



Virginia Retirement System®

Comprehensive Annual Financial Report

FOR THE FISCAL YEAR ENDED JUNE 30, 2020



HONORING OUR HEROES

VRS MEMBERS SERVING THE COMMONWEALTH

AN INDEPENDENT AGENCY OF THE COMMONWEALTH OF VIRGINIA

**VIRGINIA RETIREMENT SYSTEM
FINANCIAL AND STATISTICAL HIGHLIGHTS – ALL PENSION TRUST FUNDS**

(EXPRESSED IN THOUSANDS)

	2020	2019	% Change
Activity for the Year:			
Contributions	\$ 3,479,951	\$ 3,336,113	4.31%
Investment Income (Net of Investment Expenses)	\$ 1,510,525	\$ 5,052,547	-70.10%
Retirement Benefits	\$ 5,262,256	\$ 4,990,124	5.45%
Refunds	\$ 107,418	\$ 109,599	-1.99%
Administrative and Other Expenses (Net of Miscellaneous Income)	\$ 55,167	\$ 55,785	-1.11%
Increase (Decrease) in Net Position Held in Trust for Pension Benefits	\$ (432,642)	\$ 3,235,451	
Retirement Benefits as a Percentage of Contributions	151.2%	149.6%	
Retirement Benefits as a Percentage of Contributions and Investment Income	105.4%	59.5%	
Net Position Held in Trust for Benefits at Fiscal Year-End:			
Virginia Retirement System (VRS)	\$ 76,453,387	\$ 79,790,715	-4.18%
State Police Officers' Retirement System (SPORS)	\$ 854,762	\$ 865,273	-1.21%
Virginia Law Officers' Retirement System (VaLORS)	\$ 1,500,469	\$ 1,495,990	0.30%
Judicial Retirement System (JRS)	\$ 549,455	\$ 557,541	-1.45%
Investment Performance*:			
One-Year Return on Investments	1.4%	6.7%	
Three-Year Return on Investments	5.2%	8.8%	
Five-Year Return on Investments	5.8%	6.5%	
Participating Employers:			
Counties/Cities/Towns	255	252	
Special Authorities	208	207	
School Boards**	144	144	
State Agencies	230	230	
Total Employers	837	833	0.48%
Members/Retirees:			
Active Members	348,826	346,273	0.74%
Retired Members	219,113	214,545	2.13%

* Investment return calculations were prepared using a time-weighted return methodology based on market value and net of investment expenses.

** Of the 144 school boards, 132 also provide coverage for non-professional employees.



Virginia Retirement System

Comprehensive Annual Financial Report

For the Year Ended June 30, 2020

VRS CODE OF ETHICS

The VRS Code of Ethics is built on our commitment to upholding the highest standards of integrity, ethical principles and professional conduct.

INTEGRITY

Integrity is the ability to act with honesty and be consistent in administering benefits and managing investments. Integrity serves as the foundation for building trust with the public, retirees, members and employers as we provide services.

ACCOUNTABILITY

Accountability is being responsible for decisions made, actions taken and assignments completed. Accountability reinforces our commitment to ethically perform our duties to meet the goals of the agency.

CONFIDENTIALITY

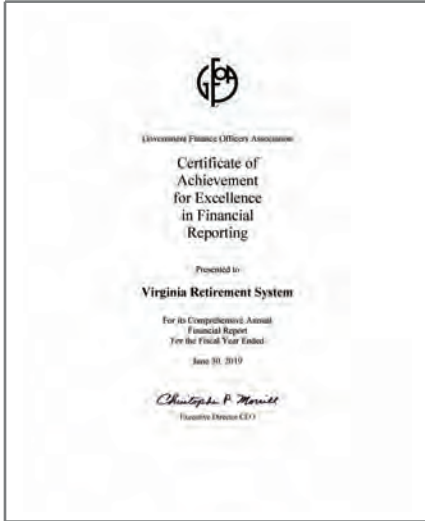
Confidentiality is exercising discretion and performing our ethical duty to protect the personal information of our members, retirees, beneficiaries and employers. We safeguard personal data and sensitive VRS information that is viewed, acquired or otherwise accessible during the course of VRS employment.

INCLUSIVITY

Inclusivity is embracing a diversity of thinking that helps us reach solutions that achieve excellence and meet the needs of our customers. We encourage an open work environment and an ethical culture in which colleagues are treated with respect and are free to raise issues or concerns without fear of retaliation.

AN INDEPENDENT AGENCY OF THE COMMONWEALTH OF VIRGINIA

This report was prepared by the financial, administrative and investment staff of the Virginia Retirement System.

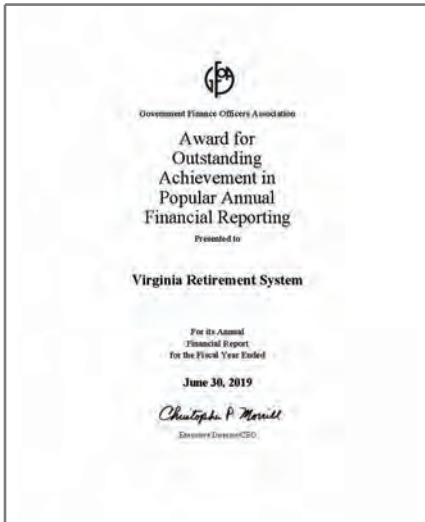


**Certificate of Achievement for Excellence in Financial Reporting,
Comprehensive Annual Financial Report (CAFR)**

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Virginia Retirement System for its Comprehensive Annual Financial Report (CAFR) for the fiscal year ended June 30, 2019. This was the 38th consecutive year that VRS achieved this prestigious recognition.

To be awarded the certificate, a government unit must publish an easily readable and efficiently organized comprehensive annual report. This report must satisfy both generally accepted accounting principles and applicable legal requirements. The certificate is valid for a period of one year.

The VRS CAFR for fiscal year 2020 continues to conform to the Certificate of Achievement Program requirements and will be submitted to GFOA to determine its eligibility for another certificate.

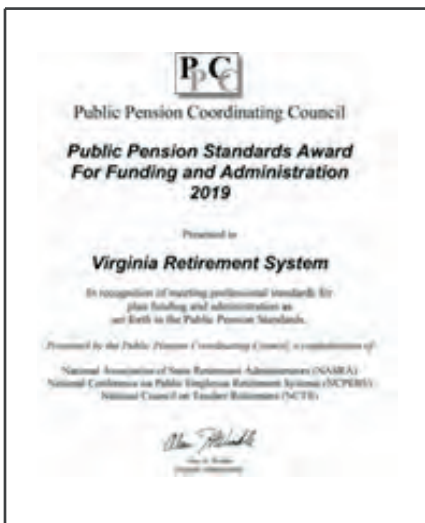


**Award for Outstanding Achievement in Financial Reporting,
Popular Annual Financial Report (PAFR)**

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Award for Outstanding Achievement in Financial Reporting to the Virginia Retirement System for its *Popular Annual Financial Report* (PAFR) for the fiscal year ended June 30, 2019. This was the fourth year of publication for which VRS was eligible to achieve this prestigious recognition.

To be awarded the certificate, a government unit must publish an easily readable and efficiently organized comprehensive annual report. This report must satisfy both generally accepted accounting principles and applicable legal requirements. The certificate is valid for a period of one year.

The VRS PAFR for fiscal year 2020 continues to conform to the Certificate of Achievement Program requirements and will be submitted to GFOA to determine its eligibility for another certificate.



Public Pension Coordinating Council Recognition Award for Administration

VRS received the 2019 Recognition Award for Administration from the Public Pension Coordinating Council (PPCC) in recognition of the agency’s fulfillment of the public pension standards. Developed by PPCC, these standards are the benchmark for measuring excellence in defined benefit plan administration. This is the agency’s 16th award from PPCC.

The purpose of the PPCC’s awards program is to promote high professional standards for public employee retirement systems and publicly commend systems that adhere to these standards. The PPCC is a coalition of the National Association of State Retirement Administrators (NASRA), the National Conference on Public Employee Retirement Systems (NCPERS) and the National Council on Teacher Retirement (NCTR).

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Virginia
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System

1 Introductory Section



HONORING OUR HEROES

VRS MEMBERS SERVING THE COMMONWEALTH

1

Introductory Section

Chair's Letter

Board of Trustees

VRS Organization

Investment Advisory Committee

Defined Contribution Plans Advisory Committee

Executive Administrative Team

Executive Investment Team

Professional Consultants

Letter of Transmittal



O'Kelly E. McWilliams III, Chair
Patricia S. Bishop, Director
Ronald D. Schmitz, Chief Investment Officer

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Richmond, Virginia 23218-2500
Toll-free: 888-827-3847 • TDD: 804-289-5919

December 18, 2020

**The Honorable Ralph S. Northam, Governor of Virginia,
and Members of the General Assembly:**

I am pleased to present the Virginia Retirement System (VRS) *Comprehensive Annual Financial Report* for fiscal year 2020.

I am grateful for this opportunity to serve as the new chair of the Board of Trustees. VRS members serving as teachers, professors and in other instrumental roles have been a steady presence in my life from my elementary years through law school, all completed in Virginia public schools and universities. During my career, I clerked for a Virginia state court judge and served in leadership capacities with the Virginia State Bar. As a member of the VRS Board of Trustees since 2017, I served on a number of committees before being appointed chair in February.

It is a privilege to serve VRS members, retirees and beneficiaries, particularly during these challenging times. Despite the uncertainty of the ongoing pandemic, VRS remains undeterred in its mission to deliver retirement benefits and services to Virginia's public employees through sound financial stewardship and superior customer service.

With the onset of the COVID-19 pandemic, VRS transitioned smoothly to an almost entirely remote workforce. Our comprehensive mobility initiative positioned the agency and employees to mobilize necessary resources for an event such as this, making it a seamless shift to a new customer service delivery model for the agency.

With logistics in place, we focused on our core operations. Retiree benefit payments remained on schedule. Our customer contact center transitioned without interruption, answering member and retiree calls from home. In-person retirement and benefits counseling sessions were converted to phone and webinar sessions. We appreciate the partnership of our participating employers, who served as a vital link to members during this transition. We provided timely policy updates to employers by email and through our newsletter, and had dedicated staff available to answer questions by phone.

We kept employers, retirees and members informed through our COVID-response webpages, spotlighting the latest news on the CARES Act, emergency distribution options and the impact of furloughs on member benefits. Our award-winning myVRS Financial Wellness program took on a new level of importance, adding a COVID-19 Resource Guide in the spring that offered practical information for those experiencing financial insecurity due to layoffs and illness.

I want to express gratitude for the extraordinary efforts of many Virginians during this challenging time, especially the VRS members who have served their communities with dedication in recent months. Many have not only carried out their everyday responsibilities but also assumed additional tasks such as delivering instruction online, distributing food to students and their families, conducting supply drives for healthcare workers and first responders, and pivoting resources to support COVID-19 research and testing. We salute these outstanding public servants in this annual report theme, “Honoring Our Heroes: VRS Members Serving the Commonwealth.”

INVESTMENT UPDATE

Despite the economic crisis caused by the global pandemic, VRS achieved a 1.4% net return on its investment portfolio, allowing the VRS-managed portfolio to end the fiscal year with \$83.7 billion.

During fiscal year 2020, the major asset classes performed as follows:

- Public equity program: (0.7)%
- Private equity program: 0.8%
- Real assets program: 1.0%
- Credit strategies program: 0.3%
- Fixed income program: 9.5%
- Private investment partnerships: (6.4)%
- Multi-asset public strategies: (3.2)%

The portfolio included approximately \$31.0 billion in public equity, \$11.3 billion in credit strategies, \$12.5 billion in fixed income, \$11.2 billion in real assets, \$10.2 billion in private equity, \$1.2 billion in private investment partnerships and \$2.4 billion in multi-asset public strategies portfolios, as of June 30, 2020.

During the fiscal year, the long-term investment assumed rate of return was lowered from 7.00% to 6.75% with the 2019 valuations, which led to slight decreases in funding levels compared to 2018 and slight increases in contribution rates. After extensive analysis and consultation, the board took this prudent action to adopt a lower rate that blended near-term uncertainty in the markets with longer-term expectations.

Even with market volatility in the early portion of the fourth quarter, the overall financial health of our system remains strong. VRS has a long-term vision for investment strategy and management, bolstered by steady leadership. The Board has adopted an efficient portfolio policy that balances risks with rewards, and our investment professionals are mindful that the decisions they make today must support public employees through the coming decades and beyond. From that perspective, the VRS fund continues to exceed the current 6.75% assumed actuarial rate of return for the 25-year period.

Investment income has historically funded approximately two-thirds of all benefits, with the remaining one-third derived from contributions. VRS’ investment professionals have provided an average annual added value of \$246 million net of all fees and incentive payments per year above

the VRS Board policy benchmark, resulting in about \$2.5 billion in additional dollars to the fund over the past 10 years.

MEASUREMENT OF MANAGEMENT

VRS focuses on both quality service and efficient delivery of services. In fiscal year 2019, VRS' total pension administration cost of \$81 remained lower than the peer average of \$103, according to CEM Benchmarking. VRS' total service score was 83, exceeding the peer median of 80. The service score places VRS in the most desirable quadrant of CEM's cost-effectiveness chart where we deliver high service at a lower cost when compared to our peers.

For investments, CEM reported in December 2019 that VRS' implementation approach allows us to save about \$15 million annually compared to our peers. Further, our skilled negotiating in external management costs results in about an additional \$25 million a year in savings versus the cost paid by our peers for similar services. We save approximately \$58 million in external management fees annually by managing one-third of plan assets in-house. Because of our performance and fee savings, CEM placed VRS in the positive value-added, low-cost quadrant of cost-effectiveness rankings.

DEFINED CONTRIBUTION PLANS UPDATE

During the fiscal year, VRS concluded a multiyear project to reduce costs and improve services for participants in the Optional Retirement Plan for Higher Education (ORPHE). Once the decision was made to reduce the number of providers from three to two, VRS engaged in outreach with a comprehensive transition package to all affected participants, an educational web page and in-person meetings with participants. In addition, VRS established an online provider election process to help participants easily update their provider choice.

In 2019, VRS educated Hybrid Retirement Plan members and employers on the benefits of the plan's auto-escalation feature. This year, VRS partnered with ICMA-RC, the plan's third-party record keeper, to develop and launch an upbeat auto-escalation campaign with a motivational approach that resonated with hybrid plan members. VRS promoted auto-escalation as a savings opportunity, while informing members of the matching employer contributions that further boost savings. In January 2020, hybrid plan members who were not making the maximum voluntary contribution were auto-escalated by half a percent. Only 1% of the nearly 80,000 eligible participants opted out of auto-escalation, increasing the number of members actively saving for their futures.

ADVANCEMENTS IN TECHNOLOGY AND SECURITY

VRS used its existing technology infrastructure to support remote work and continue business without disruption in a rapid response to the COVID-19 pandemic. Our agency provided equipment and technical support to replicate full office functionality in home workspaces and added new web conferencing software. VRS employees have the resources they need to be productive and engaged at work.

VRS continues to implement technology solutions that support a huge step forward in customer service delivery and security. Decommissioning the legacy mainframe system this past year represented a milestone. The replacement of aging technology required a considerable investment

of time and resources across the agency. However, we now have a more flexible and intuitive system providing a high degree of self-service, which is crucial to the web-based delivery of retirement benefits. A new data initiative allows our departments to perform quality checks on the large volume of information VRS manages daily. We anticipate reducing time spent on reconciling data issues while simultaneously decreasing organizational risk.

FINANCIAL WELLNESS EDUCATION

We continue to promote myVRS Financial Wellness and engage members. To drive additional traffic to our award-winning resources, VRS developed an online toolkit for employers, providing ready-made content employers can use to promote the program to employees. VRS also produced four videos about the benefits of the program, three of which targeted millennials to generate interest in financial wellness among younger VRS members. With the addition of coronavirus-focused content to myVRS Financial Wellness, we addressed topics such as setting up an emergency fund, managing your money, mental health and handling student loan payments in a crisis—issues particularly important during the pandemic.

DIVERSITY AND INCLUSION

As we deal with economic challenges accompanying the pandemic, we also grapple with issues of race, ethnicity and social justice that affect the economy and our workplaces. As an agency that employs a diverse team and serves diverse members and retirees, VRS is aware of these issues and the importance of leveraging the strength found in our differences.

VRS created its Diversity and Inclusion Committee in 2008 to open dialogue about race, ethnicity, religion and gender by presenting programs and engaging employees in discussion. In the past year, the committee has sponsored a variety of events that have increased awareness of diversity and inclusion issues. In the coming year, the committee will look at answering more strategic questions that will guide our efforts.

VRS also has a long history of engagement with diverse investment managers. We believe women and minority managers enhance the overall VRS portfolio and allow us to take a comprehensive approach to investment opportunities. VRS conducts outreach with these managers in a variety of forums and maintains an open door policy.

AWARDS

Investment in professional development and partner relationships, coupled with a commitment to core values, results in recognized achievements. VRS and its staff received the following national and local awards during the year:

- Communicator Award of Distinction for the hybrid plan auto-escalation campaign, presented by the Academy of Interactive and Visual Arts (AIVA) for creative excellence in marketing and communication.
- Capital Award of Merit for speechwriting, Virginia Public Relations Awards, presented by the Public Relations Society of America—Richmond Chapter.
- Certificate of Achievement, Government Finance Officers Association (GFOA) – the highest form of recognition in governmental accounting and financial reporting – for the

Comprehensive Annual Financial Report (CAFR) for the fiscal year ended June 30, 2019; this is the 38th consecutive year that VRS has been so honored.

- Award for Outstanding Achievement in Financial Reporting, also from GFOA, for the fourth *Popular Annual Financial Report* (PAFR).
- Public Pension Standards Award for Funding and Administration from the Public Pension Coordinating Council (PPCC); this is the 16th award VRS has received from PPCC.

SERVING THOSE WHO SERVE OTHERS

In closing, thank you for your commitment to fully funding VRS contribution rates. Your efforts have been instrumental in improving the overall funded status of the retirement plans over the last five years.

Your continued support enhances the financial well-being of Virginia's public employees and positions the retirement plans to be viable well into the future. Not only have your actions strengthened the system, but your commitment to funding has also enabled Virginia to share a positive approach to pension funding with the bond-rating agencies, contributing to the state retaining its AAA bond-rating status.

On behalf of the Board of Trustees, thank you for your support of the retirement plans and benefits administered by VRS for the Commonwealth's public servants, which has helped the citizens of Virginia weather this pandemic. Working together, we will continue to serve those who serve others for many years to come.

Sincerely,

A handwritten signature in black ink that reads "O'Kelly E. McWilliams III" with a stylized flourish at the end.

O'Kelly E. McWilliams III, Esq.
Chair
Virginia Retirement System

Board of Trustees

COMPOSITION OF THE BOARD

Nine members serve on the VRS Board of Trustees. Their appointment is shared between the executive and legislative branches of state government. The Governor appoints five members, including the chair. The Joint Rules Committee of the Virginia General Assembly appoints four members. The General Assembly confirms all appointments.

Of the nine Board members, four must be investment experts, one must be experienced in employee benefit plans, one must be a local government employee, one must be an employee of a Virginia public institution of higher education, one must be a state employee and one must be a public school teacher. The public employee members may be either active or retired.



O'Kelly E. McWilliams III, *Chair*
Mintz
Employee Benefit Plans Professional
Appointed by Governor
Term Expires: 2/28/2022
As Chairman: 2/28/2022
Committee Assignments: Administration & Personnel (Chair), Audit & Compliance, Investment Policy (Chair)



Wallace G. "Bo" Harris, Ph.D.
Department of Social Services (Retired)
State Employee
Appointed by Joint Rules Committee
Term Expires: 2/28/2021
Committee Assignments: Administration & Personnel, Benefits & Actuarial (Chair), Investment Policy



Diana F. Cantor, *Vice Chair*
Alternative Investment Management
Investment Professional
Appointed by Governor
*Term Expires: 2/29/2020**
Committee Assignments: Administration & Personnel (Vice Chair), Audit & Compliance (Vice Chair), Investment Policy (Vice Chair)



W. Brett Hayes
Wells Fargo Advisors Financial Network
Investment Professional
Appointed by Joint Rules Committee
Term Expires: 2/28/2023
Committee Assignments: Defined Contribution Plans Advisory (Chair), Investment Policy



The Hon. J. Brandon Bell II, CRPC
Brandon Bell Financial Partners
Investment Professional
Appointed by Governor
Term Expires: 2/28/2021
Committee Assignments: Defined Contribution Plans Advisory (Vice Chair), Investment Policy



William H. Leighty
Virginia Commonwealth University
Higher Education Representative
Appointed by Governor
*Term Expires: 2/28/2019**
Committee Assignments: Audit & Compliance (Chair), Investment Policy



William A. Garrett
Chief of Fire and Rescue Services,
City of Manassas
Local Government Employee
Appointed by Governor
Term Expires: 2/28/2023
Committee Assignments: Benefits & Actuarial, Investment Policy



Joseph W. Montgomery
The Optimal Service Group, Wells Fargo Advisors
Investment Professional
Appointed by Joint Rules Committee
Term Expires: 2/29/2024
Committee Assignments: Administration & Personnel, Investment Policy



Troilen Gainey Seward, Ed.S.
Dinwiddie County Public Schools,
School Superintendent (Retired)
Public Schools Employee
Appointed by Joint Rules Committee
Term Expires: 2/28/2022
Committee Assignments: Benefits & Actuarial (Vice Chair), Investment Policy

* Terms continue until successor appointed.

VRS Organization

BOARD OF TRUSTEES



Patricia S. Bishop
Director



Ronald D. Schmitz
Chief Investment Officer



Jennifer P. Schreck
Internal Audit Director

INVESTMENT ADVISORY COMMITTEE

Lawrence E. Kochard, Ph.D., Chair

Chief Investment Officer, Makena Capital Management

Term Expires: 2/16/2021

As Chairman: 5/31/2021

Hance West, Vice Chair

Chief Investment Officer and Managing Director,
Investure

Term Expires: 12/31/2021

Deborah Allen Hewitt, Ph.D.

