cash and non-cash transfers
- Collateral management for over-the-counter derivatives
- Proxy voting
- Tax reclamations
- Filings with the SEC

GENERAL ASSESSMENT AND UNDERSTANDING

We obtained a general understanding of the IEM Program and the related areas as well as the associated controls by meeting with key individuals from each area and observing processes and systems. We also reviewed the applicable policies and procedures and other relevant documents.

INVESTMENT POLICY STATEMENT

The IEM Investment Policy Statement was updated during the audit period due to changes to certain investment accounts as well as a change to the Internal Equity Management Program Director. These changes were identified and communicated by Investment Department management and applied in our planning, as needed, to provide appropriate audit coverage when performing test work described in the "Trade Life Cycle and Related Activities" section.

TRADE LIFE CYCLE AND RELATED ACTIVITIES

Investment Management System (IMS)

Recent SOC (System and Organization Controls) 1 - Type 2 reports for the IMS vendor relative to audit period, along with the Investment Department's review and the related complementary user entity controls were obtained and reviewed.

Access listings for all execution management systems integrated with the IMS were obtained and reviewed for least privilege and appropriateness in relation to each user's job responsibilities.

Trade Life Cycle

Stages of the trade life cycle and corporate actions were evaluated through observation of Investment Department staff using the IMS as well as a demonstration of manual entries into the system and monitoring activities for automated processes.

A sample of 50 transactions was selected to determine if the IMS supported authorization by a member of the IEM team and accurate recordation in BNYM's records. Additionally, any futures transactions included in the sample were reviewed to determine if the IMS supported proper recordation by the clearing merchant.

Commissions

Broker records were evaluated through observation of Investment Department staff demonstrating the organization of the information in the IMS and how it is used by the IMS during the trade life cycle. Documentation depicting the current process of setting up new brokers was reviewed for reasonableness.

COMPLIANCE WITH INVESTMENT POLICY STATEMENT

Internal Compliance Monitoring

All compliance rules in the IMS for the core portfolio strategies investment accounts were obtained and reviewed to determine agreement with the prohibited securities and transactions defined in the IEM Investment Policy Statement. As applicable, for any compliance rules not agreeing to the IEM Investment Policy Statement, additional information was obtained to determine reasonableness.

Additionally, a sample of 9 business days was selected for review to determine if Investment Compliance performed periodic monitoring of exceptions to the IMS compliance rules.

BNYM Compliance Monitor

Similarly, all compliance rules in the BNYM Compliance Monitor for the core portfolio strategies investment accounts were obtained and reviewed to determine their agreement to the

prohibited securities and transactions defined in the IEM Investment Policy Statement. As applicable, for any compliance rules not agreeing to the IEM Investment Policy Statement, additional information was obtained to determine reasonableness.

Additionally, a sample of two semi-monthly BNYM Compliance Monitor reports was selected for review to determine if the Global Public Equity team performed monitoring of exceptions to the compliance rules for the IEM core portfolio strategies investment accounts.

Best Execution

Monitoring of transactions for best execution and practices for structuring broker commission rates were discussed with IEM staff and assessed to determine if they support maintaining compliance with the IEM Investment Policy Statement.

Ongoing Portfolio Risk Analysis

A sample of two months was selected for review to determine if IEM staff were performing a risk analysis of the program's security holdings and overall portfolios in compliance with the IEM Investment Policy Statement.

Performance Reporting

All monthly performance reports were obtained to ensure proper approval by the IEM Program Director.

CASH AND NON-CASH TRANSFERS

Cash Transfers

A sample of nine direction letters was selected for review to determine if the transactions included were appropriately authorized and accurately recorded in BNYM's records.

Non-Cash Transfers

A non-cash, or asset reallocation, transfer was selected for review as part of the sample of transactions reviewed for the trade life cycle to determine if the transactions included were appropriately authorized and accurately recorded in BNYM's records.

DERIVATIVES

Collateral management activities with counterparties were evaluated through observation of Investment Operations staff using the CMS as well as a demonstration of manual entries into the system and monitoring activities for automated processes. Additionally, a sample of three counterparties was selected for review to determine if the CMS agreed to a current ISDA agreement.

PROXY VOTING

The Investment Department's evaluation of proxy advisory and voting services for calendar years 2020 and 2021 was obtained and reviewed for monitoring of the proxy voting provider's performance and as support for the yearly contract renewal. Corporate governance reports from November 2019 and 2020 were reviewed to determine compliance with the VRS Proxy Voting and Securities Litigation Policy.

RECONCILIATIONS

Daily

Monitoring of exceptions generated by the automated reconciliations of cash and positions for IEM investment accounts was evaluated through observation of Investment Operations staff using the IMS and a demonstration and discussion of daily research and resolution activities.

Monthly and Quarterly

Investment Operations – Net Asset Value (NAV)

A sample of two months was selected for review to assess whether each NAV reconciliation agreed to supporting documentation, was completed timely and was properly reviewed. Additionally, for reconciliations prepared as of quarter end, each was reviewed to determine if it was submitted timely to and reviewed by the Investment Accounting Department.

Investment Operations – VRS Cash Account

A sample of two months was selected for review to assess whether the VRS Cash account reconciliation agreed to supporting documentation, was completed timely and was properly

reviewed. The reconciliation prepared as of quarter end was reviewed for timely submission to and review by VRS Investment Accounting.

Investment Operations – VRS Collateral Account

A sample of two months was selected for review to assess whether the collateral inventory account reconciliation agreed to supporting documentation, was completed timely and was properly reviewed.