Retired Clinical Professor, The College of William and Mary

Term Expires: 10/16/2022

Michael Beasley

Retired Chairman Emeritus, Strategic Investment Solutions Inc.

Term Expires: 6/20/2021

Théodore Economou

Head of Asset Management, Symbiotics,
(Switzerland) SA

Term Expires: 9/13/2022

Thomas S. Gayner

President and Chief Investment Officer, Markel Corporation

Term Expires: 2/19/2021

Nancy G. Leake

Advisory Partner, Partners Group (USA) Inc.

Term Expires: 12/31/2021

W. Bryan Lewis

Vice President and Chief Investment Officer.

United States Steel Corporation

Term Expires: 3/31/2022

Rod Smyth

Chief Investment Strategist, RiverFront Investment Group

Term Expires: 6/20/2021

DEFINED CONTRIBUTION PLANS ADVISORY COMMITTEE

W. Brett Hayes, Chair

Member, VRS Board of Trustees

Wells Fargo Advisors Financial Network

Term Expires: 6/10/2022

The Hon. J. Brandon Bell II, Vice Chair

Member, VRS Board of Trustees

Brandon Bell Financial Partners

Term Expires: 6/10/2022

Ravindra Deo

Executive Director, Federal Retirement Thrift Investment Board

Term Expires: 6/20/2022

Shannon T. Irvin

Assistant Superintendent for Administration, Nelson County Public Schools

Term Expires: 6/20/2021

Rick Larson

Assistant Vice President for Human Resources, Training and Performance
James Madison University

Term Expires: 6/20/2021

Brenda O. Madden

Senior Vice President and Human Resources Director, Davenport & Company

Term Expires: 6/20/2022

Kathleen T. Seay

Deputy County Administrator, Hanover County

Term Expires: 6/20/2022

David A. Winter

Owner, Winter HR Consulting LLC

Term Expires: 6/20/2021

Executive Administrative Team

Patricia S. Bishop

Director

L. Farley Beaton Jr.

Chief Technology and Security Officer

Jeanne L. Chenault

Director of Public Relations

Michael P. Cooper

Chief Operating Officer

Barry C. Faison

Chief Financial Officer

Robert L. Irving

Director of Customer Services

LaShaunda B. King

Executive Assistant

Paula G. Reid

Director of Human Resources

Jennifer P. Schreck

Internal Audit Director

Cynthia D. Wilkinson

Director of Policy, Planning and Compliance

Executive Investment Team

Ronald D. Schmitz

Chief Investment Officer

John P. Alouf, CFA

Director, Private Equity

Parham Behrooz, CFA

Co-Director, Fixed Income Management

John T. Grier, CFA

Managing Director, Public Market Assets

Kenneth C. Howell, CFA

Managing Director, Private Market Assets

Ross M. Kasarda, CFA

Director, Risk Management

Kristina P. Koutrakos, CAIA

Director, Portfolio Strategy

Matthew L. Lacy, CFA

Director, Portfolio Integration

Chung S. Ma, CFA

Managing Director, Portfolio Solutions Group

Curtis M. Mattson, CPA

Chief Administrative Officer

Stephen R. McClelland, CFA, CAIA

Director, Credit Strategies

Walker J. Noland, CFA

Director, Real Assets

B. Greg Oliff, CFA

Co-Director, Fixed Income Management

Steven P. Peterson, Ph.D.

Program Director, Research & IDS

Daniel C. Schlusser

Director, Internal Equity Management

Daniel B. Whitlock, CFA, CAIA

Director, Global Equity

Professional Consultants

ACTUARY

Ed Koebel, EA, MAAA, FCA

Chief Executive Officer,
Cavanaugh Macdonald Consulting LLC

AUDITOR

Martha S. Mavredes, CPA

Auditor of Public Accounts,
Commonwealth of Virginia

VRS DEFINED CONTRIBUTION PLANS

Kathleen Wilson

ICMA-RC

COMMONWEALTH OF VIRGINIA
VOLUNTARY GROUP LONG-TERM CARE
INSURANCE PROGRAM

Michelle Christian

Genworth Financial

LEGAL COUNSEL

Office of the Attorney General

Commonwealth of Virginia

LIFE INSURANCE CARRIER

Joseph K.W. Chang

Securian Financial

MASTER CUSTODIAN

BNY Mellon

VIRGINIA SICKNESS AND DISABILITY
PROGRAM AND VIRGINIA LOCAL
DISABILITY PROGRAM

Sally P. Kennedy

Reed Group

Letter of Transmittal



Patricia S. Bishop, Director
Barry C. Faison, Chief Financial Officer

P.O. Box 2500 • 1200 East Main Street
Richmond, Virginia 23218-2500
Toll-free: 888-827-3847 • TDD: 804-289-5919

December 18, 2020

To the Members of the Board of Trustees:

We are pleased to submit the *Comprehensive Annual Financial Report* (CAFR) of the Virginia Retirement System (the System) for the fiscal year ended June 30, 2020. In addition to the Introductory Section, the System's CAFR contains a Financial Section, Investment Section, Actuarial Section and Statistical Section. VRS' *Comprehensive Annual Financial Report* for fiscal year 2020 has been prepared in accordance with Section 51.1-1003 of the *Code of Virginia* (1950), as amended, which requires every retirement system to publish an annual report, and Section 4-11.00 of Chapter 1289 of the 2020 Virginia Acts of Assembly, which requires an annual detailed statement of financial condition. The report is delivered to the Governor, members of the Cabinet and the members of the Virginia General Assembly. The report also is available on the VRS website at varetire.org.

VRS Overview

Administration: VRS is an independent state agency. As provided under the *Constitution of Virginia*, VRS funds are separate from other state funds and can be used only to administer and pay benefits for members, retirees and beneficiaries. The Board of Trustees administers and is trustee of the funds of:

- the Virginia Retirement System Trust, including Plan 1, Plan 2, the defined benefit component of the Hybrid Retirement Plan, and Plan 1 and Plan 2 hazardous duty benefits for political subdivision employees;
- the State Police Officers' Retirement System Trust, including Plan 1 and Plan 2;
- the Virginia Law Officers' Retirement System Trust, including Plan 1 and Plan 2;
- the Judicial Retirement System Trust, including Plan 1 and Plan 2, and the defined benefit component of the Hybrid Retirement Plan for judges;
- the Virginia Sickness and Disability Program (VSDP) Trust for state employees, including VSDP long-term care;
- the Virginia Local Disability Program (VLDP) Trust for eligible school division and political subdivision employees, including VLDP long-term care;
- a disability retirement option for certain members not covered under VSDP or VLDP;
- the Hybrid 457 Deferred Compensation Plan;
- the Hybrid 401(a) Cash Match Plan;
- the Optional Retirement Plan for Political Appointees, the Optional Retirement Plan for School Superintendents and the Optional Retirement Plan for Higher Education (ORPHE);
- the Commonwealth of Virginia 457 Deferred Compensation Plan;
- the Virginia Cash Match Plan;
- the Virginia Supplemental Retirement Plan;
- the Group Life Insurance Program;
- the Retiree Health Insurance Credit Program; and
- the Line of Duty Death and Health Benefits Trust Fund.

In addition, the Board administers or has substantial oversight responsibilities for the Benefit Restoration Plan, the Commonwealth of Virginia Voluntary Group Long Term Care Insurance Program, and the Volunteer Firefighters' and Rescue Squad Workers' Service Award Fund Program, as well as benefit eligibility determinations under the Line of Duty Act in Title 9.1 of the *Code of Virginia*.

More than 800 employers participate in VRS on behalf of their employees. They include state agencies, public colleges and universities, school boards, political subdivisions and special authorities.

Fiduciary Responsibility of the Board

The VRS Board of Trustees (the Board) has full power to invest and reinvest the trust funds of the System.

To fulfill its responsibility, the Board has adopted various investment policies and guidelines. The Board's investment objective for the VRS portfolio is to maximize long-term investment returns while targeting an acceptable level of risk. Primary risk measures are volatility in the plan's assets, funded status and contribution rates. As set forth in Section 11 of Article X of the *Constitution of Virginia*, the funds of the retirement system shall be deemed separate and independent trust funds; shall be segregated from all other funds of the Commonwealth; and shall be invested and administered solely in the interests of members, retirees and beneficiaries. The Board retains a professional investment staff, as well as outside managers, to advise and assist in the implementation of these policies and objectives.

VRS Milestones (1908-Present)

1908 Retired Teachers Fund created.

1942 Virginia Retirement System (VRS) created for teachers and state employees.

1944 Political subdivisions have the option to join VRS.

1950 State Police Officers' Retirement System (SPORS) created.

1960 Group Life Insurance Program created.

1970 Cost-of-Living Adjustment (COLA) established; Judicial Retirement System (JRS) created.

1990 Health Insurance Credit for state retirees established.

1992 Health Insurance Credit for retired teachers and political subdivision employees established.

1995 Optional Group Life Insurance Program established.

1999 Virginia Sickness and Disability Program (VSDP) for state employees established; Virginia Law Officers' Retirement System (VaLORS) created.

2002 VSDP Long-Term Care Plan established.

2010 VRS Plan 2 created for members hired or rehired on or after July 1, 2010.

2012 General Assembly passed legislation creating a Hybrid Retirement Plan with implementation in 2014; Virginia Local Disability Program (VLDP) created as a benefit for political subdivisions and schools with implementation in 2014.

2014 VRS Hybrid Retirement Plan, a combined defined benefit and defined compensation plan, became the retirement plan for new members (with the exception of hazardous duty members) hired on or after January 1, 2014.

2015 VRS added a Roth option to the Commonwealth of Virginia 457 Deferred Compensation Plan and the General Assembly permitted school divisions the option to offer an employer-sponsored hybrid 403(b) plan for Hybrid Retirement Plan voluntary contributions.

2016 The enhanced myVRS was launched, increasing self-service functionality for members.

2017 Self-service purchase of prior service, enhanced security and features for retirees added to myVRS, along with tools to help college and university faculty members and political appointees compare retirement plan options and make their plan election online. Financial wellness program for members added to myVRS.

2019 VRS took a major step forward in member-record management, moving from a legacy mainframe to a web-based environment and adding new retirement application processing, retirement payments and disbursement, retiree health insurance maintenance and post-retirement maintenance.

2020 In a nimble response to the global COVID-19 pandemic, VRS provided timely information to members, employers and retirees on subjects including financial matters, the CARES Act, market volatility and myVRS resources.

The assets of the System are invested in a prudent manner that is intended to provide for the adequate funding of VRS' pension liability. Section 51.1-124.30(C) of the *Code of Virginia* states that "... the Board shall invest the assets of the Retirement System with the care, skill, prudence and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of like character and with like aims."

Accordingly, the Board must sufficiently diversify the portfolio to minimize the risk of large losses unless, under the circumstances, it is clearly prudent not to do so.

Accounting System and Internal Control

The financial statements included in the CAFR for fiscal year 2020 are the responsibility of the System's management and have been prepared in accordance with generally accepted accounting principles (GAAP) for government accounting and reporting promulgated by the Governmental Accounting Standards Board (GASB).

The accrual basis of accounting is used in the preparation of the financial statements. Revenues are taken into account when they are earned and become measurable; expenses are recorded when the liabilities are incurred.

Investments are reported at fair value as determined by the System's master custodian. Capital assets are recorded at cost and depreciated over their estimated useful life.

Contributions to the System are based on the principle of level-cost funding and are developed using the entry age normal cost method, with current service financed on a current basis and prior service amortized over a 20-year closed period. Legacy unfunded liability as of June 30, 2013, is being amortized over a 30-year closed period, while deferred contributions from the 2010-2012 biennium are being recognized over a 10-year closed period. In management's opinion, the financial statements fairly present the plan net position of the System at June 30, 2020, and the changes in its plan net position for the period then ended.

GASB Statement Number 34 requires the System to include additional information in the CAFR. This information is provided in Management's Discussion and Analysis (MD&A) and includes an introduction as well as an overview and analysis of the System's financial activities for the current fiscal year and the two preceding years. The Letter of Transmittal is designed to complement and should be read in conjunction with the MD&A, found in the Financial Section immediately following the report of the independent auditor.

GASB Statement Number 67 focuses on financial reporting for state and local pension administrators and is addressed in the Financial Section. GASB Statement Number 68 establishes accounting and financial reporting requirements for state and local governments that provide their employees with pensions and prepare annual financial statements. To assist employers in meeting the GASB 68 standard, VRS developed a resource center available to employers via the VRS website. The online resources included GASB 68 audit opinions and disclosure guidance, contribution rates, valuation reports and GASB 67/68 guidance documents.

For other post-employment benefits (OPEBs), GASB Statement Number 74 focuses on financial reporting for state and local plan administrators and is also addressed in the Financial Section. GASB Statement Number 75 establishes accounting and financial reporting requirements for state and local governments that provide their employers with OPEB benefits and prepare annual financial statements. To assist employers in

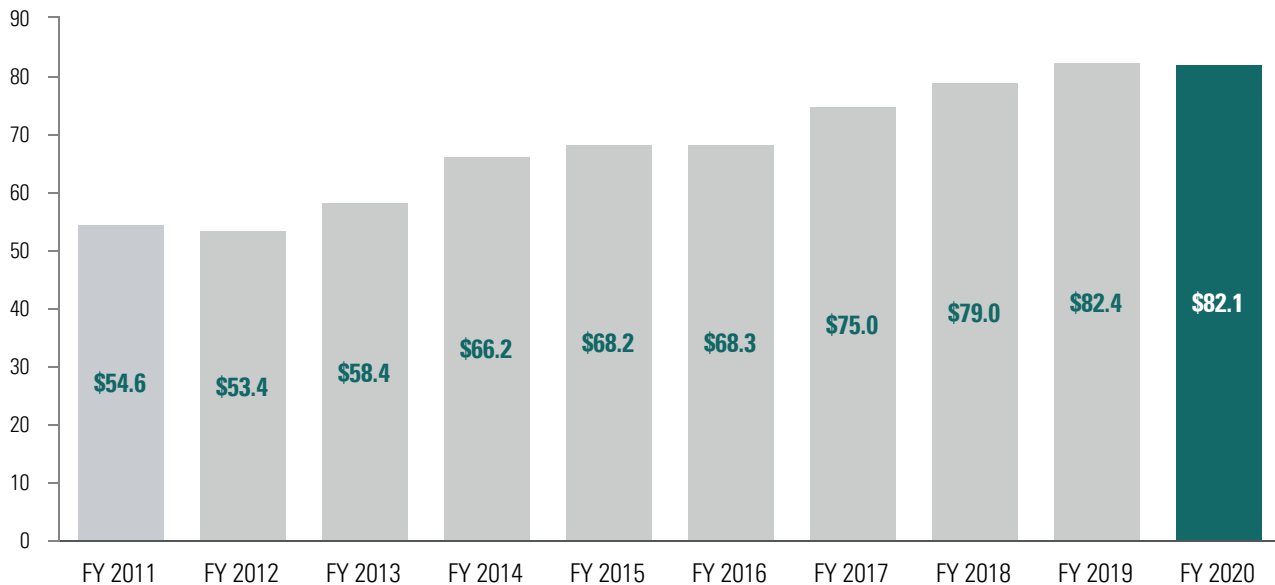
meeting the GASB 75 standard, VRS developed additional OPEB-specific resources for employers and added those resources to the VRS website. Those online resources included GASB 75 audit opinions and disclosure guidance, contribution rates, valuation reports and GASB 74/75 guidance documents.

The System’s management is responsible for maintaining a system of adequate internal accounting controls designed to provide reasonable assurance that transactions are executed in accordance with management’s general or specific authorization, and are recorded as necessary to maintain accountability for assets and to permit preparation of financial statements in accordance with GAAP. The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits that are likely to be derived from that control. The internal control system includes the organizational plan; the appropriate segregation of duties and responsibilities and sound practices in the performance of duties; and personnel with capabilities commensurate with their responsibilities.

PLAN NET POSITION RESTRICTED FOR BENEFITS

AS OF JUNE 30

(EXPRESSED IN BILLIONS)



The System also has an internal audit program that reports to the Audit Committee of the Board of Trustees, and the budget for the System’s administrative expenses is approved by the Board and appropriated by the Virginia General Assembly.

The retirement funds held by the System are constitutionally established as independent trust funds dedicated to the exclusive benefit of its members, retirees and beneficiaries. In management’s opinion, the internal controls in effect during the fiscal year ended June 30, 2020, adequately safeguard the System’s assets and provide reasonable assurance regarding the proper recording of financial transactions.

Funding

PENSION PLANS

Calculations for the System’s defined benefit pension plans for financial reporting purposes were made in accordance with Governmental Accounting Standards Board Statement No. 67, *Financial Reporting for Pension Plans*. The most recent valuation for this presentation was prepared as of June 30, 2020. The total pension liability was determined based on the actuarial valuation as of June 30, 2019, using updated actuarial

assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2020.

Based on these calculations, the Plan Fiduciary Net Position as a percentage of the Total Pension Liability was 72.15% for the VRS State Plan, 71.47% for the VRS Teacher Plan and 83.44% for the aggregate total of the VRS Political Subdivision Plans. For the SPORS, VaLORS and JRS plans, the Plan Fiduciary Net Position as a percentage of the Total Pension Liability was 70.34%, 65.74% and 79.92%, respectively.

This compares to opening plan fiduciary net position as a percentage of the total pension liability at June 30, 2019, for the VRS State Plan, the VRS Teacher Plan and the aggregate total of the VRS Political Subdivision Plans, of 75.13%, 73.51% and 87.82%, respectively. For SPORS, VaLORS and JRS, the percentage of total pension liability was 73.52%, 68.31% and 82.16%, respectively, at June 30, 2019. Further information on this valuation is included in the Financial Section and the Actuarial Section. Contributions for fiscal year 2020 were based on the June 30, 2017, actuarial valuation. The contribution phase-in schedule included in the 2015 Appropriations Act required the General Assembly to fund roughly 90% of the VRS Board-certified rates for fiscal year 2020. However, the Governor and General Assembly accelerated the funding rate for the state, teacher, SPORS, VaLORS and JRS plans to 100% of the Board-certified rates. Retirement contribution rates are discussed in further detail in the Financial Section.

OPEB PLANS

Calculations for the System's Other Post-Employment Benefit (OPEB) plans for financial reporting purposes were made in accordance with Governmental Accounting Standards Board Statement No. 74, *Financial Reporting for Post-Employment Benefit Plans Other Than Pension Plans*. The most recent valuation for this presentation was prepared as of June 30, 2020. The total OPEB liability was determined based on the actuarial valuation as of June 30, 2019, using updated actuarial assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2020.

Based on these calculations, the plan fiduciary net position as a percentage of the total OPEB liability was 52.64% for the Group Life Insurance Fund, 12.02% for the state employee Health Insurance Credit, 9.95% for the teacher employee Health Insurance Credit, 31.57% for the aggregate total of the VRS political subdivision plans for Health Insurance Credit, 15.78% for the state-funded Health Insurance Credit for constitutional officers, 13.06% for the state-funded Health Insurance Credit for social services employees, and 21.18% for the state-funded Health Insurance Credit for Registrars. In addition, the plan fiduciary net position as a percentage of the total OPEB liability was 181.88% for the Disability Insurance Program and 1.02% for the Line of Duty Act plan. The Virginia Local Disability Program plans for teachers and political subdivisions were 78.28% and 76.84%, respectively.

This compares to the opening plan fiduciary net position as a percentage of the total OPEB liability at June 30, 2019, of 52.00% for the Group Life Insurance Fund, 10.56% for the state employee Health Insurance Credit, 8.97% for the teacher employee Health Insurance Credit, 57.33% for the aggregate total of the VRS political subdivision plans for Health Insurance Credit, 14.28% for the state-funded Health Insurance Credit for constitutional officers, 15.43% for the state-funded Health Insurance Credit for social services employees and 14.75% for the state-funded Health Insurance Credit for registrars. In addition, the plan fiduciary net position as a percentage of the total OPEB liability was 167.18% for the Disability Insurance Program and 0.79% for the Line of Duty Act Program. The Virginia Local Disability Program plans for teachers and political subdivisions were 74.12% and 49.19%, respectively. Further information on this valuation is included in the Financial Section and the Actuarial Section.

Contributions for fiscal year 2020 were based on the June 30, 2017, actuarial valuation. The rates certified by the VRS Board of Trustees for the OPEB plans were fully funded by the Governor and General Assembly, except for the Line of Duty Act Program for which rates are not applicable. Contribution rates for each of these OPEB plans are discussed in further detail in the Financial Section.

Investments

At June 30, 2020, the total value of the VRS managed investment portfolio was \$83.7 billion, a decrease from the investment balance of \$84.4 billion at June 30, 2019. The decrease was due to decreased investment activity that was partially offset by increased contribution activity. The Fixed Income and Private Equity portfolio returns exceeded their benchmarks this year.

The System's net position restricted for benefits at June 30, 2020, totaled \$82.1 billion, representing a decrease from the net position of \$82.4 billion as of June 30, 2019.

Information regarding the investment professionals who provide services for the VRS Investment Pool for the pension and OPEB plans can be found on pages 159 through 161 in the Investment Section. The schedule of commissions and investment manager expenses is located on page 161 of that section.

Additional information on the System's investment policies and strategies as well as the portfolio's composition and investment return information is included in the Investment Section.

Legislative Initiatives

During the 2020 session, the Virginia General Assembly enacted the following bills that affect the Virginia Retirement System and retirees covered under VRS.

2020 BILLS

HOUSE BILL 351 AND SENATE BILL 324: SCHOOL BUS DRIVERS (CRITICAL SHORTAGE). Allows school bus drivers to be designated as critical shortage positions and allows a qualified retiree to return to work as a school bus driver while continuing to receive a retirement benefit.

- Requires the identification of a school bus driver shortage by geographic area and local school division.
- Retirees must have a 12-calendar-month break in service, not working in any full-time, part-time or temporary position with any VRS-participating employer, and will not accrue additional service.
- Retirees cannot have retired under an early retirement incentive program (ERIP).
- No employer contributions are required.
- Provision sunsets July 1, 2025.
- SPORS, VaLORS and JRS retirees are not eligible to participate in this program.