TAX RECLAMATIONS

The most recent BNYM SOC 1 - Type 2 report relative to the audit period was obtained and reviewed to gain assurance over the master custodian's processes for tax reclamations. Responsibilities of both VRS and BNYM to manage and pursue tax reclamations were discussed with Investment Department management to evaluate their support of income collection efforts for the Total Fund and compliance with the respective security issuers' tax legislation.

SEC FILINGS

Responsibilities of Investment Department staff, BNYM, and outside legal counsel in compiling and submitting SEC filings were discussed with management to evaluate if they support compliance with SEC rules and regulations. Documentation for SEC filings submitted during the audit period was obtained to evaluate the timeliness of their submittals.

CONCLUSIONS

GENERAL ASSESSMENT AND UNDERSTANDING

Our review found activity for the IEM Program is properly recorded and aligns with the Investment Policy Statement. We determined key processes for other related areas reviewed are operating as intended; however, we did note opportunities for improvement discussed below and certain other minor observations which have been communicated to management.

INVESTMENT POLICY STATEMENT

The current IEM Investment Policy Statement dated July 2020 accurately depicts changes to the investment accounts and the Program Director taking place during the audit period. The prior Investment Policy Statement dated November 2019 was also reviewed and all changes were found to be reasonable.

TRADE LIFE CYCLE AND RELATED ACTIVITIES

Investment Management System (IMS)

The IMS SOC reports and the Investment Department's related review indicated appropriate monitoring of the services provided by the vendor. Additionally, VRS' current internal processes support the relevant complementary controls included in the SOC reports as a user entity of the vendor's services.

Access reviewed for all execution management systems integrated with the IMS supports the principle of least privilege and was appropriate based on each user's job responsibilities.

Trade Life Cycle

The Investment Department staff's demonstration of manual entries into the system and activities for automated processes in the IMS indicated appropriate involvement and monitoring of stages of the trade life cycle and corporate actions.

All transactions selected and tested were properly authorized by a member of the IEM team and accurately recorded in BNYM's records. Futures transactions selected and tested were properly recorded by the clearing merchant.

Commissions

The organization of broker records in the IMS and how the information is used during the trade life cycle indicated appropriate reference to agreed-upon commissions prior to trades being confirmed and matched.

Documentation for the current process to set up a new broker supported the vendor obtaining the information from Investment Department staff to accurately update the IMS. Some data anomalies were identified, however it was determined the issues had no effect on the transactions.

COMPLIANCE WITH INVESTMENT POLICY STATEMENT

Internal Compliance Monitoring

All compliance rules defined in the IMS for core portfolio strategies investment accounts agreed to the prohibited securities and transactions defined in the IEM Investment Policy Statement. Additional information supporting compliance rules not agreeing to the IEM Investment Policy Statement was available and was reasonable.

All business days selected for review had supporting documentation available indicating Investment Compliance's periodic monitoring of exceptions to the IMS compliance rules.

BNYM Compliance Monitor

All compliance rules in the BNYM Compliance Monitor for core portfolio strategies investment accounts agreed to the prohibited securities and transactions defined in the IEM Investment Policy Statement.

All BNYM Compliance Monitor reports selected for review had supporting documentation available indicating the Global Public Equity team's monitoring of exceptions to the compliance rules for IEM core portfolio strategies investment accounts.

Best Execution

IEM's process of monitoring transactions and structuring of broker commission rates indicated activities supporting best execution in compliance with the IEM Investment Policy Statement.

Ongoing Portfolio Risk Analysis

All months selected for review indicated IEM staff were performing a risk analysis of the program's security holdings and overall portfolios in compliance with the IEM Investment Policy Statement.

Performance Reporting

All monthly performance reports were properly reviewed and approved by the IEM Program Director.

CASH AND NON-TRANSFERS

Cash Transfers

All direction letters selected and tested were appropriately authorized and had their transactions accurately recorded in BNYM's records.

Non-Cash Transfers

The non-cash, or asset reallocation, transfer selected for review was appropriately authorized and recorded in BNYM's records.

DERIVATIVES

The Investment Operations staff's demonstration of manual entries into the system and activities for automated processes in the CMS indicated appropriate involvement and monitoring of collateral for derivatives.

Overall, for the counterparties selected, their information in the CMS materially agreed to a current ISDA agreement.

PROXY VOTING

The Investment Department's recent evaluations of proxy advisory and voting services reviewed indicated monitoring of the proxy voting provider's performance as well as appropriate support for the yearly contract renewal. Corporate governance reports reviewed complied with the Proxy Voting and Securities Litigation Policy.

RECONCILIATIONS

Daily

The Investment Operations staff's demonstration of the automated reconciliation of cash and positions in the IMS for IEM investment accounts indicated appropriate monitoring, review, research, and resolution activities for exceptions.

Monthly and Quarterly

Investment Operations – Net Asset Value (NAV)

All NAV reconciliations selected agreed to supporting documentation, were completed timely and properly reviewed. Additionally, the quarterly NAV reconciliations selected were appropriately reviewed and submitted timely to the Investment Accounting Department.

Investment Operations – VRS Cash Account

All VRS Cash account reconciliations selected agreed to supporting documentation and were completed timely and properly reviewed. The VRS Cash account reconciliation selected as of quarter end was appropriately reviewed and submitted timely to the Investment Accounting Department.

Investment Operations – VRS Collateral Account

All collateral inventory account reconciliations for the months selected agreed to supporting documentation, were completed timely and properly reviewed.

TAX RECLAMATIONS

The BNYM SOC 1 – Type 2 report provided reasonable assurance over the master custodian’s processes for tax reclamations. Opportunities to enhance VRS’ monitoring of the tax reclamation services and data provided by BNYM were noted and communicated to management. Management is currently reviewing vendors who specialize in tax reclamations to assist the master custodian to ensure all potential tax reclamations are appropriately investigated and researched.

SEC FILINGS

Responsibilities of the Investment Department staff, BNYM, and outside legal counsel in compiling SEC filings support compliance with SEC rules and regulations were reasonable. All SEC filings made during the audit period were submitted timely. Minor observations to enhance processes for compiling information associated with certain SEC filings have been referred to management.

FOLLOW-UP ON PRIOR REPORTS

There were no outstanding audit recommendations to consider.

RECOMMENDATIONS

We have no written recommendations to offer as a result of our review.

MANAGEMENT EXIT CONFERENCE

This report was distributed to Mr. Schmitz and other members of VRS' management and staff for review and comment. They expressed substantial agreement with this report.

As there are no written recommendations, a written response from management is not required.

REPORT DISTRIBUTION

Submitted to the Audit and Compliance Committee at its meeting held
June 3, 2021.

MEMBERS OF THE AUDIT AND COMPLIANCE COMMITTEE

Joseph W. Montgomery, Committee Chair
W. Brett Hayes, Committee Vice Chair
O'Kelly E. McWilliams, III, Board Chair

WITH COPIES TO:

OTHER MEMBERS OF THE BOARD OF TRUSTEES

J. Brandon Bell, II
John M. Bennett
Michael P. Disharoon
William A. Garrett
Susan T. Gooden
Troilen G. Seward

VRS EXECUTIVE LEADERSHIP

Patricia S. Bishop
Ronald D. Schmitz
Members of the Director's
Executive Committee

AUDITOR OF PUBLIC ACCOUNTS

Staci A. Henshaw

JLARC

Kimberly A. Sarte
Jamie Bitz

PRINCIPAL AUDITOR IN-CHARGE

Kristy M. Scott, CPA, CISA, CIA

AUDIT SUPERVISOR

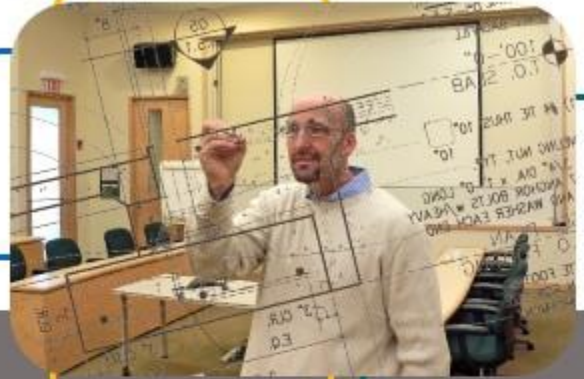
Joshua G. Fox, CIA, CIDA, CFE

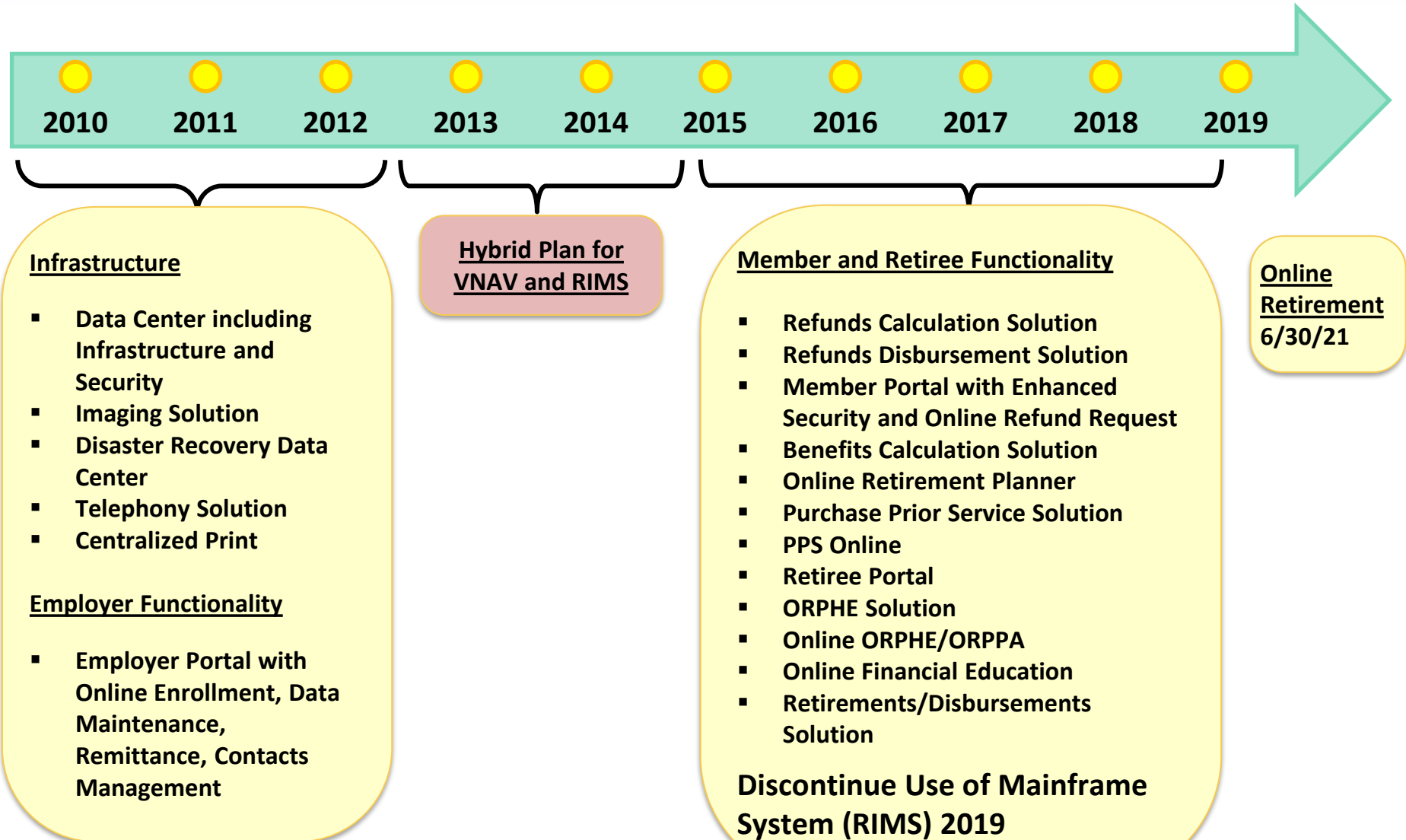
Internal Equity Management Program Pg. 31 of 31