HOUSE BILL 536 AND SENATE BILL 109: COLLEGE SAVINGS TRUST ACCOUNTS. Updates the felonious assault benefit under the Group Life Insurance program to reflect statutory changes to the Virginia College Savings Plan and Internal Revenue Code.

- Clarifies that VRS is the owner of the Virginia College Savings Plan account.
- Provides that the amount used to fund the college savings account for eligible beneficiaries is the average cost of four years of tuition and mandatory fees at Virginia public higher education institutions as reported by the State Council of Higher Education for Virginia.
- Clarifies that the account can only be used for post-secondary education, in accordance with Title 51.1.

Felonious assault benefits include:

- \$50,000 or 25% of accidental death or dismemberment benefit, whichever is less (no change).
- Virginia College Savings Plan account for each qualifying child if individual dies as a result of the assault. The amount is approximately equal to the average cost of four years of tuition and mandatory fees at a public college or university in Virginia. The child may attend any accredited college or university that participates in the federal student financial aid programs.

HOUSE BILL 1495 AND SENATE BILL 54: SCHOOL SECURITY OFFICERS. Permits retired sworn law enforcement officers to return to work full time as a school security officer (defined in § 9.1-101).

- Retirees must have a 12-calendar-month break in service, not working in any full-time, part-time or temporary position with any VRS-participating employer.
- Retirees cannot have retired under an early retirement incentive program (ERIP) from any local school division or other VRS employer, or under the Workforce Transition Act.
- Individuals who return to work under this provision are not eligible for any cash match as detailed in Chapter 6.1 (§ 51.1-607 et seq., cash match plans) of Title 51.1.
- No additional service is earned by the member, and employers must pay contributions for these positions.
- Requires an actuarial study of the provision's impact every four years that must be submitted to the General Assembly.

HOUSE BILL 1513: HEALTH INSURANCE CREDIT. As of July 1, 2021, requires school divisions that provide VRS benefits to non-teacher employees to also provide a health insurance credit of \$1.50 per year of service to all non-teacher retirees who retire with at least 15 years of total service credit.

- Eligible non-teachers who retired before July 1, 2020, but who previously did not receive a health insurance credit, will begin receiving it July 1, 2021.
- A school division may, at its option, provide an additional \$1 per year, for a total health insurance credit of \$2.50 per year of service for affected retirees.
- Removes the \$45 cap.
- Does not apply to any non-teacher school division employee who retired on disability before July 1, 2020, if this measure would reduce the retiree's current monthly credit amount.

HOUSE BILL 51 AND SENATE BILL 40: LINE OF DUTY ACT. Provides that children born or adopted after the death or disability of an employee covered by the Line of Duty Act (LODA) are eligible for health insurance coverage if their birth or adoption occurred after the time of the employee's death or disability, but before July 1, 2017. The Department of Human Resource Management administers the LODA Health Benefits Plans.

2020-2022 STATE BUDGET:

VRS EMPLOYER CONTRIBUTION RATES:

- Fully funds the VRS board-certified retirement contribution rates for teachers, state employees, the State Police Officers' Retirement System (SPORS), the Virginia Law Officers' Retirement System (VaLORS) and the Judicial Retirement System (JRS).
- Fully funds the VRS board-certified other post-employment benefits (OPEB) contribution rates for the health insurance credit for state employees and teachers, group life insurance for state employees, the employer share of the teachers' group life insurance program and the Virginia Sickness and Disability Program (VSDP).

LINE OF DUTY ACT (LODA) (ITEM 477): Increases the LODA Fund premium amount for participating employers from \$709.21 to \$717.31.

TRANSITIONAL BENEFITS PROGRAM (ITEM 477): Extends the Transitional Benefits Program through June 30, 2022. The program allows school divisions and VRS-participating political subdivisions to provide a transitional severance benefit or an enhanced retirement benefit to employees who are involuntarily separated from employment. Involuntary separation is a layoff because of a budget reduction, agency reorganization, workforce downsizing or other causes not related to job performance or misconduct.

NOTIFICATION OF LATE EMPLOYER CONTRIBUTIONS (ITEM 492): Requires VRS to notify the chairmen of the House Appropriations and Senate Finance and Appropriations committees within 15 days if an employer becomes 60 days late in making a contribution payment to VRS.

Membership

MEMBER AND RETIREE HIGHLIGHTS. The total VRS membership increased from 723,011 members, retirees and beneficiaries in fiscal year 2019 to 727,705 in fiscal year 2020, representing an increase of 0.65%.

The following are highlights from the fiscal year:

- The number of active VRS members increased 0.74%, from 346,273 to 348,826.
- The number of retirees and beneficiaries increased 2.13% from 214,545 to 219,113.
- VRS paid \$5,262.3 million in retirement benefits during fiscal year 2020, compared to \$4,990.1 million in retirement benefits in fiscal year 2019.
- The number of inactive and deferred members decreased (1.50)% from 162,193 to 159,766.
- A total of 87,031 members held accounts through the Commonwealth of Virginia Deferred Compensation Plan at the end of the fiscal year. Of these participants, 72,350 received a cash match through the Virginia Cash Match Plan.

(Continued)

AIMING FOR EXCELLENCE. VRS personnel continued to meet or exceed target goals for operational measures, as the following highlights show:

OPERATIONAL MEASURES	TARGET	FY 2020 RESULT
Timeliness of Monthly Financial Account Reconciliations	95.00% or more of monthly financial control reconciliations completed by the last business day of the following month.	100.00% of monthly financial control reconciliations completed by the last business day of the following month.
Customer Counseling Center Abandoned Call Rate	The average abandoned call rate is less than 7.00%.	The average abandoned call rate is 6.59%.
Timeliness of Response to Messages Received by the Customer Counseling Center	The average response time is less than 1.00 business days.	The average response time is 0.39 business days.
Timeliness of Monthly Retirement Disbursements	100.00% of monthly retirement disbursements processed no later than the first business day of the month.	100.00% of monthly retirement disbursements processed no later than the first business day of the month.
Timeliness of Service Retirements Processed	95.00% of service retirements processed so that retiring members receive retirement benefits on the first retirement payment date for which they are eligible.	96.84% of service retirements processed so that retiring members receive retirement benefits on the first retirement payment date for which they are eligible.
Accuracy of Disability Retirements Processed	99.00% of disability retirements processed for which the corresponding benefit payment correctly reflects the member's service record.	99.70% of disability retirements processed for which the corresponding benefit payment correctly reflects the member's service record.
Timeliness of Employer Contribution Confirmations	97.00% of employer contribution confirmation snapshots are completed by the end of the month in which they are due.	100.00% of employer contribution confirmation snapshots are completed by the end of the month in which they are due.
Timeliness of Workflow Documentation Imaging	99.50% of documents VRS receives are imaged within one business day of receipt.	100.00% of documents VRS receives are imaged within one business day of receipt.
Planned IT System Availability	Critical business systems are available 99.50% of the time during periods of planned availability.	Critical business systems are available 99.98% of the time during periods of planned availability.

Education & Counseling

In addition to these achievements, VRS staff provided counseling, education, workshops and training opportunities for members and employers throughout the state during fiscal year 2020:

- The VRS Customer Contact Center answered 191,732 calls and provided 6,933 email responses.
- The Member Counseling Team conducted 237 retirement education and group counseling sessions (including 16 virtual sessions), special presentations, videoconferences, webinars and benefit fairs, reaching 21,681 members around the state. The team also held 4,390 in-person counseling sessions (including 140 virtual sessions) for members and retirees.
- The Hybrid Counseling Team conducted 38 Plan Features & Benefits presentations with ICMA-RC, attended by 553 Hybrid Retirement Plan members, and held three webinars with a total of 99 attendees. Hybrid Retirement Plan member counselors participated in seven benefit fairs with 616 attendees. In addition, ICMA-RC held 253 Hybrid Overview Meetings, including 76 virtual sessions, with 3,718 attendees.
- Both teams participated in the ICMA-RC Realize Retirement tour at nine locations, attended by Virginia Defined Contribution Plan participants throughout the state.
- The Education and Training Team provided four instructor-led training sessions for employers with 58 attendees; 17 e-courses for employers, with 1,110 views and 606 completions; and 20 webinars with 375 attendees. There were a total of 14,853 views of 18 member training videos, on subjects ranging from the Hybrid Retirement Plan to the Line of Duty Act.
- The Employer Representatives continued to organize employer roundtables and conduct employer site visits, which focus on the full scope of VRS products and services. In total, they conducted 22 employer site visits and 26 roundtables, with 441 participants (representing 269 employers) in attendance.
- In addition, the Employer Representatives assisted five political subdivisions joining VRS; four employers electing the Group Life Insurance Program; six employers electing the enhanced benefit for hazardous duty employees; five employers electing the enhanced retirement multiplier for hazardous duty employees; one employers electing the health insurance credit; five employers electing to offer tax-deferred purchase of prior service; three employers electing to offer the Commonwealth of Virginia 457 Deferred Compensation Plan; and four employer electing to offer the employer-sponsored hybrid 403(b) option.
- The VRS website (varetire.org) received more than 3.4 million total page views. myVRS, the secure online member account portal, led again as one of the top destinations.
- The average “open rate” for *Employer Update* was 24.4%, well above the government industry average.
- *Member News* had 201,863 subscribers, with an “open rate” of 25.5%.

Innovations

VRS has been engaged in a multi-year transformation of technology to provide a holistic and intuitive online experience for VRS members and retirees. New features have been built upon work completed in previous phases, starting with increased online functionality for employers and moving on to enhanced self-service for members and retirees. Development has been guided by a business model that organizes VRS processes around member milestones and facilitates access to information and delivery of services. Security of information and ease of use have been top priorities throughout the process.

This year, VRS added additional security tools to the login and registration process in myVRS. We also continue progress on the VRS Online Retirements Plus project, which will provide an enhanced online experience for our members and retirees with additional self-service features.

Members will soon have the ability to retire online in myVRS; retirees will enjoy added functionality to manage beneficiaries and change bank account information online, as well as update health insurance credit information. For the first time, survivors of VRS members will have capability to register for a myVRS account, which will provide access to view and maintain their survivor benefit information.

VRS launched an initiative this past year to focus on the accuracy of benefit administration data by analyzing the quality and usage of the data in the business process. This initiative has resulted in the development of a visual dashboard to enable departments to monitor trends, analyze patterns and set baseline norms. Through daily monitoring, our departments can perform quality checks and quickly detect inconsistencies to be addressed. We anticipate reducing time spent on reconciling data issues while simultaneously decreasing organizational risk.

The secure online myVRS system continues to attract users. During the fiscal year, myVRS continued to serve as a valuable resource for members, retirees and employers:

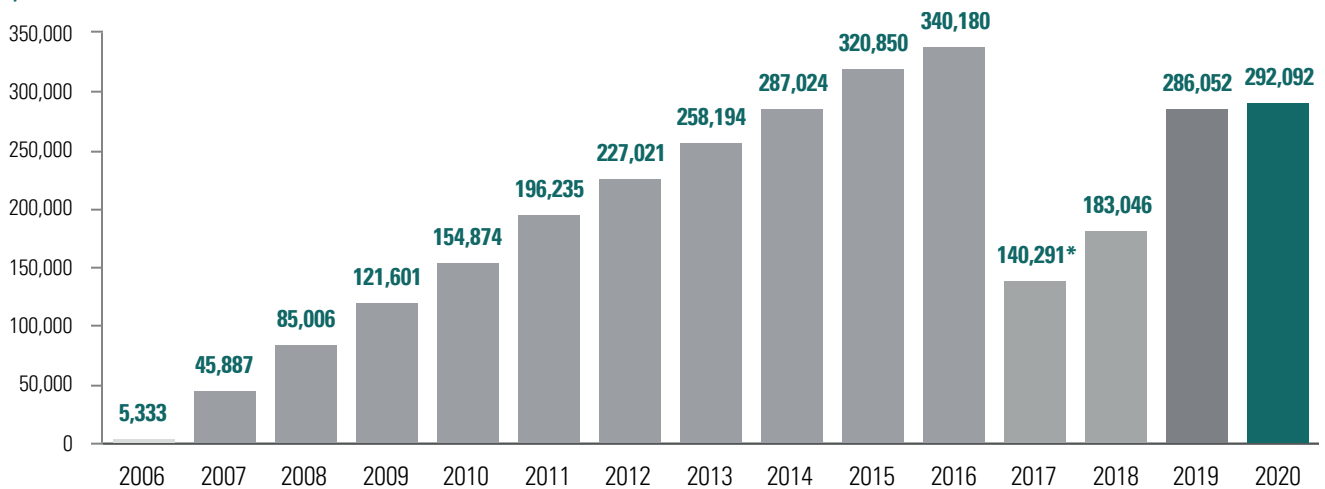
- The cumulative number of registered users as of June 30, 2020, was 292,092.
- In fiscal year 2020, there were 37,359 member and retiree registrations.
- Members are taking greater advantage of the myVRS Retirement Planner and Benefit Estimator to plan their futures and adjust their savings goals, creating 87,643 retirement plans and 411,468 benefit estimates in fiscal year 2020.

The myVRS Financial Wellness program, now in its third year, seeks to help members make informed decisions on current financial matters while saving for the future. VRS’ nationally recognized, award-winning program provides a personalized customer experience, consistent with industry best practices for engaging users, in collaboration with our partner iGrad.

There were 5,517 registrations, with 69,002 page views and approximately 700 course completions, during fiscal year 2020.

The myVRS Financial Wellness program proved nimble during the economic crisis by serving up fresh and timely information to members on a number of budgeting, managing credit and other money-management issues, particularly important during the pandemic.

myVRS MEMBER USERS



* First-time and returning users of myVRS who registered via the enhanced security features in fiscal year 2017.

Acknowledgments

In a time of global changes, VRS remains focused on its unchanging mission: efficient service and delivery of benefits and responsible stewardship of the funds in our care for our members, retirees and beneficiaries. At the same time, we encourage and empower our members to be active in retirement planning, by making voluntary contributions to the Hybrid Retirement Plan, exploring the myVRS Financial Wellness program, participating in supplemental deferred compensation plans and monitoring information in their myVRS accounts.

The Hybrid Retirement Plan encourages members to be actively engaged in retirement planning by choosing their preferred investment paths and options for increasing voluntary contributions to retirement savings. In order to make informed decisions, members can access resources from our award-winning financial wellness education program. And, members and retirees can use secure and enhanced self-service features in myVRS.

These accomplishments, among others, have been achieved through the efforts of the VRS staff, the support of VRS' participating employers and business partners and the leadership of the Board of Trustees. We are grateful to each of these individuals and representatives. VRS also appreciates the resolute commitment of the Governor and General Assembly to fully fund contributions to the plans.

In closing, we wish to recognize and thank Governor Ralph S. Northam and the members of the General Assembly for their ongoing commitment to the financial security of the members, retirees and beneficiaries of the Virginia Retirement System. Together, we continue to serve those who serve others.

Respectfully submitted,



Patricia S. Bishop
Director



Barry C. Faison
Chief Financial Officer



Virginia
Retirement
System

2 Financial Section



HONORING OUR HEROES

VRS MEMBERS SERVING THE COMMONWEALTH

2 Financial Section

Independent Auditor's Report

Management's Discussion and Analysis

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VRS Statement of Changes in Fiduciary Net Position: Defined Benefit Pension Trust Funds and Other Employee Benefit Trust Funds

VRS Statement of Fiduciary Net Position: Defined Benefit Pension Trust Funds

VRS Statement of Changes in Fiduciary Net Position: Defined Benefit Pension Trust Funds

VRS Combining Statement of Fiduciary Net Position

VRS Combining Statement of Changes in Fiduciary Net Position

VRS Combining Statement of Fiduciary Net Position: Other Employee Benefit Trust Funds

VRS Combining Statement of Changes in Fiduciary Net Position: Other Employee Benefit Trust Funds

Retiree Health Insurance Credit Combining Statement of Fiduciary Net Position

Retiree Health Insurance Credit Combining Statement of Changes in Fiduciary Net Position

VLDP Combining Statement of Fiduciary Net Position

VLDP Combining Statement of Changes in Fiduciary Net Position

VRS Statement of Fiduciary Net Position: Other Custodial Plans

VRS Statement of Changes in Fiduciary Net Position: Other Custodial Plans

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Schedule of Impact of Changes in Discount Rate: Pension Plans

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Required Supplementary Schedule of Changes in Employers' Net Pension Liability: JRS

Required Supplementary Schedule of Employer Contributions: Pension Plans

Required Supplementary Schedule of Investment Returns

Required Supplementary Schedule of Changes in Employers' Net OPEB Liability and Related Ratios Required

Supplementary Schedule of Employer Contributions: OPEB Plans

Schedule of Investment Expenses

Schedule of Administrative Expenses

Schedule of Professional and Consulting Services



Commonwealth of Virginia

Auditor of Public Accounts

Martha S. Mavredes, CPA
Auditor of Public Accounts

P.O. Box 1295
Richmond, Virginia 23218

December 15, 2020

The Honorable Ralph S. Northam
Governor of Virginia

The Honorable Kenneth R. Plum
Chairman, Joint Legislative Audit
and Review Commission

Board of Trustees
Virginia Retirement System

INDEPENDENT AUDITOR'S REPORT

Report on Financial Statements

We have audited the accompanying financial statements of the Virginia Retirement System (System) as of and for the year ended June 30, 2020, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

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An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall financial statement presentation.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the Virginia Retirement System as of June 30, 2020, and the changes in fiduciary net position for the year ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter

Change in Accounting Principle

As discussed in Note 1E of the accompanying financial statements, the System implemented GASB Statement No. 84, related to fiduciary activities. As discussed in Note 1M of the accompanying financial statements, the fiscal year 2019 financial statements have been restated in accordance with this change in accounting principle. Our opinion is not modified with respect to this matter.

Relationship to the Commonwealth of Virginia

As discussed in Note 1, the basic financial statements of the System are intended to present the financial position, and the changes in financial position of only that portion of the aggregate remaining fund information of the Commonwealth of Virginia that is attributable to the transactions of the System. They do not purport to, and do not, present fairly the Commonwealth of Virginia's overall financial position as of June 30, 2020, and the changes in its financial position and its cash flows, where applicable, for the year then ended in conformity with accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

Other Matters

Prior-Year Summarized Comparative Information

We have previously audited the System's 2019 financial statements, and we expressed an unmodified audit opinion on the respective financial statements in our report dated December 13, 2019. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2019, is

consistent, in all material respects, with the audited financial statements from which it has been derived, except as noted within our Emphasis of Matter, *Change in Accounting Principle*.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis on pages 33 through 43 and the Schedules of Changes in Employers' Net Pension Liability, Schedule of Employer Contributions for pension plans, Schedule of Investment Returns, Schedule of Changes in Employers' Net OPEB Liability and Related Ratios, and Schedule of Employer Contributions for other post-employment benefit plans on pages 114 through 141 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of the financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary and Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements. The accompanying supplementary information, such as the Schedules of Investment Expenses, Administrative Expenses, and Professional and Consulting Services, and other information, such as the Financial and Statistical Highlights for all pension trust funds and the Introductory, Investment, Actuarial, and Statistical sections, are presented for the purpose of additional analysis and are not a required part of the basic financial statements.

The Schedules of Investment Expenses, Administrative Expenses, and Professional and Consulting Services are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Schedules of Investment Expenses, Administrative Expenses, and Professional and Consulting Services are fairly stated, in all material respects, in relation to the basic financial statements taken as a whole.

The Financial and Statistical Highlights for all pension trust funds and the Introductory, Investment, Actuarial, and Statistical sections have not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on them.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated December 15, 2020, on our consideration of the System’s internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System’s internal control over financial reporting and compliance.

Martha S. Mavredes
AUDITOR OF PUBLIC ACCOUNTS

The Virginia Retirement System (the System) administers pension and other employee benefit plans for approximately 727,705 members, retirees and beneficiaries. The purpose of the Financial Section is to present the plans' net position and changes in net position for the fiscal year through the audited Basic Financial Statements. In support of this information, the Financial Section includes Management's Discussion and Analysis of activity affecting the plans and the operations of the System during the current and previous fiscal years. It also includes the Notes to Financial Statements, providing additional detail about the statements, as well as required schedules regarding historical information and the administration of the plans.

Management's Discussion and Analysis (Unaudited)

Management's Discussion and Analysis provides highlights of the funding of the plans and the performance and operations of the System for the fiscal year ended June 30, 2020. The information provided in the Introductory, Investment, Actuarial and Statistical sections complements this discussion.

The System administers two defined benefit retirement benefit structures, Plan 1 and Plan 2, and a hybrid retirement benefit structure. While all of the following systems have employees with Plan 1 and Plan 2 benefits, only the VRS and JRS systems have employees with hybrid benefits. All of these systems are defined as pension trust funds:

- Virginia Retirement System (VRS) for state employees, teachers, other eligible school division employees, employees of participating political subdivisions and other qualifying employees.
- State Police Officers' Retirement System (SPORS) for state police officers.
- Virginia Law Officers' Retirement System (VaLORS) for non-local government Virginia law officers other than state police officers.
- Judicial Retirement System (JRS) for judges of state courts of record, state district courts and other qualifying employees.

The System also administers the Group Life Insurance Fund, Retiree Health Insurance Credit Fund, a Disability Insurance Trust Fund for state employees, a Disability Insurance Trust Fund for

local government employees and the funding of the Line of Duty Act Trust Fund. All of these funds are defined as other employee benefit trust funds. Both the pension and other employee benefit trust funds are classified as fiduciary funds.

The system also has full investment responsibility for other custodial funds, which include the Commonwealth Health Research Fund (CHRF), the Commonwealth's Attorneys Training Fund (CATF), the Volunteer Firefighters' and Rescue Squad Workers' Service Award Program (VolSAP) and the VRS Investment Portfolio (VRSIP).