Quarterly Reports on the Modernization Program - Phase 4

Modernization Phase 4

Audit Committee
June 3, 2021





- Modernization Program
 - The final deliverable under the Modernization Program is a set of new features for myVRS
 - Online retirement
 - Beneficiaries management
 - Retiree payment maintenance
 - Retiree health insurance credit maintenance
 - Survivor access
- This status report reflects progress as of 5/15/21

Current Software Status



myVRS Feature	Window Build	Integration Build	System Testing	Acceptance Testing
Online Retirement	Complete	Complete	Complete	Complete
Payment Maintenance	Complete	Complete	Complete	Complete
Beneficiary Management	Complete	Complete	Complete	Complete
Health Insurance Credit Maintenance	Complete	Complete	Complete	Complete
Survivor Access	Complete	Complete	Complete	5/20/21

Rollout Plan

	2020	2021					
	Dec	Jan	Feb	Mar	Apr	May	Jun
Online Retirement Pilot	■						
Online Retirement Wave 1		■					
Online Retirement Wave 2			■				
Online Retirement Wave 3				■			
Enhanced Security	■	■					
Payment Maintenance Waves				■	■	■	
Health Insurance Credit Waves				■	■	■	
Beneficiary Management Waves							■
Survivor Registration Waves							■

- Rollout will occur feature by feature and done in a manner that does not impact year end processing.

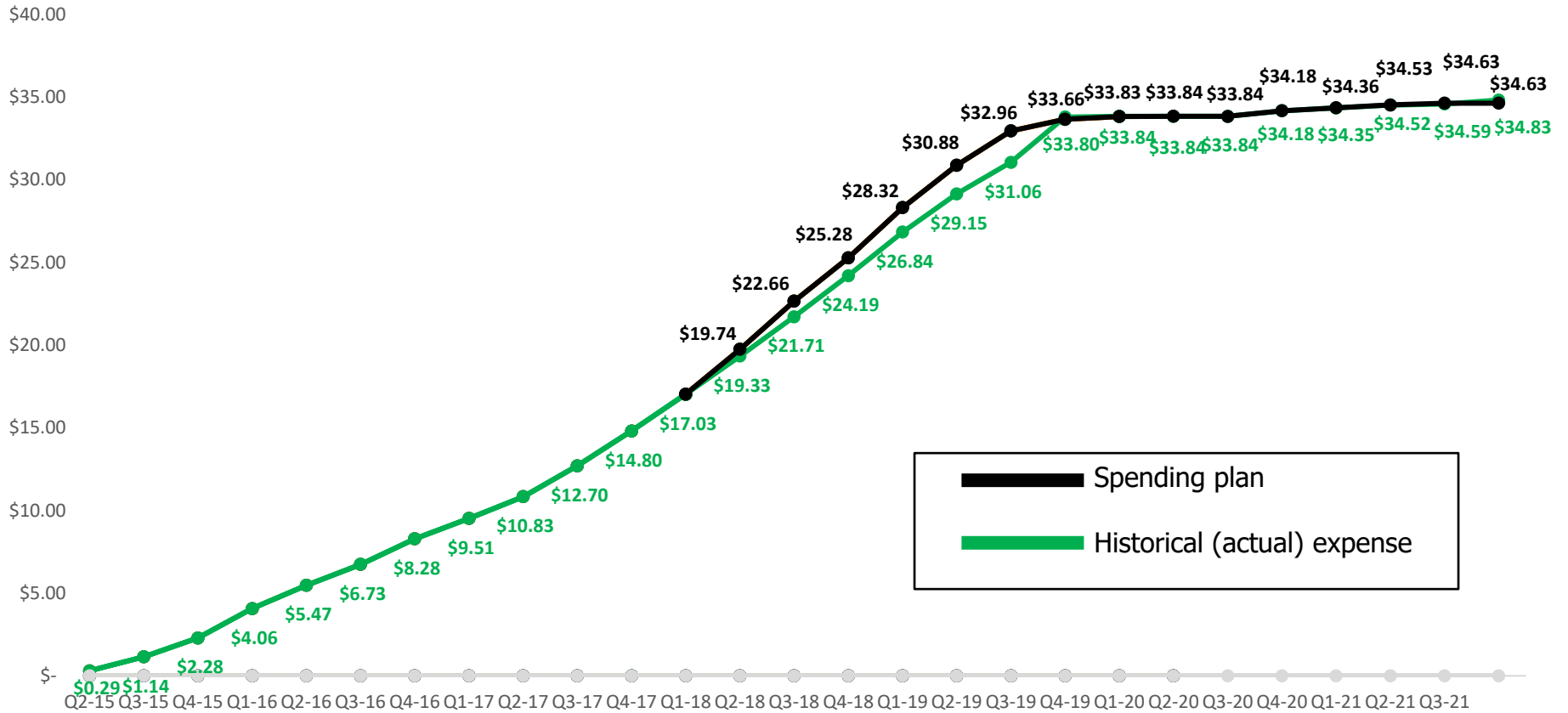
- Outreach and training
 - Development of embedded educational videos is in progress
- VRS is utilizing a soft launch approach
 - Each feature will be rolled out in waves
 - Allows for careful monitoring and correction of any issues before they impact a larger population
- Post wave business rollout
 - Risk mitigation approach during the May thru August time period
 - Control volume to ensure operations are not impacted by new processes

Implementation Status

- Online Retirement – Complete
- Enhanced Security – Complete
- Payment Maintenance – On Target
 - 46 Payment Changes
- Health Insurance Credit – On Target
 - 25 Requests

- Retiree Survey Feedback
 - “I found the process to be much faster and easy. No changes or improvements needed at this time! I am grateful that this feature was put into place!”
 - “The instructions were easy to follow. The information that was changed was easy to see in my account when finished.”

Budget as of 3/31/2021



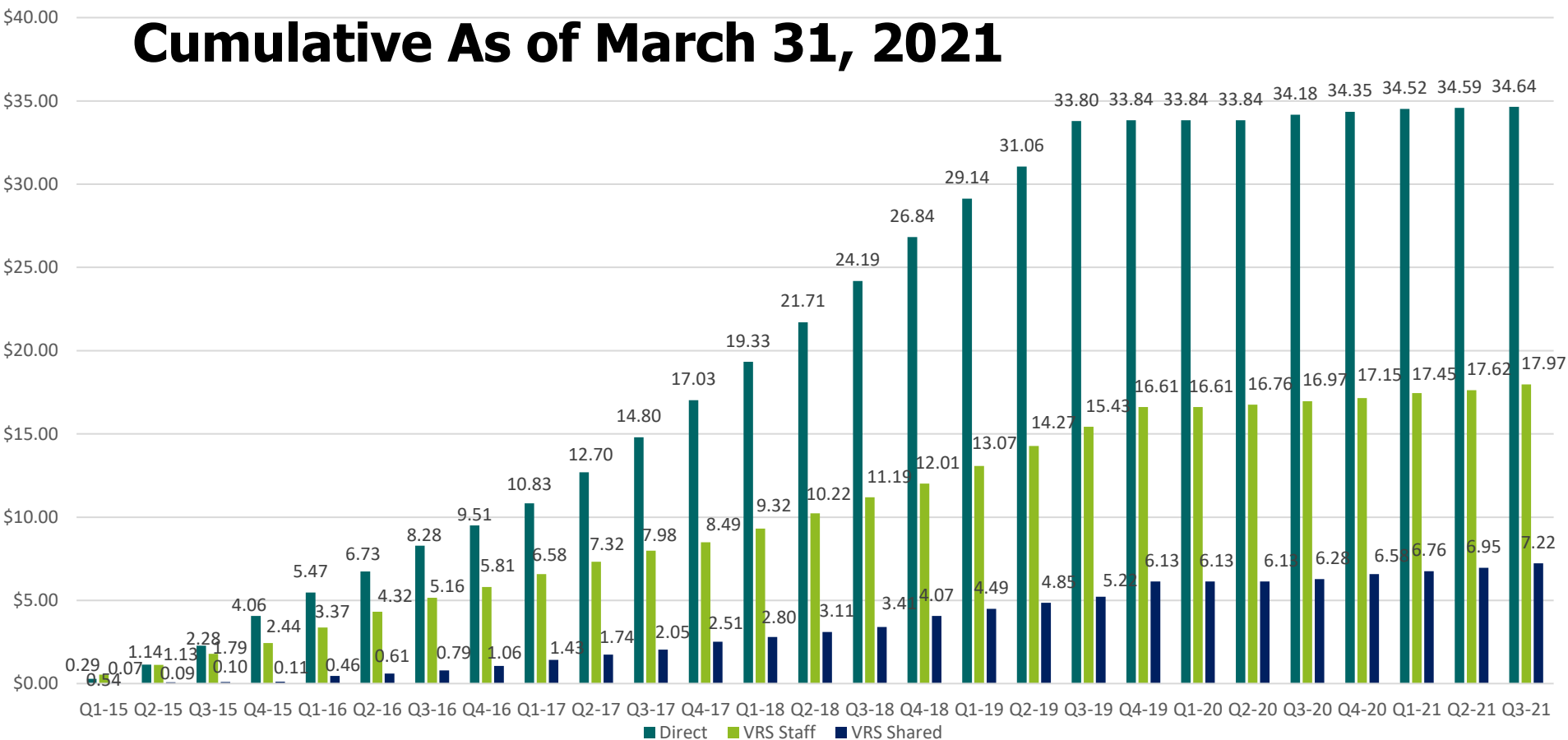
Modernization Budget

- Modernization exceeded allocated funds by \$ 187,425
 - The current total projected amount is \$219,500
 - 0.6% of the current budget
- Technology Operations Funds Covered the Additional Cost
- Primarily Due to Complexity of the Enhanced Online Retirement Security Initiatives

Total (Direct and Indirect) Cost



Cumulative As of March 31, 2021





Modernization Program Phase Four

Internal Audit's Quarterly Review

As of May 19, 2021

THIS REPORT IS INTENDED SOLELY FOR THE USE OF THE VRS BOARD OF TRUSTEES AND THE MANAGEMENT OF VRS AND IS NOT INTENDED FOR OTHER PURPOSES.