FINANCIAL HIGHLIGHTS

- The combined total net position of the trust funds restricted for benefits was \$82.1 billion at June 30, 2020, representing a decrease of \$(0.3) billion, or (0.4)%, from the net position as of June 30, 2019.
- The System's time-weighted rate of return on investments during the fiscal year ended June 30, 2020, was 1.4% compared to a return of 6.7% for the fiscal year ending June 30, 2019. The decrease was due primarily to the performance of the public equity investments in the portfolio.
- The latest valuations of the pension plans were performed by Cavanaugh Macdonald Consulting LLC, using the GASB Statement No. 67 calculation processes. Using the June 30, 2019, data rolled forward to June 30, 2020, the plan fiduciary net position as a percentage of the total pension liability was 72.15% for the VRS state plan, 71.47% for the VRS teacher plan, 83.44% for the aggregate total of the VRS political subdivision plans, 70.34% for SPORS,

65.74% for VaLORS and 79.92% for JRS. This compares to the June 30, 2018, data rolled forward to June 30, 2019, when the plan fiduciary net position as a percentage of the total pension liability was 75.13% for the VRS state plan, 73.51% for the VRS teacher plan, 87.82% for the aggregate total of the VRS political subdivision plans, 73.52% for SPORS, 68.31% for VaLORS and 82.16% for JRS.

- Cavanaugh Macdonald Consulting LLC also performed the latest actuarial valuations for the Other Post-Employment Benefit (OPEB) plans using the GASB Statement No. 74 calculation processes. Using the June 30, 2019, data rolled forward to June 30, 2020, the plan fiduciary net position as a percentage of the total OPEB liability was 52.64% for the Group Life Insurance Fund, 12.02% for the state employee Health Insurance Credit, 9.95% for the teacher employee Health Insurance Credit, 31.57% for the aggregate total of the VRS political subdivision plans for Health Insurance Credit, 15.78% for the state-funded Health Insurance Credit for constitutional officers, 13.06% for the state-funded Health Insurance Credit for social services employees, and 21.18% for the state-funded Health Insurance Credit for registrars. In addition, the plan fiduciary net position as a percentage of the total OPEB liability was 181.88% for the Disability Insurance Program and 1.02% for the Line of Duty Act plan. The Virginia Local Disability Program plans for teachers and political subdivisions were 78.28% and 76.84%, respectively.
- This compares to the June 30, 2018, data rolled forward to June 30, 2019, when the plan fiduciary net position as a percentage of the total OPEB liability was 52.00% for the Group Life Insurance Fund, 10.56% for the state employee Health Insurance Credit, 8.97% for the teacher employee Health Insurance Credit, 57.33% for the aggregate total of the VRS political subdivision plans for Health Insurance Credit, 14.28% for the state-funded Health Insurance Credit for constitutional officers,

15.43% for the state-funded Health Insurance Credit for social services employees, and 14.75% for the state-funded Health Insurance

- Credit for registrars. In addition, the plan fiduciary net position as a percentage of the total OPEB liability was 167.18% for the Disability Insurance Program and 0.79% for the Line of Duty Act plan. The Virginia Local Disability Program plans for teachers and political subdivisions were 74.12% and 49.19%, respectively.

Overview of the Financial Statements and Accompanying Information

The pension components of the fiscal year 2020 VRS financial statements, notes to the financial statements and required supplementary information were prepared in conformity with GASB Statement No. 67, *Financial Reporting for Pension Plans*, as modified by GASB Statement No. 82, *Pension Issues*. The Other Post-Employment Benefit (OPEB) components of the fiscal year 2020 financial statements, notes to the financial statements and required supplementary information were prepared in conformity with GASB Statement No. 74, *Financial Reporting for Post-Employment Benefit Plans Other Than Pension Plans*, as modified by GASB Statement No. 85, *Omnibus 2017*.

BASIC FINANCIAL STATEMENTS. The System presents the Basic Financial Statements for the year ended June 30, 2020, with comparative information from the previous fiscal year. In addition, a set of pension combining statements shows the amounts attributable to pension trust funds as well as the state, teacher and local plans included in the VRS totals. There is also a set of OPEB combining statements for the Health Insurance Credit and Virginia Local Disability Program and a set of Custodial Plans Combining statements to show the specific amounts attributed to the plans included in the totals. The statements were prepared on the accrual basis of accounting and are used to account for the resources the System administers on behalf

of plan members and beneficiaries. These statements include:

- **Statement of Fiduciary Net Position: Pension, Other Employee Benefit Trust Funds and Custodial Plans.** This statement reflects the balance of the resources available to pay benefits to members, retirees and beneficiaries at the end of the fiscal year.
- **Statement of Changes in Fiduciary Net Position: Pension, Other Employee Benefit Trust Funds and Custodial Plans.** This statement reflects the changes in the resources available to pay benefits to members, retirees and beneficiaries during the fiscal year.

A summary of the Basic Financial Statements is presented in Figures 2.1 and 2.2. The full statements follow Management’s Discussion and Analysis. These figures reflect the System’s implementation of GASB Statement No. 84, which removed the defined contribution portion of the hybrid plans from the presentation and added several custodial funds. Further discussion of this change is presented in Note M in the Notes to Financial Statements.

NOTES TO FINANCIAL STATEMENTS. The Notes to Financial Statements provide detailed information and are integral to the Basic Financial Statements.

REQUIRED SUPPLEMENTARY SCHEDULES. These schedules include:

- Required Supplementary Schedule of Changes in Employers’ Net Pension Liability
- Required Supplementary Schedule of Employer Contributions: Pension Plans
- Required Supplementary Schedule of Investment Returns
- Required Supplementary Schedule of Changes in Employers’ Net Other Post-Employment Benefit Liability
- Required Supplementary Schedule of Employer Contributions: Other Post-Employment Benefit Plans

ADDITIONAL FINANCIAL INFORMATION. The following schedules provide additional information not included in the Basic Financial Statements:

- Schedule of Administrative Expenses
- Schedule of Professional and Consulting Services
- Schedule of Investment Expenses

FIGURE 2.1: SUMMARY OF FIDUCIARY NET POSITION

AT JUNE 30

(EXPRESSED IN MILLIONS)

	2020	Increase (Decrease)	2019	Increase (Decrease)	2018
Assets:					
Cash, Receivables and Capital Assets	\$ 2,295.9	\$ 421.9	\$ 1,874.0	\$ (145.5)	\$ 2,019.5
Investments	83,729.4	(707.6)	84,437.0	4,003.0	80,434.0
Security Lending Collateral	3,459.2	(1,208.6)	4,667.8	167.5	4,500.3
Total Assets	89,484.5	(1,494.3)	90,978.8	4,025.0	86,953.8
Liabilities:					
Accounts Payable	699.2	(2.9)	702.1	499.1	203.0
Investment Purchases Payable	3,200.6	21.0	3,179.6	(114.4)	3,294.0
Obligations Under Securities Lending	3,459.2	(1,208.6)	4,667.8	167.5	4,500.3
Total Liabilities	7,359.0	(1,190.5)	8,549.5	552.2	7,997.3
Total Net Position – Restricted for Benefits	\$ 82,125.5	\$ (303.8)	\$ 82,429.3	\$ 3,472.8	\$ 78,956.5

FIGURE 2.2: SUMMARY OF CHANGES IN FIDUCIARY NET POSITION

FOR THE YEARS ENDED JUNE 30

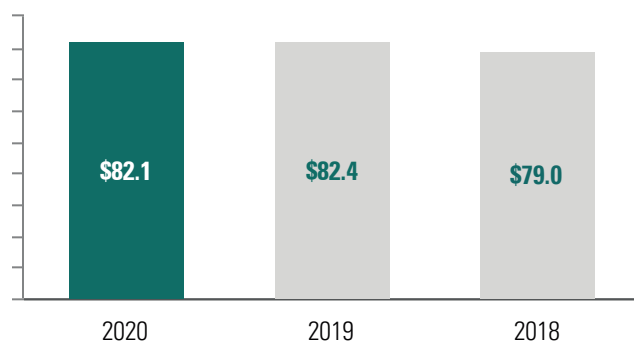
(EXPRESSED IN MILLIONS)

	2020	Increase (Decrease)	2019	Increase (Decrease)	2018
Additions:					
Member Contributions	\$ 1,079.9	\$ 44.1	\$ 1,035.8	\$ 23.6	\$ 1,012.2
Employer Contributions	2,912.6	124.4	2,788.2	(2.9)	2,791.1
Net Investment Income	1,563.6	(3,657.9)	5,221.5	(277.5)	5,499.0
Miscellaneous Revenue & Transfers	3.0	(1.1)	4.1	0.5	3.6
Total Additions	5,559.1	(3,490.5)	9,049.6	(256.3)	9,305.9
Deductions:					
Retirement Benefits	5,262.3	272.2	4,990.1	237.2	4,752.9
Refunds of Member Contributions	107.4	(2.2)	109.6	(9.0)	118.6
Insurance Premiums and Claims	212.1	12.2	199.9	(0.4)	200.3
Retiree Health Insurance Credit Reimbursements	168.6	(0.1)	168.7	4.8	163.9
Disability Insurance Benefits	36.9	4.0	32.9	(6.9)	39.8
Line of Duty Act Reimbursements	12.2	(0.7)	12.9	0.5	12.4
Administrative and Other Expenses	63.5	0.7	62.7	3.5	59.2
Total Deductions	5,862.9	286.1	5,576.8	229.7	5,347.1
Net Increase (Decrease) in Net Position	(303.8)	(3,776.6)	3,472.8	(486.0)	3,958.8
Net Position – Beginning of Year	82,429.3	3,472.8	78,956.5	3,958.8	74,997.7
Net Position – End of Year	\$ 82,125.5	\$ (303.8)	\$ 82,429.3	\$ 3,472.8	\$ 78,956.5

SYSTEM NET POSITION

AT JUNE 30

(EXPRESSED IN BILLIONS)



Analysis of Financial Activities – Pension Plans

The System's funding objective is to meet its long-term benefit obligations through investment income and contributions. Accordingly, the collection of contributions and the income from investments provide the reserves needed to finance the benefits provided under the plans.

MEMBERS, RETIREES, BENEFICIARIES AND EMPLOYERS

Approximately 348,826 active members were employed with 837 VRS-participating employers as of June 30, 2020. The number of retirees and other annuitants totaled approximately 219,113 at year-end. The distribution of active members, retirees and beneficiaries, and employers is shown in Figures 2.3, 2.4 and 2.5.

FIGURE 2.3: DISTRIBUTION OF ACTIVE MEMBERS

AT JUNE 30

	2020		2019		2018	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
State Employees (VRS)	77,425	22.2%	77,010	22.3%	77,337	22.6%
Teachers (VRS)	150,073	43.0%	147,622	42.6%	146,795	42.8%
Political Subdivision Employees (VRS)	110,416	31.7%	110,538	31.9%	107,827	31.4%
State Police Officers (SPORS)	1,924	0.6%	1,912	0.6%	1,887	0.6%
Virginia Law Officers (VaLORS)	8,540	2.4%	8,734	2.5%	8,742	2.5%
Judges (JRS)	448	0.1%	457	0.1%	417	0.1%
Total Members	348,826	100.0%	346,273	100.0%	343,005	100.0%

Additional information about the membership is presented in Note 2 and in the Statistical Section.

FIGURE 2.4: DISTRIBUTION OF RETIREES AND BENEFICIARIES

AT JUNE 30

	2020		2019		2018	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
State Employees (VRS)	59,554	27.2%	58,797	27.5%	56,980	27.6%
Teachers (VRS)	94,755	43.2%	92,723	43.2%	89,667	43.4%
Political Subdivision Employees (VRS)	57,671	26.3%	56,094	26.1%	53,579	25.9%
State Police Officers (SPORS)	1,423	0.6%	1,410	0.7%	1,336	0.6%
Virginia Law Officers (VaLORS)	5,176	2.4%	4,991	2.3%	4,702	2.3%
Judges (JRS)	534	0.2%	530	0.2%	512	0.2%
Total Retirees and Beneficiaries	219,113	100.0%	214,545	100.0%	206,776	100.0%

Additional information about retirees and beneficiaries is presented in the Statistical Section.

FIGURE 2.5: DISTRIBUTION OF EMPLOYERS

AT JUNE 30

	2020	2019	2018
Cities and Towns	162	159	162
Counties	93	93	93
School Boards*	144	144	145
Special Authorities	208	207	205
State Agencies	230	230	230
Total Employers	837	833	835

* Of the 144 school boards, 132 also provide coverage for non-professional employees and are treated as political subdivisions. A list of VRS-participating employers and additional employer information is presented in the Statistical Section.

CONTRIBUTIONS AND INVESTMENT EARNINGS

The retirement benefits provided by the plans are funded from pension trust fund revenue. As shown in Figure 2.6, the primary sources of revenue are contributions for active members made by members or their employers, contributions from employers and investment income generated from the investment of plan assets.

Total contributions and investment earnings for the year ended June 30, 2020, amounted to \$4,992.2 million. This was a decrease of \$3,398.8 million when compared with the activity for fiscal year 2019. It was also lower than the contributions and investments earnings of \$8,664.7 million recorded in fiscal year 2018.

For fiscal year 2020, member contributions increased by \$36.4 million. The member contribution level increase reflects growth in the covered payroll.

For fiscal year 2020, employer contributions increased by \$107.5 million, due primarily to growth

in the covered payroll. The total of all contributions represented an increase of \$143.9 million from fiscal year 2019. Employer contributions for pensions are discussed further in Notes 2 and 12.

During fiscal year 2019, the System experienced an increase in total member contributions of \$18.8 million and a decrease in employer contributions of \$13.6 million. This net increase is due primarily to an increase in the covered payroll for the state, teacher and political subdivision employer groups, which is partially offset by a decrease in the teacher contribution rate from 16.32% to 15.68%.

INVESTMENTS

The System holds contributions from members and employers in a commingled pool, which is invested to provide for the payment of current and future benefits to members when they retire. Each plan – state, teacher, political subdivisions, SPORS, VaLORS and JRS – owns an equity position in the pool and receives a proportionate share of the total investment income or loss from the pool on a monthly basis.

FIGURE 2.6: SUMMARY OF PENSION CONTRIBUTIONS, INVESTMENT EARNINGS AND MISCELLANEOUS REVENUES

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN MILLIONS)

	2020	Increase (Decrease)	2019	Increase (Decrease)	2018
Member Contributions	\$ 917.0	\$ 36.4	\$ 880.6	\$ 18.8	\$ 861.8
Employer Contributions	2,563.0	107.5	2,455.5	\$ (13.6)	2,469.1
Net Investment Income	1,510.5	(3,542.1)	5,052.6	\$ (280.1)	5,332.7
Miscellaneous Revenue and Transfers	1.7	(0.6)	2.3	\$ 1.2	1.1
Total Contributions, Investment Earnings and Miscellaneous Revenues	\$ 4,992.2	\$ (3,398.8)	\$ 8,391.0	\$ (273.7)	\$ 8,664.7

As shown in Figure 2.6, net investment income for fiscal year 2020 of \$1,510.5 million represented a decrease of \$3,542.1 million from fiscal year 2019. This compares with the net investment income decrease of \$280.1 million in fiscal year 2019. Total pension trust fund investments were \$80,865.3 million at fair value at June 30, 2020. This was an increase of \$2,052.6 million from the fair value of \$78,812.7 million at June 30, 2019. The total pension trust fund investments also increased in fiscal year 2019 by \$3,635.6 million from their fair value of \$75,177.0 million at June 30, 2018. The total return on pension trust fund investments for the year ended June 30, 2020, was 1.4%. This represents an annualized return of 5.2% over the past three years and 5.8% over the past five years. An explanation of investment policies and strategies as well as the portfolio's composition is included in the Investment Section. A review of investment activity and results for fiscal year 2020 also is provided in that section.

EXPENSES – DEDUCTIONS FROM PLAN NET POSITION

As shown in Figure 2.7, the primary expenses of the pension trust funds include annuity benefits for retirees and beneficiaries, refunds of contributions to former members and expenses associated with the administration of the retirement plans. Expenses for fiscal year 2020 totaled \$5,424.8 million, an increase of \$269.3 million, or 5%, over the 2019 period.

Benefit payments were \$5,262.3 million in fiscal year 2020. This is an increase of \$272.1 million compared to an increase of \$237.2 million in fiscal year 2019. The increase in fiscal year 2020 was due to continued growth in the number of retirees and beneficiaries receiving benefits. The fiscal year 2020 benefit payments also reflect a cost-of-living adjustment (COLA) of 2.44% for Plan 1 retirees and 2.22% for Plan 2 and hybrid plan retirees effective July 1, 2019.

Refunds of contributions to members who terminated employment during fiscal year 2020 amounted to \$107.4 million (11,563 refunds), compared with \$109.6 million refunded (10,986 refunds) during fiscal year 2019 and \$118.6 million refunded (11,781 refunds) during fiscal year 2018.

The change during fiscal year 2020 reflects a slight increase in the volume of refunds but a decrease in the average refund amount compared to fiscal year 2019.

Administrative and other expenses for fiscal year 2020 were \$55.2 million, compared with \$55.8 million for fiscal year 2019 and \$52.3 million for fiscal year 2018.

Administrative and other expenses decreased by \$0.6 million for fiscal year 2020. This compares to a decrease in fiscal year 2019 of \$3.5 million. The decrease for fiscal year 2020 reflects a decrease in other expenses category that is partially offset by a slight increase in administrative expenses. The decrease in other expenses primarily relates to the removal of investment income distributions for custodial funds from this category due to the implementation of GASB 84. Further details are provided in the Schedule of Administrative Expenses following the Required Supplementary Schedules.

FIGURE 2.7: SUMMARY OF PENSION PLAN PRIMARY EXPENSES

FOR THE YEARS ENDED JUNE 30

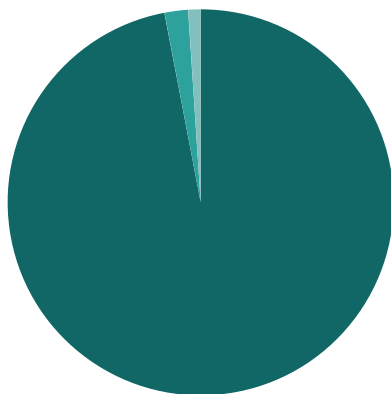
(EXPRESSED IN MILLIONS)

	2020	Increase (Decrease)	2019	Increase (Decrease)	2018
Benefits	\$ 5,262.2	\$ 272.1	\$ 4,990.1	\$ 237.2	\$ 4,752.9
Refunds	107.4	(2.2)	109.6	(9.0)	118.6
Administrative and Other Expenses	55.2	(0.6)	55.8	3.5	52.3
Total Primary Expenses	\$ 5,424.8	\$ 269.3	\$ 5,155.5	\$ 231.7	\$ 4,923.8

PENSION PLAN ACTIVITY

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN MILLIONS)



	\$ 5,262.2 Benefits
	\$ 107.4 Refunds
	\$ 55.2 Administrative and Other Expenses

RETIREMENT RESERVES

The funds accumulated by the pension plans to meet current and future obligations to retirees and beneficiaries are derived from the excess of revenues over expenses. The higher the level of funding a plan achieves, the larger the accumulation of assets and the greater the investment income potential.

As shown in Figure 2.8, expenses exceeded revenues for fiscal year 2020, leading to a net decrease of \$432.6 million in the retirement reserves held by the plans.

This follows an increase of \$3,235.5 million in the retirement reserves in fiscal year 2019. The decrease for fiscal year 2020 reflects a decrease in investment income and an increase in benefit expenses that is partially offset by an increase in contributions.

ACTUARIAL VALUATIONS AND FUNDING PROGRESS – PENSION PLANS

The System's actuarial firm performs actuarial valuations of VRS, SPORS, VaLORS and JRS at least every two years to determine funding requirements. The funding policy provides for periodic employer contributions at actuarially determined rates that will remain relatively level over time as a percentage of payroll and will accumulate sufficient assets to meet the costs of all benefits when due.

The latest valuations of the pension plans were performed by Cavanaugh Macdonald Consulting LLC using the GASB Statement No. 67 calculation processes. Using the June 30, 2019, data rolled forward to June 30, 2020, the plan fiduciary net position as a percentage of the total pension liability was 72.15% for the VRS state plan, 71.47% for the VRS teacher plan, 83.44% for the aggregate total of the VRS political subdivision plans, 70.34% for SPORS, 65.74% for VaLORS and 79.92% for JRS. The valuations reflect full pre-funding of the statutory cost-of-living adjustment (COLA) for retirees as well as other changes required in GASB Statement No. 67. Additional information on plan funding is presented in Note 2 and in the Actuarial Section.

FIGURE 2.8: SUMMARY OF PENSION PLAN RESERVE BALANCES

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN MILLIONS)

	2020	Increase (Decrease)	2019	Increase (Decrease)	2018
Member Reserves	\$ 14,485.2	\$ 478.5	\$ 14,006.7	\$ 400.1	\$ 13,606.6
Employer Reserves	64,872.9	(911.1)	65,784.0	2,835.4	62,948.6
Total	\$ 79,358.1	\$ (432.6)	\$ 79,790.7	\$ 3,235.5	\$ 76,555.2

These balances also reflect transfers between the Member and Employer Reserves for interest credited to member accounts and member contributions transferred to the Employer Reserve upon a member's retirement. For fiscal year 2020, the amount of interest credited to member accounts was \$533.6 million, and the amount of member balances transferred to the Employer Reserve for retirements was \$865.3 million. For fiscal year 2019, the interest and retirement transfers were \$515.8 million and \$883.7 million, respectively.

Analysis of Financial Activities – Other Employee Benefit Plans

GROUP LIFE INSURANCE PROGRAM

The Group Life Insurance Program provides basic group life insurance coverage for natural death, accidental death, accidental dismemberment and other life insurance benefits to the majority of members covered under the pension plans, as well as to other qualifying employees. Employers and their covered employees pay the premiums for group life insurance coverage; many employers pay the employee's portion.

During fiscal year 2020, the System remitted \$212.1 million to the insurer for claims and administrative costs. This is an increase from the \$199.9 million remitted for fiscal year 2019. Approximately 343,505 active members were covered under the Group Life Insurance Program at June 30, 2020.

The difference between the amounts collected and paid by the System is added to the reserve established to pre-fund group life insurance coverage for retirees. The reserve had a fiduciary net position restricted for benefits of \$1,855.1 million at June 30, 2020.