Phase Four's Scope

- To decommission the Retirement Information Management System (RIMS) by converting business functionality in RIMS over into VNAV.
- To implement a new online customer portal for members and retirees.



Phase Scope Changes



This Quarter

- *None.*

Previous Scope Changes

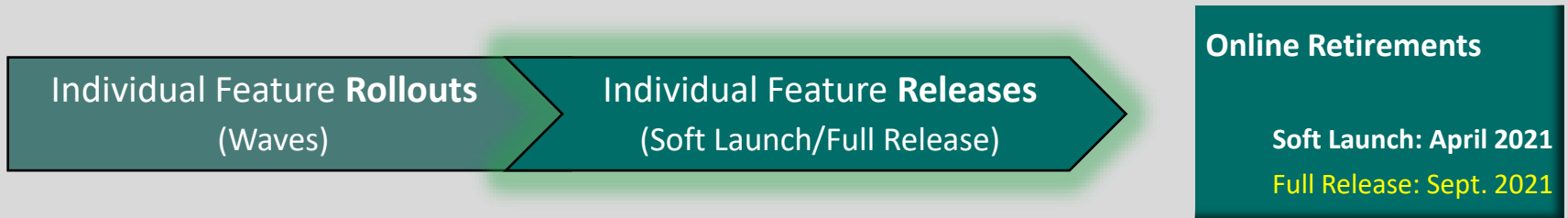
- *Quarterly Report as August 27, 2018 (reduction)*
 - Interactive Voice Response (IVR) Self-Service Replacement removal from phase scope.
- *Quarterly Report as of May 1, 2018 (reduction)*
 - Removal of Disability Retirement Case Management Functions. Case Management Functions will be handled by the new Medical Board vendor
- *Quarterly Report as of August 1, 2017 (increase)*
 - Incorporation of three individual projects under Phase Four scope for resource efficiencies.
 - ORPHE/ORPPA
 - Financial Education Resources within myVRS Portal
 - Retiree Portal Payment and Health Insurance Maintenance
- *Quarterly Report as of February 1, 2016 (increase)*
 - Addition of Online Assistance Tool for the Customer Contact Center within CSS #1 (Member Portal)

Observations



Online Retirements

- Online Retirements feature rollout was completed successfully.
- In April 2021, VRS transitioned the first feature of the suite, Online Retirements, into the release stage (comprised of a soft launch and then full release).



- The implementation and operations risk will continue to be mitigated by allowing only invited employers' members to access functionality and slowly increasing access to the population during the soft launch release period.

Observations



Other Feature Rollouts

- The four other features are progressing on schedule and positively within the rollout stage.
- Once rollouts are completed, features will be turned over to the business for release (Soft or Full) with support by the Phase Four team.
- Any functionality types which could not be validated during rollouts will continue the vetting process during the release's quality monitoring.
- VRS has performed security assessments and penetration testing prior to upcoming releases to assess each feature's security posture.

Payment Maintenance

Full Release: June 2021
(May 27, 2021)

Beneficiary Management

Full Release: July 2021

HIC Maintenance

Soft Launch: June 2021
(May 27, 2021)
Full Release: August 2021

Survivor Registration

Soft Launch: July 2021
Full Release: August 2021

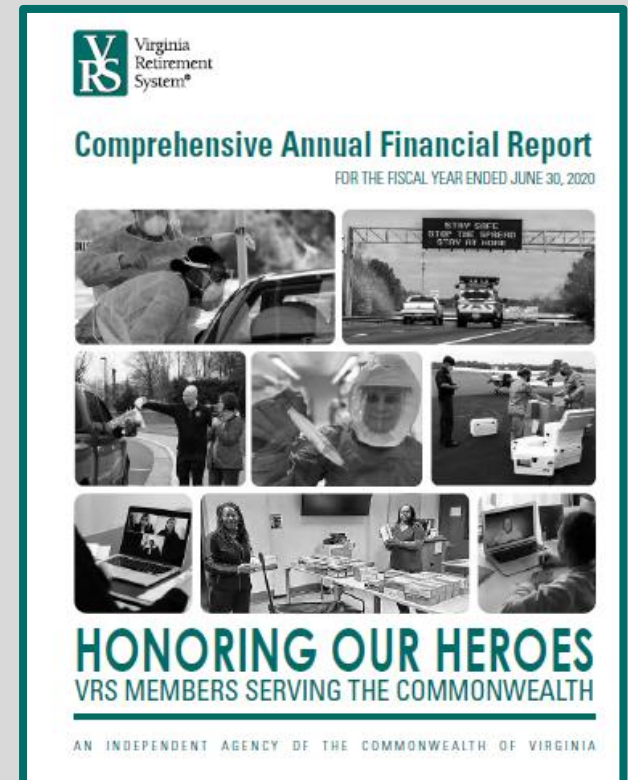
Phase Schedule



- VRS' mitigation strategies are appropriately based on the agency's current environmental context.
- We support and encourage VRS' continued cautious approach and ongoing monitoring through implementation and afterwards.
- At this time, we are in agreement with management's representation of Phase Four's overall status and progress to date.