Investment income, including net securities lending income, was \$36.3 million during the fiscal year. For fiscal year 2019, this reserve had investment income of \$113.4 million and ended the year with a reserve balance of \$1,763.0 million, an increase from the balance of \$1,594.8 millions at June 30, 2018.

For fiscal year 2020, the increase in the reserve balance was primarily the result of an increase in contributions offset by a decrease in investment income and an increase in the program's claims. Employer contributions for the Group Life Insurance Program are discussed further in Note 12.

Approximately 208,644 retirees were covered under the Group Life Insurance Program at June 30, 2020.

Members covered under the Basic Group Life Insurance Program are eligible to elect additional coverage through the Optional Group Life Insurance Program. This program provides life insurance, accidental death and accidental dismemberment coverage as a supplement to the basic group plan. Members also may cover their spouses and dependent children. Members pay the premiums through payroll deduction.

Approximately 71,025 active members and 3,362 retirees were enrolled in the Optional Group Life Insurance Program at June 30, 2020. Additional information about the Group Life Insurance Program is provided in Note 3.

RETIREE HEALTH INSURANCE CREDIT PROGRAM

The Retiree Health Insurance Credit Program provides a tax-free reimbursement for the portion of health insurance premiums eligible retirees pay for single coverage under qualifying health insurance plans. During fiscal year 2020, the System collected \$195.9 million in retiree health insurance credit contributions from participating employers

and provided reimbursements to retirees of \$168.6 million. During fiscal year 2019, the System collected \$187.7 million in retiree health insurance credit contributions from participating employers and provided reimbursements of \$168.7 million.

The contribution rate for the teacher employer group was the fully actuarially determined rate of 1.20% for fiscal years 2020 and 2019. Employer contributions for the Retiree Health Insurance Credit Program are discussed further in Note 12. The Retiree Health Insurance Credit Fund reserve had a fiduciary net position restricted for benefits of \$301.2 million at June 30, 2020. Investment income, including net securities lending income, was \$5.1 million for the fiscal year. The reserve balances at June 30, 2019, and June 30, 2018, were \$269.3 million and \$235.4 million, respectively. Approximately 129,855 retirees were receiving the health insurance credit at June 30, 2020. Additional information is provided in Note 3.

VIRGINIA SICKNESS AND DISABILITY PROGRAM

The Virginia Sickness and Disability Program (VSDP), also known as the Disability Insurance Trust Fund, provides eligible state employees with sick, family and personal leave, and short-term and long-term disability benefits for non-work-related and work-related illnesses and injuries. The System is responsible for administering the disability program and the payment of long-term disability benefits.

Employers are responsible for administering the leave program and the payment of short-term disability benefits. During fiscal year 2020, the System collected \$27.0 million in VSDP contributions from participating employers and paid disability premiums and benefits of \$34.5 million. This is an increase from the \$30.8 million in benefits paid in fiscal year 2019.

Administrative and other expenses decreased from fiscal year 2019. Employer contributions for VSDP are discussed further in Note 12.

The benefit costs reflect continued stability in the number of members receiving long-term disability benefits, the amount of these benefits, the costs of

the long-term care benefits and the operating costs of the program. The Disability Insurance Trust Fund reserve had a fiduciary net position restricted for benefits of \$490.2 million at June 30, 2020. Investment income, including net securities lending income, was \$9.4 million during the fiscal year. The reserve balances at June 30, 2019, and June 30, 2018, were \$488.2 million and \$463.0 million, respectively. At June 30, 2020, approximately 80,166 active members were participating in the program and approximately 2,488 former members were receiving benefits. Additional information is provided in Note 3.

LINE OF DUTY ACT PROGRAM

The Line of Duty Act Program was a new program for the System in fiscal year 2011. Beginning July 1, 2017, the program was restructured and the responsibility for its operations were transferred from the Commonwealth of Virginia's Department of Accounts (DOA) to the System. The program provides death and health insurance benefits for eligible state employees and local government employees, including volunteers, who die or become disabled as the result of the performance of their duties as a public safety officer. The System is responsible for the review of all claims, determination of eligibility and case management. For participants in the program, the System is also responsible for identifying eligible individuals, having the VRS actuary prepare an actuarial valuation, collecting contributions, paying the Commonwealth of Virginia's Department of Human Resource Management health insurance premiums for covered eligible individuals and managing the assets of the program.

During fiscal year 2020, the System collected \$13.6 million in contributions and paid out \$12.2 million in benefits provided by this program. This is an increase from the \$13.4 million in contributions received in fiscal year 2019 and a decrease in benefit costs from the \$12.9 million for fiscal year 2019. This reflects the impact of continued stabilization of the program's participation and claims levels. The reserve balance at June 30, 2020, was \$4.3 million, an increase from the reserve balance of \$2.8

million at June 30, 2019. Additional information is provided in Note 3.

VIRGINIA LOCAL DISABILITY PROGRAM

The Virginia Local Disability Program (VLDP) was a new program for the System in fiscal year 2014. The program provides eligible local government employees who are members of the Hybrid Retirement Plan with sick, family and personal leave and short-term and long-term disability benefits for non-work-related and work-related illnesses and injuries. The System is responsible for administering the disability program and the payment of long-term disability benefits. Employers are responsible for administering the leave program and the payment of short-term disability benefits.

During fiscal year 2020, the System collected \$5.1 million in contributions and paid out \$2.4 million in benefits provided by this program. During fiscal year 2019, the System collected \$4.2 million in contributions and paid out \$2.1 million in benefits provided by the program. At June 30, 2020, approximately 24,117 active members were participating in the program and approximately 48 former members were receiving benefits. Additional information is provided in Note 3.

ACTUARIAL VALUATIONS AND FUNDING PROGRESS – OTHER EMPLOYEE BENEFIT PLANS

The System's actuarial firm performs actuarial valuations of the Group Life Insurance Program, the Retiree Health Insurance Credit Program, the Disability Insurance Program, the Virginia Local Disability Program and the Line of Duty Act Program at least every two years to determine funding requirements. The funding policy provides for periodic employer contributions at actuarially determined rates that will remain relatively level over time as a percentage of payroll and will accumulate sufficient assets to meet the costs of all benefits when due.

The latest valuations of the Other Post-Employment Benefit (OPEB) plans were performed by Cavanaugh Macdonald Consulting LLC using the new GASB Statement No. 74 calculation processes. Using the June 30, 2019, data

rolled forward to June 30, 2020, the plan fiduciary net position as a percentage of the total OPEB liability was 52.64% for the Group Life Insurance Fund, 12.02% for the state employee Health Insurance Credit, 9.95% for the teacher employee Health Insurance Credit, 31.57% for the aggregate total of the political subdivision plans for Health Insurance Credit, 15.78% for the state-funded Health Insurance Credit for constitutional officers, 13.06% for the state-funded Health Insurance Credit for social services employees, and 21.18% for the state-funded Health Insurance Credit for registrars. In addition, the plan fiduciary net position as a percentage of the total OPEB liability was 181.88% for the Disability Insurance Program and 1.02% for the Line of Duty Act Program. The Virginia Local Disability Program plans for teachers and political subdivisions were 78.28% and 76.84%, respectively. The valuations reflect all of the changes required in GASB Statement No. 74.

Market Volatility

The System's investment performance for the fiscal year ended June 30, 2020, was 1.4%, and there was a slight decrease in the net position restricted for benefits. As noted in this section, in the Introductory Section and in the Chief Investment Officer's letter in the Investment Section, the investment markets continue to be extremely volatile. The amount of assets and reserves required to meet future obligations is based, in part, on estimated or expected long-term investment returns. Although management cannot predict future market returns, the changes in assets reflect the volatility in the market.

REQUEST FOR INFORMATION

This financial report is designed to provide an overview of the System's finances. Questions concerning the information provided in this report or requests for additional information should be addressed to the Chief Financial Officer, Virginia Retirement System, P.O. Box 2500, Richmond, VA 23218-2500.

**VIRGINIA RETIREMENT SYSTEM STATEMENT OF FIDUCIARY NET POSITION:
DEFINED BENEFIT PENSION TRUST FUNDS, OTHER EMPLOYEE BENEFIT TRUST FUNDS AND OTHER CUSTODIAL PLANS**

AS OF JUNE 30, 2020, WITH COMPARATIVE INFORMATION AS OF JUNE 30, 2019

(EXPRESSED IN THOUSANDS)

Totals

	Pension Trust Funds	Other Employee Benefit Trust Funds	Other Custodial Plans	2020	2019
Assets:					
Cash (Note 5)	\$ 64,105	\$ 3,096	\$ 159	\$ 67,360	120,609
Receivables:					
Contributions	276,697	40,255	—	316,952	306,804
Interest and Dividends	235,688	8,020	326	244,034	276,679
Receivables for Security Transactions	1,336,715	45,490	1,854	1,384,059	995,675
Other Investment Receivables	208,119	7,082	289	215,490	98,893
Other Receivables	21,593	9,891	—	31,484	31,581
Total Receivables	2,078,812	110,738	2,469	2,192,019	1,709,632
Investments: (Note 5)					
Bonds and Mortgage Securities	19,394,352	659,993	26,912	20,081,257	21,896,931
Stocks	22,201,031	755,506	30,805	22,987,342	24,722,983
Fixed-Income Commingled Funds	1,330,056	45,261	1,845	1,377,162	1,342,413
Index and Pooled Funds	9,880,913	336,250	13,709	10,230,872	11,069,496
Real Estate	9,591,906	326,414	13,308	9,931,628	9,877,199
Private Equity	18,058,490	614,534	25,058	18,698,082	15,083,638
Short-Term Investments	408,578	13,904	567	423,049	444,368
Total Investments	80,865,326	2,751,862	112,204	83,729,392	84,437,028
Collateral on Loaned Securities	3,340,860	113,690	4,634	3,459,184	4,667,836
Property, Plant, Furniture and Equipment (Note 6)	36,550	—	—	36,550	43,739
Total Assets	86,385,653	2,979,386	119,466	89,484,505	90,978,844
Liabilities:					
Retirement Benefits Payable	443,198	—	—	443,198	423,016
Refunds Payable	2,427	133	—	2,560	4,467
Accounts Payable and Accrued Expenses	34,357	18,009	39	52,405	47,287
Compensated Absences Payable	3,218	—	—	3,218	2,759
Insurance Premiums and Claims Payable	—	81,380	—	81,380	70,766
Payable for Security Transactions	3,091,160	105,194	4,290	3,200,644	3,179,576
Other Investment Payables	109,763	3,734	153	113,650	151,395
Other Payables	2,597	209	—	2,806	2,460
Obligations Under Security Lending Program	3,340,860	113,690	4,634	3,459,184	4,667,836
Total Liabilities	7,027,580	322,349	9,116	7,359,045	8,549,562
Net Position – Restricted for Benefits (Note 4)	\$ 79,358,073	\$ 2,657,037	\$ 110,350	\$ 82,125,460	\$ 82,429,282

The accompanying Notes to Financial Statements are an integral part of this statement.

**VIRGINIA RETIREMENT SYSTEM STATEMENT OF CHANGES IN FIDUCIARY NET POSITION:
DEFINED BENEFIT PENSION TRUST FUNDS , OTHER EMPLOYEE BENEFIT TRUST FUNDS AND OTHER CUSTODIAL PLANS**
FOR THE YEAR ENDED JUNE 30, 2020, WITH COMPARATIVE INFORMATION FOR THE YEAR ENDED JUNE 30, 2019

(EXPRESSED IN THOUSANDS)

				Totals	
	Pension Trust Funds	Other Employee Benefit Trust Funds	Other Custodial Plans	2020	2019
Additions:					
Contributions:					
Members	\$ 916,961	\$ 162,925	\$ 38	\$ 1,079,924	\$ 1,035,805
Employers	2,562,990	348,795	771	2,912,556	2,788,238
Total Contributions	3,479,951	511,720	809	3,992,480	3,824,043
Investment Income:					
Interest, Dividends and Other Investment Income	1,266,439	41,128	1,490	1,309,057	1,454,394
Net Appreciation/(Depreciation) in Fair Value of Investments	708,120	25,385	899	734,404	4,224,663
Securities Lending Income	75,407	2,443	88	77,938	131,254
Total Investment Income Before Investment Expenses	2,049,966	68,956	2,477	2,121,399	5,810,311
Investment Expenses:					
Direct Investment Expenses	(486,376)	(15,995)	(573)	(502,944)	(486,499)
Securities Lending Management Fees and Borrower Rebates	(53,065)	(1,713)	(62)	(54,840)	(102,330)
Total Investment Expenses	(539,441)	(17,708)	(635)	(557,784)	(588,829)
Net Investment Income	1,510,525	51,248	1,842	1,563,615	5,221,482
Miscellaneous Revenue	1,723	1,289	—	3,012	4,107
Total Additions	4,992,199	564,257	2,651	5,559,107	9,049,632
Deductions:					
Retirement Benefits	5,262,256	—	—	5,262,256	4,990,124
Refunds of Member Contributions	107,418	—	—	107,418	109,599
Insurance Premiums and Claims	—	212,060	—	212,060	199,879
Retiree Health Insurance Reimbursements	—	168,557	—	168,557	168,725
Disability Insurance Premiums and Benefits	—	36,933	—	36,933	32,931
Line of Duty Benefits	—	12,191	—	12,191	12,854
Administrative Expenses	51,309	3,017	—	54,326	52,636
Other Expenses	3,858	1,484	3,846	9,188	10,111
Total Deductions	5,424,841	434,242	3,846	5,862,929	5,576,859
Net Increase (Decrease)	(432,642)	130,015	(1,195)	(303,822)	3,472,773
Net Position – Restricted for Benefits – Beginning of Year as restated (Note 1)	79,790,715	2,527,022	111,545	82,429,282	78,956,509
Net Position – Restricted for Benefits – End of Year	\$ 79,358,073	\$ 2,657,037	\$ 110,350	\$ 82,125,460	\$ 82,429,282

The accompanying Notes to Financial Statements are an integral part of this statement.

**VIRGINIA RETIREMENT SYSTEM COMBINING STATEMENT OF FIDUCIARY NET POSITION:
DEFINED BENEFIT PENSION TRUST FUNDS**

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Virginia Retirement System	State Police Officers' Retirement System	Virginia Law Officers' Retirement System	Judicial Retirement System	Total Pension Plans
Assets:					
Cash (Note 5)	\$ 60,768	\$ 982	\$ 1,723	\$ 632	\$ 64,105
Receivables:					
Contributions	269,681	1,623	4,229	1,164	276,697
Interest and Dividends	227,043	2,545	4,464	1,636	235,688
Receivables for Security Transactions	1,287,681	14,434	25,320	9,280	1,336,715
Other Investment Receivables	200,485	2,247	3,942	1,445	208,119
Other Receivables	21,593	—	—	—	21,593
Total Receivables	2,006,483	20,849	37,955	13,525	2,078,812
Investments: (Note 5)					
Bonds and Mortgage Securities	18,682,911	209,425	367,373	134,643	19,394,352
Stocks	21,386,631	239,732	420,539	154,129	22,201,031
Fixed-Income Commingled Funds	1,281,266	14,362	25,194	9,234	1,330,056
Index and Pooled Funds	9,518,452	106,697	187,167	68,597	9,880,913
Real Estate	9,240,047	103,576	181,692	66,591	9,591,906
Private Equity	17,396,050	195,000	342,070	125,370	18,058,490
Short-Term Investments	393,590	4,412	7,739	2,837	408,578
Total Investments	77,898,947	873,204	1,531,774	561,401	80,865,326
Collateral on Loaned Securities	3,218,307	36,075	63,284	23,194	3,340,860
Property, Plant, Furniture and Equipment (Note 6)	36,550	—	—	—	36,550
Total Assets	83,221,055	931,110	1,634,736	598,752	86,385,653
Liabilities:					
Retirement Benefits Payable	424,298	5,403	9,813	3,684	443,198
Refunds Payable	2,427	—	—	—	2,427
Accounts Payable and Accrued Expenses	33,316	306	538	197	34,357
Compensated Absences Payable	3,218	—	—	—	3,218
Insurance Premiums and Claims Payable	—	—	—	—	—
Payable for Security Transactions	2,977,768	33,379	58,553	21,460	3,091,160
Other Investment Payables	105,737	1,185	2,079	762	109,763
Other Payables	2,597	—	—	—	2,597
Obligations Under Security Lending Program	3,218,307	36,075	63,284	23,194	3,340,860
Total Liabilities	6,767,668	76,348	134,267	49,297	7,027,580
Net Position – Restricted for Benefits (Note 4)	\$ 76,453,387	\$ 854,762	\$ 1,500,469	\$ 549,455	\$ 79,358,073

The accompanying Notes to Financial Statements are an integral part of this statement.

**VIRGINIA RETIREMENT SYSTEM COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION:
DEFINED BENEFIT PENSION TRUST FUNDS**

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Virginia Retirement System	State Police Officers' Retirement System	Virginia Law Officers' Retirement System	Judicial Retirement System	Total Pension Plans
Additions:					
Contributions:					
Members	\$ 888,213	\$ 6,600	\$ 18,712	\$ 3,436	\$ 916,961
Employers	2,425,760	32,497	79,914	24,819	2,562,990
Total Contributions	3,313,973	39,097	98,626	28,255	3,479,951
Investment Income:					
Interest, Dividends and Other Investment Income	1,220,266	13,655	23,728	8,790	1,266,439
Net Appreciation/(Depreciation) in Fair Value of Investments	681,958	7,678	13,567	4,917	708,120
Securities Lending Income	72,659	813	1,412	523	75,407
Total Investment Income Before Investment Expenses	1,974,883	22,146	38,707	14,230	2,049,966
Investment Expenses:					
Direct Investment Expenses	(468,630)	(5,240)	(9,135)	(3,371)	(486,376)
Securities Lending Management Fees and Borrower Rebates	(51,131)	(573)	(993)	(368)	(53,065)
Total Investment Expenses	(519,761)	(5,813)	(10,128)	(3,739)	(539,441)
Net Investment Income	1,455,122	16,333	28,579	10,491	1,510,525
Miscellaneous Revenue	1,723	—	—	—	1,723
Total Additions	4,770,818	55,430	127,205	38,746	4,992,199
Deductions:					
Retirement Benefits	5,033,582	64,991	117,137	46,546	5,262,256
Refunds of Member Contributions	101,961	552	4,893	12	107,418
Insurance Premiums and Claims	—	—	—	—	—
Retiree Health Insurance Reimbursements	—	—	—	—	—
Disability Insurance Premiums and Benefits	—	—	—	—	—
Line of Duty Benefits	—	—	—	—	—
Administrative Expenses	50,094	360	623	232	51,309
Other Expenses	3,705	38	73	42	3,858
Total Deductions	5,189,342	65,941	122,726	46,832	5,424,841
Net Increase (Decrease)	(418,524)	(10,511)	4,479	(8,086)	(432,642)
Net Position – Restricted for Benefits – Beginning of Year as restated (Note 1)	76,871,911	865,273	1,495,990	557,541	79,790,715
Net Position – Restricted for Benefits – End of Year	\$ 76,453,387	\$ 854,762	\$ 1,500,469	\$ 549,455	\$ 79,358,073

The accompanying Notes to Financial Statements are an integral part of this statement.

VIRGINIA RETIREMENT SYSTEM COMBINING STATEMENT OF FIDUCIARY NET POSITION

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	State Employee Plan	Teacher Employee Plan	Political Subdivision Plans	Total VRS Plans
Assets:				
Cash (Note 5)	\$ 14,948	\$ 28,944	\$ 16,876	\$ 60,768
Receivables:				
Contributions	46,276	166,187	57,218	269,681
Interest and Dividends	55,849	108,142	63,052	227,043
Receivables for Security Transactions	316,747	613,334	357,600	1,287,681
Other Investment Receivables	49,316	95,493	55,676	200,485
Other Receivables	5,301	10,295	5,997	21,593
Total Receivables	473,489	993,451	539,543	2,006,483
Investments: (Note 5)				
Bonds and Mortgage Securities	4,595,667	8,898,844	5,188,400	18,682,911
Stocks	5,260,734	10,186,652	5,939,245	21,386,631
Fixed-Income Commingled Funds	315,169	610,279	355,818	1,281,266
Index and Pooled Funds	2,341,371	4,533,728	2,643,353	9,518,452
Real Estate	2,272,889	4,401,120	2,566,038	9,240,047
Private Equity	4,279,121	8,285,901	4,831,028	17,396,050
Short-Term Investments	96,816	187,471	109,303	393,590
Total Investments	19,161,767	37,103,995	21,633,185	77,898,947
Collateral on Loaned Securities	791,647	1,532,909	893,751	3,218,307
Property, Plant, Furniture and Equipment (Note 6)	8,991	17,410	10,149	36,550
Total Assets	20,450,842	39,676,709	23,093,504	83,221,055
Liabilities:				
Retirement Benefits Payable	120,360	206,368	97,570	424,298
Refunds Payable	653	862	912	2,427
Accounts Payable and Accrued Expenses	8,196	15,868	9,252	33,316
Compensated Absences Payable	792	1,532	894	3,218
Insurance Premiums and Claims Payable	—	—	—	—
Payable for Security Transactions	732,478	1,418,339	826,951	2,977,768
Other Investment Payables	26,009	50,364	29,364	105,737
Other Payables	639	1,237	721	2,597
Obligations Under Security Lending Program	791,647	1,532,910	893,750	3,218,307
Total Liabilities	1,680,774	3,227,480	1,859,414	6,767,668
Net Position – Restricted for Benefits (Note 4)	\$ 18,770,068	\$ 36,449,229	\$ 21,234,090	\$ 76,453,387

The accompanying Notes to Financial Statements are an integral part of this statement.

VIRGINIA RETIREMENT SYSTEM COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	State Employee Plan	Teacher Employee Plan	Political Subdivision Plans	Total VRS Plans
Additions:				
Contributions:				
Members	\$ 210,896	\$ 418,909	\$ 258,408	\$ 888,213
Employers	576,443	1,327,774	521,543	2,425,760
Total Contributions	787,339	1,746,683	779,951	3,313,973
Investment Income:				
Interest, Dividends and Other Investment Income	302,713	577,895	339,658	1,220,266
Net Appreciation/(Depreciation) in Fair Value of Investments	169,169	322,968	189,821	681,958
Securities Lending Income	18,025	34,410	20,224	72,659
Total Investment Income Before Investment Expenses	489,907	935,273	549,703	1,974,883
Investment Expenses:				
Direct Investment Expenses	(116,162)	(222,048)	(130,420)	(468,630)
Securities Lending Management Fees and Borrower Rebates	(12,684)	(24,215)	(14,232)	(51,131)
Total Investment Expenses	(128,846)	(246,263)	(144,652)	(519,761)
Net Investment Income	361,061	689,010	405,051	1,455,122
Miscellaneous Revenue	423	821	479	1,723
Total Additions	1,148,823	2,436,514	1,185,481	4,770,818
Deductions:				
Retirement Benefits	1,427,873	2,448,204	1,157,505	5,033,582
Refunds of Member Contributions	27,427	36,211	38,323	101,961
Insurance Premiums and Claims	—	—	—	—
Retiree Health Insurance Reimbursements	—	—	—	—
Disability Insurance Premiums and Benefits	—	—	—	—
Line of Duty Benefits	—	—	—	—
Administrative Expenses	12,603	23,649	13,842	50,094
Other Expenses	962	1,990	753	3,705
Total Deductions	1,468,865	2,510,054	1,210,423	5,189,342
Net Increase (Decrease)	(320,042)	(73,540)	(24,942)	(418,524)
Net Position – Restricted for Benefits – Beginning of Year as restated (Note 1)	19,090,110	36,522,769	21,259,032	76,871,911
Net Position – Restricted for Benefits – End of Year	\$ 18,770,068	\$ 36,449,229	\$ 21,234,090	\$ 76,453,387

The accompanying Notes to Financial Statements are an integral part of this statement.

**VIRGINIA RETIREMENT SYSTEM COMBINING STATEMENT OF FIDUCIARY NET POSITION:
OTHER EMPLOYEE BENEFIT TRUST FUNDS**

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Group Life Insurance	Retiree Health Insurance Credit	Disability Insurance Trust Fund	Line of Duty Act Trust Fund	Virginia Local Disability Program	Total OPEB Plans
Assets:						
Cash (Note 5)	\$ 2,191	\$ 342	\$ 551	\$ 5	\$ 7	\$ 3,096
Receivables:						
Contributions	21,907	16,343	1,464	—	541	40,255
Interest and Dividends	5,675	887	1,428	13	17	8,020
Receivables for Security Transactions	32,189	5,031	8,098	73	99	45,490
Other Investment Receivables	5,012	783	1,261	11	15	7,082
Other Receivables	—	27	9,854	—	10	9,891
Total Receivables	64,783	23,071	22,105	97	682	110,738
Investments: (Note 5)						
Bonds and Mortgage Securities	467,024	72,985	117,497	1,057	1,430	659,993
Stocks	534,611	83,547	134,501	1,210	1,637	755,506
Fixed-Income Commingled Funds	32,028	5,005	8,058	72	98	45,261
Index and Pooled Funds	237,937	37,184	59,862	538	729	336,250
Real Estate	230,977	36,096	58,111	523	707	326,414
Private Equity	434,855	67,958	109,405	984	1,332	614,534
Short-Term Investments	9,839	1,538	2,475	22	30	13,904
Total Investments	1,947,271	304,313	489,909	4,406	5,963	2,751,862
Collateral on Loaned Securities	80,450	12,572	20,240	182	246	113,690
Property, Plant, Furniture and Equipment (Note 6)	—	—	—	—	—	—
Total Assets	2,094,695	340,298	532,805	4,690	6,898	2,979,386
Liabilities:						
Retirement Benefits Payable	—	—	—	—	—	—
Refunds Payable	—	133	—	—	—	133
Accounts Payable and Accrued Expenses	683	14,369	2,953	2	2	18,009
Compensated Absences Payable	—	—	—	—	—	—
Insurance Premiums and Claims Payable	81,380	—	—	—	—	81,380
Payable for Security Transactions	74,437	11,633	18,727	168	229	105,194
Other Investment Payables	2,643	413	665	5	8	3,734
Other Payables	—	—	—	—	209	209
Obligations Under Security Lending Program	80,450	12,572	20,240	182	246	113,690
Total Liabilities	239,593	39,120	42,585	357	694	322,349
Net Position – Restricted for Benefits (Note 4)	\$ 1,855,102	\$ 301,178	\$ 490,220	\$ 4,333	\$ 6,204	\$ 2,657,037

**VIRGINIA RETIREMENT SYSTEM COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION:
OTHER EMPLOYEE BENEFIT TRUST FUNDS**

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Group Life Insurance	Retiree Health Insurance Credit	Disability Insurance Trust Fund	Line of Duty Act Trust Fund	Virginia Local Disability Program	Total OPEB Plans
Additions:						
Contributions:						
Members	\$ 162,925	\$ —	\$ —	\$ —	\$ —	\$ 162,925
Employers	107,252	195,872	26,994	13,567	5,110	348,795
Total Contributions	270,177	195,872	26,994	13,567	5,110	511,720
Investment Income:						
Interest, Dividends and Other Investment Income	29,104	4,120	7,665	166	73	41,128
Net Appreciation/(Depreciation) in Fair Value of Investments	17,982	2,512	4,595	246	50	25,385
Securities Lending Income	1,728	244	456	11	4	2,443
Total Investment Income Before Investment Expenses	48,814	6,876	12,716	423	127	68,956
Investment Expenses:						
Direct Investment Expenses	(11,327)	(1,618)	(2,950)	(69)	(31)	(15,995)
Securities Lending Management Fees and Borrower Rebates	(1,211)	(170)	(321)	(8)	(3)	(1,713)
Total Investment Expenses	(12,538)	(1,788)	(3,271)	(77)	(34)	(17,708)
Net Investment Income	36,276	5,088	9,445	346	93	51,248
Miscellaneous Revenue	—	—	708	581	—	1,289
Total Additions	306,453	200,960	37,147	14,494	5,203	564,257
Deductions:						
Retirement Benefits	—	—	—	—	—	—
Refunds of Member Contributions	—	—	—	—	—	—
Insurance Premiums and Claims	212,060	—	—	—	—	212,060
Retiree Health Insurance Reimbursements	—	168,557	—	—	—	168,557
Disability Insurance Premiums and Benefits	—	—	34,515	—	2,418	36,933
Line of Duty Benefits	—	—	—	12,191	—	12,191
Administrative Expenses	824	548	631	810	204	3,017
Other Expenses	1,439	23	22	—	—	1,484
Total Deductions	214,323	169,128	35,168	13,001	2,622	434,242
Net Increase (Decrease)	92,130	31,832	1,979	1,493	2,581	130,015
Net Position – Restricted for Benefits – Beginning of Year	1,762,972	269,346	488,241	2,840	3,623	2,527,022
Net Position – Restricted for Benefits – End of Year	\$ 1,855,102	\$ 301,178	\$ 490,220	\$ 4,333	\$ 6,204	\$ 2,657,037

The accompanying Notes to Financial Statements are an integral part of this statement.

RETIREE HEALTH INSURANCE CREDIT COMBINING STATEMENT OF FIDUCIARY NET POSITION

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	State Employee Plan	Teacher Employee Plan	Political Subdivision Plans	Constitutional Officers	Social Services Employees	Registrars	Total HIC Plans
Assets:							
Cash (Note 5)	\$ 144	\$ 161	\$ 29	\$ 6	\$ 2	\$ —	\$ 342
Receivables:							
Contributions	5,679	10,189	192	172	109	2	16,343
Interest and Dividends	373	418	75	15	6	—	887
Receivables for Security Transactions	2,113	2,369	428	87	32	2	5,031
Other Investment Receivables	329	368	67	14	5	—	783
Other Receivables	11	14	2	—	—	—	27
Total Receivables	8,505	13,358	764	288	152	4	23,071
Investments: (Note 5)							
Bonds and Mortgage Securities	30,657	34,357	6,206	1,265	468	32	72,985
Stocks	35,094	39,329	7,104	1,448	536	36	83,547
Fixed-Income Commingled Funds	2,102	2,356	426	87	32	2	5,005
Index and Pooled Funds	15,619	17,505	3,162	644	238	16	37,184
Real Estate	15,162	16,992	3,069	625	232	16	36,096
Private Equity	28,546	31,991	5,778	1,177	436	30	67,958
Short-Term Investments	646	724	130	27	10	1	1,538
Total Investments	127,826	143,254	25,875	5,273	1,952	133	304,313
Collateral on Loaned Securities	5,281	5,918	1,069	218	81	5	12,572
Property, Plant, Furniture and Equipment (Note 6)	—	—	—	—	—	—	—
Total Assets	141,756	162,691	27,737	5,785	2,187	142	340,298
Liabilities:							
Retirement Benefits Payable	—	—	—	—	—	—	—
Refunds Payable	55	64	11	2	1	—	133
Accounts Payable and Accrued Expenses	5,982	6,878	1,167	244	92	6	14,369
Compensated Absences Payable	—	—	—	—	—	—	—
Insurance Premiums and Claims Payable	—	—	—	—	—	—	—
Payable for Security Transactions	4,886	5,476	989	202	75	5	11,633
Other Investment Payables	174	194	35	7	3	—	413
Other Payables	—	—	—	—	—	—	—
Obligations Under Security Lending Program	5,281	5,918	1,069	218	81	5	12,572
Total Liabilities	16,378	18,530	3,271	673	252	16	39,120
Net Position –							
 Restricted for Benefits (Note 4)	\$ 125,378	\$ 144,161	\$ 24,466	\$ 5,112	\$ 1,935	\$ 126	\$ 301,178

The accompanying Notes to Financial Statements are an integral part of this statement.

RETIREE HEALTH INSURANCE CREDIT COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	State Employee Plan	Teacher Employee Plan	Political Subdivision Plans	Constitutional Officers	Social Services Employees	Registrars	Total HIC Plans
Additions:							
Contributions:							
Members	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Employers	84,850	105,210	2,553	2,526	689	44	195,872
Total Contributions	84,850	105,210	2,553	2,526	689	44	195,872
Investment Income:							
Interest, Dividends and Other Investment Income	1,769	1,855	396	71	27	2	4,120
Net Appreciation/(Depreciation) in Fair Value of Investments	1,050	1,195	208	42	16	1	2,512
Securities Lending Income	133	49	55	5	2	—	244
Total Investment Income Before Investment Expenses	2,952	3,099	659	118	45	3	6,876
Investment Expenses:							
Direct Investment Expenses	(693)	(731)	(154)	(28)	(11)	(1)	(1,618)
Securities Lending Management Fees and Borrower Rebates	(73)	(77)	(16)	(4)	—	—	(170)
Total Investment Expenses	(766)	(808)	(170)	(32)	(11)	(1)	(1,788)
Net Investment Income	2,186	2,291	489	86	34	2	5,088
Miscellaneous Revenue	—	—	—	—	—	—	—
Total Additions	87,036	107,501	3,042	2,612	723	46	200,960
Deductions:							
Retirement Benefits	—	—	—	—	—	—	—
Refunds of Member Contributions	—	—	—	—	—	—	—
Insurance Premiums and Claims	—	—	—	—	—	—	—
Retiree Health Insurance Reimbursements	70,440	92,086	2,996	1,970	1,058	7	168,557
Disability Insurance Premiums and Benefits	—	—	—	—	—	—	—
Line of Duty Benefits	—	—	—	—	—	—	—
Administrative Expenses	231	258	47	9	3	—	548
Other Expenses	10	12	1	—	—	—	23
Total Deductions	70,681	92,356	3,044	1,979	1,061	7	169,128
Net Increase (Decrease)	16,355	15,145	(2)	633	(338)	39	31,832
Net Position – Restricted for Benefits – Beginning of Year	109,023	129,016	24,468	4,479	2,273	87	269,346
Net Position – Restricted for Benefits – End of Year	\$ 125,378	\$ 144,161	\$ 24,466	\$ 5,112	\$ 1,935	\$ 126	\$ 301,178

The accompanying Notes to Financial Statements are an integral part of this statement.

VIRGINIA LOCAL DISABILITY PROGRAM COMBINING STATEMENT OF FIDUCIARY NET POSITION

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Teacher Employee Plan	Political Subdivision Plan	Total VLDP Plans
Assets:			
Cash (Note 5)	\$ 3	\$ 4	\$ 7
Receivables:			
Contributions	322	219	541
Interest and Dividends	8	9	17
Receivables for Security Transactions	45	54	99
Other Investment Receivables	7	8	15
Other Receivables	5	5	10
Total Receivables	387	295	682
Investments: (Note 5)			
Bonds and Mortgage Securities	647	783	1,430
Stocks	741	896	1,637
Fixed-Income Commingled Funds	44	54	98
Index and Pooled Funds	330	399	729
Real Estate	320	387	707
Private Equity	604	728	1,332
Short-Term Investments	14	16	30
Total Investments	2,700	3,263	5,963
Collateral on Loaned Securities	111	135	246
Property, Plant, Furniture and Equipment (Note 6)	—	—	—
Total Assets	3,201	3,697	6,898
Liabilities:			
Retirement Benefits Payable	—	—	—
Refunds Payable	—	—	—
Accounts Payable and Accrued Expenses	1	1	2
Compensated Absences Payable	—	—	—
Insurance Premiums and Claims Payable	—	—	—
Payable for Security Transactions	104	125	229
Other Investment Payables	4	4	8
Other Payables	95	114	209
Obligations Under Security Lending Program	111	135	246
Total Liabilities	315	379	694
Net Position – Restricted for Benefits (Note 4)	\$ 2,886	\$ 3,318	\$ 6,204

The accompanying Notes to Financial Statements are an integral part of this statement.

VIRGINIA LOCAL DISABILITY PROGRAM COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Teacher Employee Plan	Political Subdivision Plan	Total VLDP Plans
Additions:			
Contributions:			
Members	\$ —	\$ —	\$ —
Employers	2,426	2,684	5,110
Total Contributions	2,426	2,684	5,110
Investment Income:			
Interest, Dividends and Other Investment Income	35	38	73
Net Appreciation/(Depreciation) in Fair Value of Investments	23	27	50
Securities Lending Income	2	2	4
Total Investment Income Before Investment Expenses	60	67	127
Investment Expenses:			
Direct Investment Expenses	(15)	(16)	(31)
Securities Lending Management Fees and Borrower Rebates	—	(3)	(3)
Total Investment Expenses	(15)	(19)	(34)
Net Investment Income	45	48	93
Miscellaneous Revenue	—	—	—
Total Additions	2,471	2,732	5,203
Deductions:			
Retirement Benefits	—	—	—
Refunds of Member Contributions	—	—	—
Insurance Premiums and Claims	—	—	—
Retiree Health Insurance Reimbursements	—	—	—
Disability Insurance Premiums and Benefits	213	236	449
Line of Duty Benefits	—	—	—
Administrative Expenses	97	107	204
Third Party Administrative Expenses	935	1,034	1,969
Other Expenses	—	—	—
Total Deductions	1,245	1,377	2,622
Net Increase (Decrease)	1,226	1,355	2,581
Net Position – Restricted for Benefits – Beginning of Year	1,661	1,962	3,623
Net Position – Restricted for Benefits – End of Year	\$ 2,887	\$ 3,317	\$ 6,204

The accompanying Notes to Financial Statements are an integral part of this statement.

**VIRGINIA RETIREMENT SYSTEM COMBINING STATEMENT OF FIDUCIARY NET POSITION:
OTHER CUSTODIAL PLANS**

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	VRS Investment Portfolio DC Plans	Commonwealth Health Research Fund	Volunteer Firefighters' and Rescue Squad Workers' Service Award Fund	Commonwealth's Attorneys Training Fund	Total Custodial Plans
Assets:					
Cash (Note 5)	\$ 52	\$ 45	\$ 38	\$ 24	\$ 159
Receivables:					
Contributions	—	—	—	—	—
Interest and Dividends	135	117	12	62	326
Receivables for Security Transactions	764	666	70	354	1,854
Other Investment Receivables	119	104	11	55	289
Other Receivables	—	—	—	—	—
Total Receivables	1,018	887	93	471	2,469
Investments: (Note 5)					
Bonds and Mortgage Securities	11,091	9,668	1,012	5,141	26,912
Stocks	12,696	11,067	1,158	5,884	30,805
Fixed-Income Commingled Funds	761	663	69	352	1,845
Index and Pooled Funds	5,650	4,925	515	2,619	13,709
Real Estate	5,485	4,781	500	2,542	13,308
Private Equity	10,327	9,003	942	4,786	25,058
Short-Term Investments	234	204	21	108	567
Total Investments	46,244	40,311	4,217	21,432	112,204
Collateral on Loaned Securities	1,910	1,665	174	885	4,634
Property, Plant, Furniture and Equipment (Note 6)	—	—	—	—	—
Total Assets	49,224	42,908	4,522	22,812	119,466
Liabilities:					
Retirement Benefits Payable	—	—	—	—	—
Refunds Payable	—	—	—	—	—
Accounts Payable and Accrued Expenses	16	14	1	8	39
Compensated Absences Payable	—	—	—	—	—
Insurance Premiums and Claims Payable	—	—	—	—	—
Payable for Security Transactions	1,769	1,541	161	819	4,290
Other Investment Payables	63	55	6	29	153
Other Payables	—	—	—	—	—
Obligations Under Security Lending Program	1,910	1,665	174	885	4,634
Total Liabilities	3,758	3,275	342	1,741	9,116
Net Position – Restricted for Benefits (Note 4)	\$ 45,466	\$ 39,633	\$ 4,180	\$ 21,071	\$ 110,350

**VIRGINIA RETIREMENT SYSTEM COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION:
OTHER CUSTODIAL PLANS**

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	VRS Investment Portfolio DC Plans	Commonwealth Health Research Fund	Volunteer Firefighters' and Rescue Squad Workers' Service Award Fund	Commonwealth's Attorneys Training Fund	Total Custodial Plans
Additions:					
Contributions:					
Members	\$ —	\$ —	\$ 38	\$ —	\$ 38
Employers	690	—	81	—	771
Total Contributions	690	—	119	—	809
Investment Income:					
Interest, Dividends and Other Investment Income	461	625	65	339	1,490
Net Appreciation/(Depreciation) in Fair Value of Investments	285	360	33	221	899
Securities Lending Income	27	37	4	20	88
Total Investment Income Before Investment Expenses	773	1,022	102	580	2,477
Investment Expenses:					
Direct Investment Expenses	(179)	(239)	(25)	(130)	(573)
Securities Lending Management Fees and Borrower Rebates	(19)	(26)	(3)	(14)	(62)
Total Investment Expenses	(198)	(265)	(28)	(144)	(635)
Net Investment Income	575	757	74	436	1,842
Miscellaneous Revenue	—	—	—	—	—
Total Additions	1,265	757	193	436	2,651
Deductions:					
Retirement Benefits	—	—	—	—	—
Refunds of Member Contributions	—	—	—	—	—
Insurance Premiums and Claims	—	—	—	—	—
Retiree Health Insurance Reimbursements	—	—	—	—	—
Disability Insurance Premiums and Benefits	—	—	—	—	—
Line of Duty Benefits	—	—	—	—	—
Administrative Expenses	—	—	—	—	—
Other Expenses	1,179	1,605	160	902	3,846
Total Deductions	1,179	1,605	160	902	3,846
Net Increase (Decrease)	86	(848)	33	(466)	(1,195)
Net Position – Restricted for Benefits – Beginning of Year	45,380	40,481	4,147	21,537	111,545
Net Position – Restricted for Benefits – End of Year	\$ 45,466	\$ 39,633	\$ 4,180	\$ 21,071	\$ 110,350

Notes to Financial Statements

JUNE 30, 2020 AND 2019

1. Summary of Significant Financial Policies, Administration and Management

A. FINANCIAL REPORTING ENTITY

The Virginia Retirement System (the System) is an independent agency of the Commonwealth of Virginia. The System administers two defined benefit retirement benefit structures, Plan 1 and Plan 2, and a hybrid retirement benefit structure. Although all of the following systems have employees with Plan 1 and Plan 2 benefits, only the VRS and JRS systems have employees with hybrid benefits. All of these systems are defined as pension trust funds:

- Virginia Retirement System (VRS) for state employees, teachers, other eligible school division employees, employees of participating political subdivisions and other qualifying employees.
- State Police Officers' Retirement System (SPORS) for state police officers.
- Virginia Law Officers' Retirement System (VaLORS) for non-local government Virginia law officers other than state police officers.
- Judicial Retirement System (JRS) for judges of state courts of record, state district courts and other qualifying employees.

The System also administers the Group Life Insurance Fund, Retiree Health Insurance Credit Fund, a Disability Insurance Trust Fund for state employees, the Virginia Local Disability Program Trust Fund and the Line of Duty Act Trust Fund. All of these funds are defined as other employee benefit trust funds. Both the pension and other employee benefit trust funds are classified as fiduciary funds and are included in the basic financial statements of the Commonwealth of Virginia. As required by generally accepted accounting principles (GAAP), the System's financial statements include all funds for which financial transactions are recorded in its accounting

system and for which the Board of Trustees exercises administrative responsibility. Effective January 1, 1997, the *Constitution of Virginia* was amended to strengthen the independence of the System. As set forth in Section 11 of Article X, the funds of the retirement system shall be deemed separate and independent trust funds, segregated from all other funds of the Commonwealth, and invested and administered solely in the interests of members, retirees and beneficiaries.

B. ADMINISTRATION AND MANAGEMENT

1. Pension Plans and Other Employee Benefit Plans.

The Board of Trustees (the Board) is responsible for the general administration and operation of the pension plans and other employee benefit plans. The Board has full power to invest and reinvest the trust funds of the System through the adoption of investment policies and guidelines that fulfill the Board's investment objective to maximize long-term investment returns while targeting an acceptable level of risk.