Phase Budget

- We are in agreement with Phase Four expenditures to date represented in management's presentation.
- Phase Four is over budget and VRS will cover all overages with funds from the Technology Operations Department budget.
- Current Projections indicate that to complete the outstanding functionality and close out Phase Four, expenditures will exceed Phase 4 budget in FY21 by approximately total of \$219,500.
- Any new costs in FY22 are expected to be operational in nature and will be addressed within the VRS operational budget.



Methodology



Purpose

- To provide an objective assessment of the Modernization Program Phase Four's progress, free from influence, guidance and control of the development effort.
- To provide validation of the accuracy of management's quarterly status presentation.

Methodology continued...

Process

Gain an understanding of the purpose and progress of Phase Four through:

- Review of the Phase Four Microsoft SharePoint site or document management repository (applicable release documents)
- Interview of the Modernization Program Manager and other relevant personnel
- Attendance at ESC and other relevant meetings

Approach and Timing

- Focus on specific areas active during the period of review
- Performed quarterly through the end of Phase Four

Questions



Quarterly Report on Fraud, Waste and Abuse

Report of Alleged Fraud, Waste and Abuse Hotline Cases

**For Complaints Received During the Period
February 1, 2021 through April 30, 2021**

SUMMARY OF CASES REVIEWED AND CLOSED

During the period February 1, 2021 through April 30, 2021, we received no cases of potential Fraud, Waste and Abuse from the Office of the State Inspector General.

Background

Fraud, Waste and Abuse relating to VRS can be comprised of any number of concerns. Such items can be reported to VRS' Internal Audit Department directly or through the Office of the State Inspector General (OSIG) State Employee Fraud, Waste and Abuse Hotline. (A majority of complaints are received through OSIG.)

All matters that relate to Fraud, Waste and/or Abuse reported are reviewed to determine the proper protocol for investigation.

Committee Reporting

Cases of a serious and/or significant nature will be reported to the VRS Audit and Compliance Committee immediately. At a minimum, a summary of all Hotline cases will be reported to the Audit and Compliance Committee on a quarterly basis.

Retention

Hardcopy documents, including handwritten notes, are stored in a secure location until the case is closed, upon which they are shredded. Electronic files are stored on Internal Audit's secured drive. Documentation containing case details are labeled "**CONFIDENTIAL – STATE FRAUD, WASTE AND ABUSE HOTLINE DOCUMENTS**" and sensitive items are labeled FOIA Exempt. As appropriate, files are disposed of in accordance with the Library of Virginia's retention policy.

FRAUD, WASTE AND ABUSE CASE MANAGEMENT

PROCESSING OF COMPLAINTS

When received, the Audit Director and Hotline Auditor perform a preliminary review of the complaint. After initial discussion, the Hotline Auditor determines whether a formal response is required by OSIG (cases referred by OSIG may or may not require a formal response, depending on the nature of the complaint) and adds the case to Internal Audit's Hotline Tracking System.

The Hotline Auditor sets up a case file on Internal Audit's secured and restricted drive to maintain confidentiality. The Hotline Auditor then evaluates the case details and may review information available in VRS' systems to obtain further details about the subject of the complaint. Additionally, the Hotline Auditor may forward the details of the case to other VRS personnel for review. The Hotline Auditor also notifies the VRS Director of the case.

Complaints regarding disability benefits constitute the large majority of the Hotline cases received by VRS. The Hotline Auditor will meet with appropriate VRS staff, as necessary, to discuss details of the case in order for all parties to proceed forward with their portion of the investigation. Complaints forwarded to others are monitored for resolution. Actions and determinations for cases are reviewed for reasonableness by the Hotline Auditor. Once a determination of appropriate action has occurred, such action is documented in the Internal Audit case file and on the Hotline Tracking System. The Internal Audit Director is apprised of all actions and determinations.

For other complaints, such as internal fraud, waste or abuse (examples could include abuses of various types of leave, teleworking policies, employee theft, etc.), the Hotline Auditor investigates the allegation and obtains supporting documentation from management, as needed. If a determination is made that there is a reasonable possibility of fraud, waste or abuse, management is notified of the allegation by the Audit Director and given a reasonable timeframe in which to report back to the Audit Director any actions taken regarding the allegation. The Audit Director determines the reasonableness of such action, reports the actions and resolution of the complaint to the Hotline Auditor who documents the results in the case file and on the Hotline Tracking System.

All investigation results are reported to the VRS Director and members of the VRS Audit and Compliance Committee once a case is resolved, regardless of the outcome.

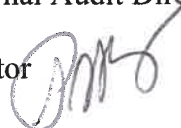
Miscellaneous Updates



P.O. Box 2500, Richmond, VA 23218-2500
Toll-free: 888-827-3847
Website: varetire.org
Email: vrs@varetire.org

Patricia S. Bishop
Director

MEMORANDUM

To: Jennifer P. Schreck, Internal Audit Director
From: Patricia S. Bishop, Director 
Date: May 26, 2021
Subject: Summary of Travel Related Expenses

I am attaching the following:

1. Summary of Travel Related Expenses Paid During the Quarter of and Fiscal Year-to-Date Through March 31, 2021. **Because of the COVID-19 travel restrictions, there was no reportable Travel Related Expenses for the period.**
2. Summary of Other Sponsored Travel Related Expenses Paid During the Quarter of and Fiscal Year-to-Date Through March 31, 2021. **Because of the COVID-19 travel restrictions, there was no reportable Other Sponsored Travel Related Expenses for the period.**
3. Schedule of Selected Travel Related Expenses Paid During the Quarter of and Fiscal Year-to-Date Through March 31, 2021. **Because of the COVID-19 travel restrictions, there was no reportable Selected Travel Related Expenses for the period.**
4. Record of Attendance and Per Diems for the Quarter Ended March 31, 2021.