The Board consists of five members appointed by the Governor and four members appointed by the Joint Rules Committee of the Virginia General Assembly, all subject to confirmation by the General Assembly. The Board appoints a director to serve as the chief administrative officer of the System and a chief investment officer to direct, manage and administer the investment of the System's funds. The Board also retains outside managers to advise and assist in the implementation of these policies. The Board of Trustees has appointed BNY Mellon as the custodian of designated assets of the System.

The Virginia Retirement System (VRS), the State Police Officers' Retirement System (SPORS), the Virginia Law Officers' Retirement System (VaLORS) and the Judicial Retirement System (JRS) are administered in accordance with Title 51.1, Chapters 1, 2, 2.1, 3 and 4, respectively, of the *Code of Virginia* (1950), as amended. The Group Life Insurance Fund, the Retiree Health Insurance Credit Fund, the Disability Insurance Trust Fund for state employees and the Virginia Local Disability

Program Trust Fund are administered in accordance with Title 51.1, Chapters 5, 14, 11 and 11.1, respectively, of the *Code of Virginia* (1950), as amended. The Line of Duty Act Trust Fund is administered in accordance with Title 9.1, Chapter 4 of the *Code of Virginia* (1950), as amended. The Optional Life Insurance Fund is administered in accordance with Sections 51.1-512 and 51.1-512.1 of the *Code of Virginia* (1950), as amended. Optional life insurance is an insured product, and the premium collection is handled by the insurer. The Board provides only oversight for the program with limited administrative responsibility. State statutes governing the plans administered by the System may be amended only by the General Assembly of Virginia. Additional information about the plans is provided in Notes 2 and 3.

Fiduciary Responsibility of the VRS Board of Trustees

As stated in Section 51.1-124.30(C) of the *Code of Virginia*:
 "...the Board shall invest the assets of the Retirement System with the care, skill, prudence and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of like character and with like aims." Accordingly, the Board must sufficiently diversify the portfolio to minimize the risk of large losses unless, under the circumstances, it is clearly prudent not to do so. Primary risk measures are volatility in the plan's assets, funded status and contribution rates.

2. Custodial Funds. The Board has fiduciary responsibility for several programs primarily because of the responsibility for investment of the funds. For these programs, the Board has either limited oversight or administration responsibilities for the programs. The VRS held assets of these programs are represented as an equity interest in the VRS Pooled Investment Portfolio and are invested in accordance with the System's investment policies and guidelines. These programs include:

- a. VRS Investment Portfolio (VRSIP), which is an investment option available for defined contribution plan participants.
- b. Commonwealth Health Research Fund (CHRF), which provides financial support for

human health research on behalf of citizens of the Commonwealth. The investment of assets for the CHRF is in accordance with Section 51.1-124.36 of the *Code of Virginia* (1950), as amended.

- c. Commonwealth's Attorneys Training Fund (CATF), which provides financial support for the training of Commonwealth's Attorneys and their staffs. The investment of assets for the CATF is in accordance with Section 51.1-124.37 of the *Code of Virginia* (1950), as amended.
- d. Volunteer Firefighters' and Rescue Squad Workers' Service Award Fund (VolSAP), which provides service awards to eligible volunteer firefighters and rescue squad workers. The VolSAP is administered in accordance with Chapter 12 of the *Code of Virginia* (1950), as amended.

3. Other Plans Established by the Commonwealth of Virginia. The Board has oversight, but limited administrative and investment responsibility, for several other plans of the Commonwealth. Because of the Board's limited role, the financial transactions of these plans are not recorded in the System's financial statements. Therefore, these programs are not included in the System's Basic Financial Statements:

- a. Defined Contribution components of the Hybrid Retirement Plan. The VRS Hybrid Retirement Plan is administered in accordance with Section 51.1-169 of the *Code of Virginia* (1950), as amended. Additional information on the Hybrid Retirement Plan is provided in the Statistical Section.
- b. Commonwealth of Virginia 457 Deferred Compensation Plan and the Virginia Cash Match Plan for state employees and employees of participating political subdivisions. The Commonwealth of Virginia 457 Deferred Compensation Plan and the Virginia Cash Match Plan are administered in accordance with Chapter 6 and Chapter 6.1 of the *Code of Virginia* (1950), as amended. Additional information on these plans is provided in the Statistical Section.

- c. Defined contribution plans, referred to as Optional Retirement Plans 1 and 2 for political appointees, certain employees of public institutions of higher education and certain employees of public school divisions and teaching hospitals.
- d. Commonwealth of Virginia (COV) Voluntary Group Long Term Care Insurance Program, an employee-paid program for eligible employees and retirees.

C. ACCOUNTING BASIS

The accounting and presentation of the pension plans and other employee benefit plans use the flow of economic resources measurement focus and the accrual basis of accounting. Under the accrual basis, revenues are recognized when earned, and expenses are recognized when liabilities are incurred, regardless of the timing of related cash flows. Member and employer contributions are recognized as revenues when due, pursuant to formal commitments as well as statutory or contractual requirements. Investment income is recognized as earned by the plans. Benefits and refunds are recognized when due and payable in accordance with the terms of the plans.

D. ACTUARIAL BASIS AND CONTRIBUTION RATES

The funding policy for the pension plans provides for periodic employer contributions at actuarially determined rates, which will remain relatively level over time as a percentage of payroll and will accumulate sufficient assets to meet the cost of all benefits when due. Member and employer contributions are required by Title 51.1 of the *Code of Virginia* (1950), as amended.

Contribution rates are developed using the entry age normal cost method for both normal cost and amortization of the unfunded actuarial accrued liability. Gains and losses are reflected in the unfunded Actuarial Accrued Liability (AAL), which is being amortized as a level percentage of covered payroll within 30 years or less.

In addition to determining contribution requirements, actuarial computations present an estimate of the discounted present value of the

prospective accrued liability contributions that employers will have to pay to ensure that such contributions – when combined with the assets on hand, the normal contributions to be made in the future by employers and members, and investment income – will be sufficient to pay all benefits due to current members in the future as well as to annuitants and designated beneficiaries.

Actuarial valuations estimate the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include future employment, mortality and the use of the benefit. Actuarially determined amounts are subject to revision as actual results are compared with past expectations and new estimates are made about the future. The Required Supplementary Schedules follow the Notes to Financial Statements. For pension plans, the schedules present historical information about the increase or decrease in the employer’s fiduciary net position over time related to the employer’s net pension liability. For other employee benefit plans, the schedules present historical information about the increase or decrease of the actuarial values of the plans’ assets over time relative to the AAL for benefits.

E. GOVERNMENTAL ACCOUNTING STANDARDS BOARD (GASB) STATEMENTS

- Governmental Accounting Standards Board (GASB) Statement No. 40, *Deposit and Investment Risk Disclosures*, requires disclosures related to deposits, authorized investments and investment risk. Required investment risk disclosures address interest rate risk; credit risk, to include custodial credit risk and concentrations of credit risk; and foreign currency risk. The statement also requires disclosures of custodial credit risk and foreign currency risk for depository accounts. Information about the System’s deposits and investment risk is provided in Note 5.
- GASB Statement No. 51, *Accounting and Financial Reporting for Intangible Assets*, establishes a “specific conditions” approach to recognizing intangible assets, specifically computer software. The statement became effective beginning with the fiscal year ended June 30, 2010. Capitalized

costs are incurred during the Application Development Stage and consist of design of chosen path, including software configuration and software interfaces; coding; installation of hardware; testing, including the parallel processing phase; and data conversion to the extent that the data are necessary to make the computer software operational. Other costs incurred before or after the Application Development Stage are expensed when incurred. Additional disclosures resulting from the implementation of this statement are presented in Note 6.

- GASB Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments*, establishes accounting and financial reporting standards for governments that enter into derivative instruments. The statement became effective beginning with the fiscal year ended June 30, 2010. The objective of the statement is to enhance the usefulness and comparability of derivative financial instrument information reported by state and local governments. It provides a comprehensive framework for the measurement, recognition and disclosure of derivative instrument transactions. Additional disclosures resulting from the implementation of this statement are presented in Note 5.
- GASB Statement No. 59, *Financial Instruments Omnibus*, clarifies the definition of items that should be included in the reporting required by Statement No. 53. The statement became effective beginning with the fiscal year ended June 30, 2010. This is reflected in the disclosures in Note 5.
- GASB Statement No. 63, *Financial Reporting of Deferred Outflows of Resources, Deferred Inflows of Resources and Net Position*, establishes standards for reporting deferred outflows of resources, deferred inflows of resources and net position. The statement became effective beginning with the fiscal year ended June 30, 2013. The financial statement presentations have been updated to reflect the impact of this standard.
- GASB Statement No. 64, *Derivative Instruments: Application of Hedge Accounting Termination Provisions – An Amendment of GASB Statement No. 53*, clarifies the circumstances in which hedge accounting should continue when a swap counterparty, or a swap counterparty’s credit support provider, is replaced. The statement became effective beginning with the fiscal year ended June 30, 2012. This is reflected in the disclosures in Note 5.
- GASB Statement No. 67, *Financial Reporting for Pension Plans*, replaces the requirements of Statements No. 25, *Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans*, and No. 50, *Pension Disclosures*, as they relate to pension plans that are administered through trusts and that meet certain criteria. The statement became effective beginning with the fiscal year ended June 30, 2014, and required changes in the presentation of the financial statements, notes to the financial statements and required supplementary information. Significant changes include an actuarial calculation of total and net pension liability. These are presented in Note 2.C. The changes also include comprehensive footnote disclosure regarding the pension liability, the sensitivity of the net pension liability to the discount rate and increased investment activity disclosures. The implementation of GASB Statement No. 67 did not significantly impact the accounting for accounts receivable and investment balances.
- GASB Statement No. 68, *Accounting and Financial Reporting for Pensions*, an amendment of GASB Statement No. 27. The statement became effective for fiscal years beginning after June 30, 2014, and required changes in the presentation of the financial statements, notes to the financial statements and required supplementary information for the employers that participate in the VRS-administered pension plans. The information reported by the employers is their share of the information reported by VRS under GASB Statement No. 67.
- GASB Statement No. 71, *Pension Transition for Contributions Made Subsequent to the Measurement Date*, an amendment of GASB Statement No. 68, became effective simultaneously with the

provision of GASB Statement No. 68. The statement clarified the adjustments necessary to the beginning deferred outflows of resources and limited that adjustment to contributions made subsequent to the measurement date.

- GASB Statement No. 72, *Fair Value Measurement and Application*. The statement became effective for the fiscal years beginning after June 15, 2015. The statement addresses accounting and financial reporting issues related to fair value measurements. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The statement provides guidance for determining a fair value measurement for financial reporting purposes. It also provides guidance for applying fair value to certain investments and disclosures related to all fair value measurements. This information is presented in Note 5.B.2 and Figures 2.16 and 2.17.
- GASB Statement No. 74, *Financial Reporting for Post-Employment Benefit Plans Other Than Pension Plans*, replaces the requirements of Statement No. 43, *Financial Reporting for Post-Employment Benefit Plans Other Than Pension Plans*. The statement became effective beginning with the fiscal year ended June 30, 2017, and required changes in the presentation of the financial statements, notes to the financial statements and required supplementary information. Significant changes include an actuarial calculation of total and net OPEB liability. These are presented in Note 3.B. The changes also include comprehensive footnote disclosure regarding the liability for OPEB plans, the sensitivity of the net OPEB liability to the discount rate and increased investment activity disclosures. The implementation of GASB Statement No. 74 did not significantly impact the accounting for accounts receivable and investment balances.
- GASB Statement No. 75, *Accounting and Financial Reporting for Post-Employment Benefits Other Than Pensions*. The statement became effective for fiscal years beginning after June 15, 2017, and required changes in the presentation of the financial statements, notes to the financial statements and required supplementary information for the employers that participate in the VRS-administered OPEB plans. The information reported by the employers will be their share of the information reported by VRS under GASB Statement No. 74.
- GASB Statement No. 79, *Certain External Investment Pools and Pool Participants*. The statement became effective for the fiscal years beginning after June 30, 2015. The statement addresses accounting and financial reporting for certain external investment pool and pool participants. Specifically, it establishes criteria for an external investment pool to qualify for making the election to measure all investments at amortized cost for financial reporting purposes. This statement impacts the VRS presentations related to the short-term investments in the Commonwealth of Virginia's Local Government Investment Pool.
- GASB Statement No. 82, *Pension Issues*, an amendment of GASB Statements No. 67, No. 68 and No. 73. This statement addressed certain issues that were raised during the implementation of these standards. Specifically, the statement addresses the issues regarding (1) the presentation of payroll-related measures in the required supplementary information, (2) the selection of assumptions and the treatment of deviations from guidance in an Actuarial Standard of Practice for financial reporting purposes, and (3) the classification of payments made by employers to satisfy employee (plan member) contribution requirements. Although this statement was effective for reporting periods beginning after June 15, 2016, VRS elected to implement it early and provide disclosure guidance to participating employers.
- GASB Statement No. 84, *Fiduciary Activities*, established new criteria for the evaluation of activities to determine whether they were fiduciary activities and should be included in the financial statements as fiduciary funds. One of the primary determining factors was whether the entity had "control" of the assets. After a full evaluation of the System's activities, it was

determined that the defined contribution plan activities of the hybrid plan did not meet this criteria and should not be included as part of the pension funds. It was also determined that several other activities, for which the System has full investment responsibility, did meet the criteria and should be included in the System's financial statements as custodial funds. These newly included custodial funds include the Commonwealth Health Research Fund (CHRF), the Commonwealth's Attorneys Training Fund (CATF), the Volunteer Firefighters' and Rescue Squad Workers' Service Award Program (VolSAP) and the VRS Investment Portfolio (VRSIP). The VRSIP is an investment option available for the defined contribution plan participants and the other custodial funds are stand-alone funds established in statute. This Statement was originally effective for VRS for FY 2020, however, GASB allowed for a one-year implementation postponement in GASB Statement No. 95. GASB Statement No. 95 was intended to provide temporary relief to governments and other stakeholders in light of the COVID-19 pandemic. This statement also encouraged and permitted implementation in accordance with the original dates. VRS elected to early implement GASB Statement No. 84 in accordance with the original statement effective date.

- GASB Statement No. 85, *Omnibus 2017*, amended a number of GASB statements, including GASB Statements No. 73, No. 74 and No. 75. This statement addressed certain issues that were raised during the implementation of these standards. Specifically, the statement addressed the issues regarding (1) the presentation of payroll-related measures in the required supplementary information and (2) the classification of payments made by employers to satisfy employee (plan member) contribution requirements. This statement was effective for reporting periods beginning after June 15, 2017.

F. INVESTMENTS

1. Investment Valuation. Cash equivalents and other short-term, highly liquid investments of the System are reported at amortized cost as follows:

- 1) Money market investments and participating interest-earning investment contracts that have a remaining maturity at the time of purchase of one year or less are reported at amortized cost.
- 2) The System may be a party to short-term contracts to buy and sell securities known as repurchase and reverse repurchase agreements. Agreements to repurchase securities that have been sold to a counterparty are valued at the contract price, exclusive of interest, at which the securities will be repurchased. Securities purchased pursuant to agreements to resell are carried at fair value.
- 3) The System participates in the Commonwealth's Local Government Investment Pool (LGIP), which is managed by the State Treasurer. The State Treasurer reports that the LGIP complies with or exceeds all of the criteria in GASB Statement No. 79, *Accounting and Reporting for Certain External Investment Pools and Pool Participants*, to be eligible to use amortized cost for financial reporting and transacting shares. The System likewise measures its investment in the LGIP at amortized cost as per GASB Statement No. 79. The LGIP imposes no limitations or restrictions on the System's ability to withdraw invested funds.

Long-term investments of the System are reported at fair value. Fair value is the amount that one can reasonably expect to receive for an investment in a current sale between a willing buyer and a willing seller; that is, other than a forced or liquidation sale. The fair value for the System's defined benefit investments is determined by the System's master custodian, BNY Mellon, from its Global Pricing System. This system assigns a price source, based on asset type and the vendor pricing products to which the master custodian subscribes, for every security held immediately following its acquisition. The master custodian monitors prices supplied by these sources daily.

When a pricing source is unable to provide a price, quotes are sought from major investment brokers and market-making dealers; or internal calculations are applied, if feasible. As a last resort, the master custodian will contact investment managers for a price. The master custodian prices commingled funds, partnerships and real assets from statements received from the funds, partnerships or investment managers.

The pricing sources used by the master custodian provide daily prices for equity securities; corporate, government and mortgage-backed fixed-income securities; private placement securities; futures and options on futures; open-ended funds; and foreign exchange rates. Depending on the vendor, collateralized mortgage obligations (CMOs), adjustable-rate mortgages (ARMs) and asset-backed securities are priced daily, weekly or twice a month as well as at month-end. Municipal fixed-income securities and options on U.S. Treasury/GNMA securities are priced at month-end.

2. Investment Transactions and Income. Security transactions and related gains and losses are recorded on a trade-date basis. The cost of investments sold is the average cost of the aggregate holding of the specific investment sold. Dividend income is recorded on the ex-dividend date, and interest income is accrued as earned. Futures contracts are valued daily, with the resulting adjustments recorded as realized gains or losses arising from the daily settlement of the variation margin. Gains and losses related to forward contracts and options are recognized at the time the contracts are settled. For investments in limited partnerships the System's share of the partnership's earnings or losses for the period are included in investment income.

3. Investment Policy. The System's defined benefit assets are pooled for investment purposes in a Pooled Assets portfolio. The allocation of investment assets within the Pooled Assets portfolio is approved by the Board of Trustees as outlined in the Board's Investment Policy. Plan assets are managed on a total return basis with a

long-term objective of achieving and maintaining a fully funded status for the benefits provided through the defined benefit plans.

4. Rate of Return. For the fiscal year ended June 30, 2020, the annual money-weighted rate of return for the Pooled Assets portfolio, net of investment expenses, was 1.42%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested. For the VRS Pooled Assets portfolio, the fiscal year 2020 money-weighted rate of return differs only slightly from the time-weighted rate of return because the flow of cash for contributions and benefit payments is fairly consistent over the fiscal year.

G. PROPERTY, PLANT, FURNITURE, EQUIPMENT AND INTANGIBLE ASSETS

Tangible capital assets are recorded at cost at the time of acquisition and are reported net of accumulated depreciation. The System capitalizes all property, plant and equipment that have a cost or value greater than \$5,000. Depreciation is computed on the straight-line basis over the estimated useful life of the property, ranging from five years to 40 years. Intangible capital assets for the System include internal and external costs incurred during VRS' Application Development. These costs are being depreciated over the software's useful life, which is estimated at seven years.

H. ACCUMULATED LEAVE AND DISABILITY CREDITS

Employees of the System participate in the Commonwealth's annual leave program and in its sick leave program or the Virginia Sickness and Disability Program (VSDP), which is administered by the System. Additional information about VSDP is presented in Note 3. Unused annual leave may be accumulated and is paid at the time of permanent separation from service up to the maximum calendar-year limit. For vested employees who are not covered under VSDP, unused sick leave is paid at a rate of 25% of the amount accumulated, not to exceed \$5,000, at the time of permanent separation. VSDP-covered employees with unused disability credits converted from sick leave at the time of

enrollment may be paid in the same manner as for non-VSDP employees or may convert these credits to service credit at a rate of 173 disability credits to one month of service.

The accrued liability for unused annual leave, sick leave and disability credits for System employees at June 30, 2020 and 2019, was computed using salary rates in effect at those times and represents annual and sick leave earned up to the allowable ceilings as well as unused, converted disability credits. This information is included in the Statement of Fiduciary Net Position: Pension and Other Employee Benefit Trust Funds.

I. ADMINISTRATIVE EXPENSES AND BUDGET

The Board of Trustees approves expenses related to the administration and management of the trust fund. These expenses are included in a budget prepared in compliance with the Commonwealth's biennial budgetary system (cash basis).

Appropriations are controlled at the program level and lapse at the end of the fiscal year.

Administrative expenses are funded from investment income and employer contributions. Expenses for goods and services received but not paid for prior to the System's fiscal year-end are accrued for financial reporting purposes in accordance with generally accepted accounting principles (GAAP). A reconciliation of the difference between the GAAP basis and budgeted basis is presented in the Schedule of Administrative Expenses following the Required Supplementary Schedules.

J. INVESTMENT INCOME ALLOCATION

Income earned on investments is distributed monthly to the VRS, SPORS, VaLORS and JRS retirement plans; the Group Life Insurance Fund; the Retiree Health Insurance Credit Funds; the Disability Insurance Trust Fund; the Line of Duty Trust Fund; the Virginia Local Disability Program and the Custodial Plans. Distribution of investment income is based on the respective equity of each trust fund in the common investment pool.

The retirement plans distribute their cumulative investment income, net of administrative expenses, in the following manner:

- Investment income is distributed to each individual member contribution account based on a rate of 4.00% applied to each member's cumulative balance as of the close of the preceding fiscal year.
- The remaining portion is allocated monthly to the participating employers' retirement allowance accounts based on the ratio of their member account and employer account balances to the total of all such balances.

K. USE OF ESTIMATES

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make significant estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities as of the date of the financial statements, as well as the reported amounts of revenue and expenses during the reporting period. These estimates impact the reported values of assets, including investments. Actual results could differ from those estimates.

L. SUMMARIZED COMPARATIVE DATA/ RECLASSIFICATIONS

The Basic Financial Statements include certain prior-year summarized comparative information in total, but not at the level of detail required for a presentation in conformity with generally accepted accounting principles. Accordingly, such information should be read in conjunction with the System's financial statements for the year ended June 30, 2019, from which the summarized information was derived.

M. RESTATEMENT OF FISCAL YEAR 2019 FINANCIAL INFORMATION

As a result of the implementation of GASB Statement No. 84., the System had to restate the opening net position for fiscal year 2020 and some of the previously reported financial information for the fiscal year ended June 30, 2019, for the comparative financial statement presentations. This

restatement modified a number of the financial statement line items. The net result of the restatement was a reduction in the ending net position at June 30, 2019 of \$415,313,000. Of this amount, a reduction of \$526,859,000 was attributable to the hybrid defined contribution plans that were removed and an increase of \$111,546,000 was attributable to the custodial funds that were added.