This information should be shared with the Audit & Compliance Committee.

If you have any questions, please do not hesitate to ask.

PSB/lbk

Attachments

Schedule of Selected Travel Related Expenses
 (Board and Committee Members, VRS Executive Staff, and VRS Professional Investment Staff)
 Paid During the Quarter Ended March 2021

Name of Traveler	Voucher Number	Date(s) of Travel	Location	Sponsor	Purpose	Sponsor Provided	VRS Provided	Total
<u>Board and Committee Members</u>								
<u>Staff</u>								
Totals						-	-	-

Virginia Retirement System
 Summary of Other Sponsored Travel Related Expenses
 (Staff Not Otherwise Includable in Quarterly Reporting)
 Fiscal Year-To-Date Through March 2021

Name of Traveler	Current Quarter		Fiscal Year-To-Date	
	Value Provided	Sponsor	Value Provided	Sponsor
	-		-	
	-		-	
	-		-	
	-		-	
Totals	<u>-</u>		<u>-</u>	

Virginia Retirement System
 Summary of Travel Related Expenses
 (Board and Committee Members, VRS Executive Staff, and VRS Professional Investment Staff)
 Fiscal Year-To-Date Through March 2021

Name of Traveler	Current Quarter Costs						Fiscal Year-To-Date Prior Report						Fiscal Year-To-Date				
	Total Travel Expenses			Out of State Travel			Total Travel Expenses			Out of State Travel			Total Travel Expenses			Out of State Travel	
	Sponsor Provided	VRS Provided	Total	Number of Trips	Cost	Purpose	Sponsor Provided	VRS Provided	Total	Number of Trips	Cost	Sponsor Provided	VRS Provided	Total	No. of Trips	Cost	
Board of Trustees & Committee Members																	
Staff																	
Bishop, Patricia S.	-	-	-				-	87.03	87.03	-	-	-	87.03	87.03	-	-	
Totals	-	-	-	-	-		-	87.03	87.03	-	-	-	87.03	87.03	-	-	

**VRS BOARD OF TRUSTEES AND COMMITTEES
RECORD OF ATTENDANCE & PER DIEMS
FOR 1Q2021**

Member	Area	Month Paid:				Total Days Attended	Per Diem Rate	Per Diem Payments			Total
		Feb-21			Mar-21			Jan	Feb	Mar	
		2/11/21	2/11/21	2/16/21	3/16/21						
J BRANDON BELL, II	BOT	-	X	X	X	3	\$ 300.00	\$ -	\$ 600.00	\$ 300.00	\$ 900.00
MICHAEL P. DISHAROON	BOT	-	X	X	X	3	300.00	-	600.00	300.00	900.00
WILLIAM A. GARRETT	BOT	X	X	X	X	3	300.00	-	600.00	300.00	900.00
SUSAN GOODEN	BOT	-	-	X	-	1	300.00	-	300.00	-	300.00
WALLACE G. HARRIS	BOT	X	X	X	-	2	300.00	-	600.00	-	600.00
W. BRETT HAYES	BOT	-	-	X	X	2	300.00	-	300.00	300.00	600.00
O'KELLY E. MCWILLIAMS, III	BOT	X	X	X	X	3	300.00	-	600.00	300.00	900.00
JOSEPH W. MONTGOMERY	BOT	X	X	X	X	3	300.00	-	600.00	300.00	900.00
TROIEN G. SEWARD	BOT	X	-	X	X	3	300.00	-	600.00	300.00	900.00
ROBERT C. CARLSON	DCPAC	-	-	-	-	-	300.00	-	-	-	-
RIVINDRA DEO	DCPAC	-	-	-	-	-	300.00	-	-	-	-
SHANNON T. IRVIN	DCPAC	-	-	-	-	-	300.00	-	-	-	-
RICK LARSON	DCPAC	-	-	-	-	-	300.00	-	-	-	-
BRENDA O. MADDEN	DCPAC	-	-	-	-	-	300.00	-	-	-	-
KATHERINE T. SEAY (2)	DCPAC	-	-	-	-	-	-	-	-	-	-
DAVID A. WINTER	DCPAC	-	-	-	-	-	300.00	-	-	-	-
DEBORAH ALLEN-HEWITT	IAC	-	-	-	-	-	300.00	-	-	-	-
MICHAEL R. BEASLEY	IAC	-	-	-	-	-	300.00	-	-	-	-
THEODORE ECONOMOU (1)	IAC	-	-	-	-	-	-	-	-	-	-
THOMAS S.GAYNER	IAC	-	-	-	-	-	300.00	-	-	-	-
LAWRENCE E KOCHARD	IAC	-	-	-	-	-	300.00	-	-	-	-
NANCY G. LEAKE	IAC	-	-	-	-	-	300.00	-	-	-	-
WILBERT BRYAN LEWIS	IAC	-	-	-	-	-	300.00	-	-	-	-
ROD SMYTH	IAC	-	-	-	-	-	300.00	-	-	-	-
WILLIAM H. WEST	IAC	-	-	-	-	-	300.00	-	-	-	-
								\$ -	\$ 4,800.00	\$ 2,100.00	\$ 6,900.00

Number Attending	5	6	9	7						
Total Days per Diem Paid (Control Total)	5	2	9	7	23	x \$300	=			6,900.00

(1) This individual waived the payment of stipend and per diem payments for meetings attended effective 8/2/15.

(2) This individual waived the payment of per diem payments for meetings attended.

X = Present