2. Pension Plans

A. PLAN DESCRIPTIONS

1. Establishment of the System. The Virginia Retirement System (the System) was established March 1, 1952, as the administrator of governmental retirement plans qualified under Section 401(a) of the Internal Revenue Code. Its mission is to provide retirement benefits for state employees, teachers, other eligible school employees and employees of political subdivisions that elect to participate in the System.

The System is comprised of the following pension trust funds:

- The Virginia Retirement System (VRS), established March 1, 1952, as the Virginia Supplemental Retirement System, was renamed VRS in 1990 in response to the Federal Tax Reform Act of 1986. VRS includes a single-employer plan for state employees, a multiple-employer cost-sharing plan for teachers and an agent multiple-employer plan for employees of participating political subdivisions.
- State Police Officers' Retirement System (SPORS), established July 1, 1950, is a single-employer plan for state police officers.
- Virginia Law Officers' Retirement System (VaLORS), established October 1, 1999, is a

single-employer plan for non-local government Virginia law officers other than state police.

- Judicial Retirement System (JRS), established July 1, 1970, is a single-employer plan for judges of a court of record or a district court of the state and other eligible judicial employees.

The System is required by law to use the plans' accumulated assets to pay benefits when due to eligible members, retirees and beneficiaries. Full-time permanent, salaried employees of participating employers are covered automatically under VRS, SPORS, VaLORS or JRS upon employment; some part-time permanent, salaried state employees also are covered under VRS. Information regarding the membership is presented in Figure 2.9. Teaching, research and administrative faculty of the state's public colleges and universities who elect an optional retirement plan, as well as permanent, salaried employees of the state's two public teaching hospitals, are not covered under the VRS retirement plans.

All full-time, salaried permanent (professional) employees of state agencies, public school divisions and employees of participating employers are automatically covered by a pension plan upon employment. Members qualify for retirement when they become vested and meet the age and service requirements for their plan, as shown in the following table. The System administers three different benefit structures for government employees: Plan 1, Plan 2 and the Hybrid Retirement Plan. Each of these is called a plan in statute and each has different provisions with a specific eligibility and benefit structure. These different benefit structures are set out in Figure 2.10.

FIGURE 2.9: ACTIVE, RETIRED AND TERMINATED MEMBERS AND BENEFICIARIES

AT JUNE 30

	VRS State Employees	VRS Teachers	VRS Political Subdivision Employees	SPORS	VaLORS	JRS	2020 Total	2019 Total
Retirees and Beneficiaries Receiving Benefits	59,554	94,755	57,671	1,423	5,176	534	219,113	214,545
Terminated Employees Entitled to Benefits but not Receiving Them	23,749	31,994	15,457	141	754	6	72,101	52,677
Total	83,303	126,749	73,128	1,564	5,930	540	291,214	267,222
Active Members:								
Vested	52,058	108,065	68,753	1,573	4,612	374	235,435	233,762
Non-Vested	25,367	42,008	41,663	351	3,928	74	113,391	112,511
Total	77,425	150,073	110,416	1,924	8,540	448	348,826	346,273

2. Pension Plan Provisions and Requirements.

Under Plan 1, Plan 2 and the Hybrid Retirement Plan, members are vested in the defined benefit pension after attaining five years of service credit. They become eligible to retire with an unreduced or reduced benefit when they meet the age and service requirements for their plan. The unreduced benefit is actuarially reduced to calculate the reduced benefit amount. A cost-of-living adjustment (COLA), based on changes in the Consumer Price Index for all Urban Consumers (CPI-U), is granted on July 1 of the second calendar year after retirement and is effective each July 1 thereafter, when provided.

Members not covered under the Virginia Sickness and Disability Program (VSDP) for state employees (see Note 3) or the Virginia Local Disability Program (VLDP) for local government employees are eligible to be considered for disability retirement.

If a member dies while in active service, his or her beneficiary or survivor may qualify for a death-in-service benefit. Provisions for the retirement plans are presented in Figure 2.10.

FIGURE 2.10 : RETIREMENT PLAN PROVISIONS

AS ESTABLISHED BY TITLE 51.1 OF THE *CODE OF VIRGINIA* (1950), AS AMENDED

RETIREMENT PLAN PROVISIONS		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>About Plan 1 Plan 1 is a defined benefit plan. The retirement benefit is based on a member's age, service credit and average final compensation at retirement using a formula.</p>	<p>About Plan 2 Plan 2 is a defined benefit plan. The retirement benefit is based on a member's age, service credit and average final compensation at retirement using a formula.</p>	<p>About the Hybrid Retirement Plan The Hybrid Retirement Plan combines the features of a defined benefit plan and a defined contribution plan.</p> <ul style="list-style-type: none"> The defined benefit is based on a member's age, service credit and average final compensation at retirement using a formula. The benefit from the defined contribution component of the plan depends on the member and employer contributions made to the plan and the investment performance of those contributions. In addition to the monthly benefit payment payable from the defined benefit plan at retirement, a member may start receiving distributions from the balance in the defined contribution account, reflecting the contributions, investment gains or losses and any required fees.
<p>Eligible Members Members are in Plan 1 if their membership date is prior to July 1, 2010, they were vested before January 1, 2013, and they have not taken a refund.</p> <p>Hybrid Opt-In Election VRS non-hazardous duty-covered Plan 1 members were allowed to make an irrevocable decision to opt into the Hybrid Retirement Plan during a special election window held January 1 through April 30, 2014. The Hybrid Retirement Plan's effective date for eligible Plan 1 members who opted in was July 1, 2014.</p> <p>If eligible deferred members returned to work during the election window, they were also eligible to opt into the Hybrid Retirement Plan.</p> <p>Members who were eligible for an optional retirement plan (ORP) and had prior service under Plan 1 were not eligible to elect the Hybrid Retirement Plan, and remain as Plan 1 or ORP.</p>	<p>Eligible Members Members are in Plan 2 if their membership date is from July 1, 2010, to December 31, 2013, and they have not taken a refund. Additionally, members are covered under Plan 2 if they have a membership date prior to July 1, 2010, but were not vested before January 1, 2013.</p> <p>Members covered under VaLORS, SPORS or VRS with enhanced hazardous duty benefits or the hazardous duty alternate option, and whose membership dates are on or after July 1, 2010, are in Plan 2 even if their membership dates are after December 31, 2013.</p> <p>Hybrid Opt-In Election Eligible Plan 2 members were allowed to make an irrevocable decision to opt into the Hybrid Retirement Plan during a special election window held January 1 through April 30, 2014. The Hybrid Retirement Plan's effective date for eligible Plan 2 members who opted in was July 1, 2014.</p> <p>If eligible deferred members returned to work during the election window, they were also eligible to opt into the Hybrid Retirement Plan.</p> <p>Members who were eligible for an optional retirement plan (ORP) and have prior service under Plan 2 were not eligible to elect the Hybrid Retirement Plan, and remain as Plan 2 or ORP.</p>	<p>Eligible Members Members are in the Hybrid Retirement Plan if their membership date is on or after January 1, 2014. This includes:</p> <ul style="list-style-type: none"> State employees* School division employees Political subdivision employees* Judges appointed or elected to an original term on or after January 1, 2014, regardless if vested to VRS Plan 1 or VRS Plan 2. Members in Plan 1 or Plan 2 who elected to opt into the plan during the election window held January 1-April 30, 2014; the plan's effective date for opt-in members was July 1, 2014. <p>* Non-Eligible Members Some members are not eligible to participate in the Hybrid Retirement Plan. They include:</p> <ul style="list-style-type: none"> Members of the State Police Officers' Retirement System (SPORS) Members of the Virginia Law Officers' Retirement System (VaLORS) Political subdivision members who are covered by enhanced benefits for hazardous duty employees <p>Members eligible for an optional retirement plan (ORP) must elect the ORP or the Hybrid Retirement Plan. If these members are credited with service that was earned, purchased or granted prior to January 1, 2014, they are not eligible to elect the Hybrid Retirement Plan, and must select Plan 1 or Plan 2 (as applicable) or ORP.</p>

FIGURE 2.10 : RETIREMENT PLAN PROVISIONS, cont.

PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Retirement Contributions Members, excluding state elected officials, judges in Plan 1 or Plan 2 and optional retirement plan participants, contribute 5% of their compensation each month to their member contribution account through a pretax salary reduction. Member contributions are tax-deferred until they are withdrawn as part of a retirement benefit or as a refund. The employer makes a separate actuarially determined contribution to VRS for all covered employees. VRS invests both member and employer contributions to provide funding for the future benefit payment.</p>	<p>Retirement Contributions Members contribute 5% of their compensation each month to their member contribution account through a pretax salary reduction.</p>	<p>Retirement Contributions <i>Defined Benefit Component:</i> Members contribute 4% of their compensation each month to their member contribution account through a pretax salary reduction. <i>Defined Contribution Component:</i> Members contribute 1% of their compensation each month to their account through a pretax salary reduction. In addition, 1% of the total actuarially determined employer contribution is a mandatory employer contribution to this component of the plan. Hybrid plan members may also elect to contribute an additional amount of up to 4% to a voluntary defined contribution plan. The voluntary component also has a mandatory employer match of 0.5% to 2.5% that is also deducted from the total actuarially determined employer contributions. Mandatory member contributions and the employer match on the mandatory and voluntary member contributions are recorded in a 401(a) account, along with the accrued net investment income. The voluntary member contributions and accrued net investment income are recorded in a 457(b) account. Members are responsible for investing their accounts using the various investment options that are available.</p>
<p>Service Credit Service credit includes active service. Members earn service credit for each month they are employed in a covered position. It also may include credit for prior service the member has purchased or additional service credit the member was granted. A member's total service credit is one of the factors used to determine eligibility for retirement and to calculate the retirement benefit. It also may count toward eligibility for the health insurance credit in retirement, if the employer offers the health insurance credit.</p>	<p>Service Credit Same as Plan 1.</p>	<p>Service Credit <i>Defined Benefit Component:</i> Under the defined benefit component of the plan, service credit includes active service. Members earn service credit for each month they are employed in a covered position. It also may include credit for prior service the member has purchased or additional service credit the member was granted. A member's total service credit is one of the factors used to determine eligibility for retirement and to calculate the retirement benefit. It also may count toward eligibility for the health insurance credit in retirement, if the employer offers the health insurance credit. <i>Defined Contribution Component:</i> Under the defined contribution component, service credit is used to determine vesting for the employer contribution portion of the plan.</p>
<p>Vesting Vesting is the minimum length of service a member needs to qualify for a future retirement benefit. Members become vested when they have at least five years (60 months) of service credit. Vesting means members are eligible to qualify for retirement if they meet the age and service requirements for their plan. Members also must be vested to receive a full refund of their member contribution account balance if they leave employment and request a refund. Members are always 100% vested in the contributions that they make.</p>	<p>Vesting Same as Plan 1.</p>	<p>Vesting <i>Defined Benefit Component:</i> Defined benefit vesting is the minimum length of service a member needs to qualify for a future retirement benefit. Members are vested under the defined benefit component of the Hybrid Retirement Plan when they reach five years (60 months) of service credit. Plan 1 or Plan 2 members with at least five years (60 months) of service credit who opted into the Hybrid Retirement Plan remain vested in the defined benefit component. (Cont.)</p>

FIGURE 2.10 : RETIREMENT PLAN PROVISIONS, cont.

PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
		<p><i>Vesting, cont.</i></p> <p><i>Defined Contribution Component:</i> Defined contribution vesting refers to the minimum length of service a member needs to be eligible to withdraw the employer contributions from the defined contribution component of the plan. Members are always 100% vested in the contributions that they make. Upon retirement or leaving covered employment, a member is eligible to withdraw a percentage of employer contributions to the defined contribution component of the plan, based on service.</p> <ul style="list-style-type: none"> • After two years, a member is 50% vested and may withdraw 50% of employer contributions. • After three years, a member is 75% vested and may withdraw 75% of employer contributions. • After four or more years, a member is 100% vested and may withdraw 100% of employer contributions. <p>Distribution is not required by law until age 72.</p>
<p>Calculating the Benefit The Basic Benefit is calculated based on a formula using the member’s average final compensation, a retirement multiplier and total service credit at retirement. It is one of the benefit payout options available to a member at retirement.</p> <p>An early retirement reduction factor is applied to the Basic Benefit if the member retires with a reduced retirement benefit or selects a benefit payout option other than the Basic Benefit.</p>	<p>Calculating the Benefit See definition under Plan 1.</p>	<p>Calculating the Benefit <i>Defined Benefit Component:</i> See definition under Plan 1.</p> <p><i>Defined Contribution Component:</i> The benefit is based on contributions made by the member and any matching contributions made by the employer, plus net investment earnings on those contributions.</p>
<p>Average Final Compensation A member’s average final compensation is the average of the 36 consecutive months of highest creditable compensation as a covered employee.</p>	<p>Average Final Compensation A member’s average final compensation is the average of the 60 consecutive months of highest creditable compensation as a covered employee.</p>	<p>Average Final Compensation Same as Plan 2. It is used in the retirement formula for the defined benefit component of the plan.</p>

FIGURE 2.10 : RETIREMENT PLAN PROVISIONS, cont.

PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Service Retirement Multiplier VRS Plan 1: The retirement multiplier is a factor used in the formula to determine a final retirement benefit. The retirement multiplier for non-hazardous duty members is 1.70%.</p> <p>SPORS, sheriffs and regional jail superintendents: The retirement multiplier is 1.85%.</p> <p>VaLORS: The retirement multiplier is 1.70% or 2.00%.</p> <ul style="list-style-type: none"> Members hired before July 1, 2001, have a 1.70% multiplier and are eligible for a hazardous duty supplement. They also had the option to elect the 2.00% multiplier and no supplement. Members hired on or after July 1, 2001, have a 2.00% multiplier and no supplement. <p>Political subdivision hazardous duty employees: The retirement multiplier for eligible political subdivision hazardous duty employees other than sheriffs and regional jail superintendents is 1.70% or 1.85% as elected by the employer.</p> <p>JRS Plan 1: If appointed or elected to an original term prior to January 1, 2013, the retirement multiplier is 1.70%.</p> <p>If appointed or elected to an original term between January 1, 2013, and December 31, 2013, the retirement multiplier is 1.70% on non-JRS service earned, purchased or granted before the date of appointment or election to an original term, and 1.65% on JRS service earned, purchased or granted on or after the date of appointment or election to an original term.</p>	<p>Service Retirement Multiplier VRS Plan 2: Same as Plan 1 for service earned, purchased or granted prior to January 1, 2013.</p> <p>For non-hazardous duty members, the retirement multiplier is 1.65% for service credit earned, purchased or granted on or after January 1, 2013.</p> <p>SPORS, sheriffs and regional jail superintendents: Same as Plan 1.</p> <p>VaLORS: The retirement multiplier is 2.00%.</p> <p>Political subdivision hazardous duty employees: Same as Plan 1.</p> <p>JRS Plan 2: Same as Plan 1.</p>	<p>Service Retirement Multiplier <i>Defined Benefit Component:</i> VRS: The retirement multiplier for the defined benefit component is 1.00%.</p> <p>For members who opted into the Hybrid Retirement Plan from Plan 1 or Plan 2, the applicable multipliers for those plans will be used to calculate the retirement benefit for service credited in those plans.</p> <p>SPORS, sheriffs and regional jail superintendents: Not applicable.</p> <p>VaLORS: Not applicable.</p> <p>Political subdivision hazardous duty employees: Not applicable.</p> <p>JRS: The retirement multiplier for the defined benefit component is 1.00%, beginning on the date of appointment or election to an original term. The member will retain the applicable multiplier on any covered service outside JRS.</p> <p><i>Defined Contribution Component:</i> Not applicable.</p>
<p>Normal Retirement Age VRS: Age 65.</p> <p>SPORS, VaLORS and political subdivision hazardous duty employees: Age 60.</p> <p>JRS: Age 65; mandatory retirement age is 73.</p>	<p>Normal Retirement Age VRS: Normal Social Security retirement age.</p> <p>SPORS, VaLORS and political subdivision hazardous duty employees: Same as Plan 1.</p> <p>JRS: Same as Plan 1.</p>	<p>Normal Retirement Age <i>Defined Benefit Component:</i> VRS: Same as Plan 2.</p> <p>SPORS, VaLORS and political subdivision hazardous duty employees: Not applicable.</p> <p>JRS: Same as Plan 1.</p> <p><i>Defined Contribution Component:</i> Members are eligible to receive distributions upon leaving employment, subject to restrictions.</p>

FIGURE 2.10 : RETIREMENT PLAN PROVISIONS, cont.

PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Earliest Unreduced Retirement Eligibility VRS: Age 65 with at least five years (60 months) of service credit or at age 50 with at least 30 years of service credit.* SPORS, VaLORS and political subdivision hazardous duty employees: Age 60 with at least five years of service credit or age 50 with at least 25 years of service credit. JRS: Age 65 with at least five years of weighted service credit, or at age 60 with at least 30 years of weighted service credit. Service earned under JRS is weighted. The weighting factors for a judge appointed prior to July 1, 2010, are as follows:</p> <ul style="list-style-type: none"> • 3.5 for JRS members appointed or elected to an original term before January 1, 1995. • 2.5 for JRS members appointed or elected to an original term on or after January 1, 1995, but before July 1, 2010. <p>For members appointed or elected to an original term between July 1, 2010, and December 31, 2013, the weighting factors are:</p> <ul style="list-style-type: none"> • 1.5 if appointed or elected to an original term before age 45. • 2.0 if appointed or elected to an original term between ages 45 and 54. • 2.5 if appointed or elected to an original term at age 55 or older. <p><i>* Some political subdivision employers require employees to reach age 55 with at least 30 years of service credit to be eligible for an unreduced retirement benefit.</i></p>	<p>Earliest Unreduced Retirement Eligibility VRS: Normal Social Security retirement age with at least five years (60 months) of service credit or when their age and service equal 90. SPORS, VaLORS and political subdivision hazardous duty employees: Same as Plan 1. JRS: Age 65, with at least five years of weighted service credit, or age 60 with at least 30 years of weighted service credit. Service earned under JRS is weighted. The weighting factors under Plan 2 are:</p> <ul style="list-style-type: none"> • 1.5 for JRS members appointed or elected to an original term before age 45. • 2.0 for JRS members appointed or elected to an original term between ages 45 and 54. • 2.5 for JRS members appointed or elected to an original term at age 55 or older. 	<p>Earliest Unreduced Retirement Eligibility <i>Defined Benefit Component:</i> VRS: Normal Social Security retirement age and have at least five years (60 months) of service credit or when their age and service equal 90. SPORS, VaLORS and political subdivision hazardous duty employees: Not applicable. JRS: Same as Plan 2. <i>Defined Contribution Component:</i> Members are eligible to receive distributions upon leaving employment, subject to restrictions.</p>
<p>Earliest Reduced Retirement Eligibility VRS: Age 55 with at least five years (60 months) of service credit or age 50 with at least 10 years of service credit. SPORS, VaLORS and political subdivision hazardous duty employees: Age 50 with at least five years of service credit. JRS: Age 55, with at least five years of service credit.</p>	<p>Earliest Reduced Retirement Eligibility VRS: Age 60 with at least five years (60 months) of service credit. SPORS, VaLORS and political subdivision hazardous duty employees: Same as Plan 1. JRS: Same as Plan 1.</p>	<p>Earliest Reduced Retirement Eligibility <i>Defined Benefit Component:</i> VRS: Age 60 with at least five years (60 months) of service credit. SPORS, VaLORS and political subdivision hazardous duty employees: Not applicable. JRS: Same as Plan 1. <i>Defined Contribution Component:</i> Members are eligible to receive distributions upon leaving employment, subject to restrictions.</p>

FIGURE 2.10 : RETIREMENT PLAN PROVISIONS, cont.

PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Cost-of-Living Adjustment (COLA) in Retirement The Cost-of-Living Adjustment (COLA) matches the first 3% increase in the Consumer Price Index for all Urban Consumers (CPI-U) and half of any additional increase (up to 4%) up to a maximum COLA of 5%.</p> <p><i>Eligibility:</i> For members who retire with an unreduced benefit or with a reduced benefit with at least 20 years of service credit, the COLA will go into effect on July 1 after one full calendar year from the retirement date.</p> <p>For members who retire with a reduced benefit and who have fewer than 20 years of service credit, the COLA will go into effect on July 1 after one calendar year following the unreduced retirement eligibility date.</p> <p><i>Exceptions to COLA Effective Dates:</i> The COLA is effective July 1 following one full calendar year (January 1 to December 31) from the date the monthly benefit begins, under any of the following circumstances:</p> <ul style="list-style-type: none"> • The member is within five years of qualifying for an unreduced retirement benefit as of January 1, 2013. • The member retires directly from short-term or long-term disability under the Virginia Local Disability Program (VLDP) or employer opt-out plan. • The member is involuntarily separated from employment for causes other than job performance or misconduct and is eligible to retire under the Workforce Transition Act or the Transitional Benefits Program. • The member dies in service and the member’s survivor or beneficiary is eligible for a monthly death-in-service benefit. 	<p>Cost-of-Living Adjustment (COLA) in Retirement The Cost-of-Living Adjustment (COLA) matches the first 2% increase in the CPI-U and half of any additional increase (up to 2%), for a maximum COLA of 3%.</p> <p><i>Eligibility:</i> Same as Plan 1.</p> <p><i>Exceptions to COLA Effective Dates:</i> Same as Plan 1.</p>	<p>Cost-of-Living Adjustment (COLA) in Retirement <i>Defined Benefit Component:</i> Same as Plan 2.</p> <p><i>Defined Contribution Component:</i> Not applicable.</p> <p><i>Eligibility:</i> Same as Plan 1.</p> <p><i>Exceptions to COLA Effective Dates:</i> The COLA is effective July 1 following one full calendar year (January 1 to December 31) from the date the monthly benefit begins, under any of the following circumstances:</p> <ul style="list-style-type: none"> • The member is within five years of qualifying for an unreduced retirement benefit as of January 1, 2013. • The member retires directly from short-term or long-term disability under the Virginia Local Disability Program (VLDP) or employer opt-out plan. • The member is involuntarily separated from employment for causes other than job performance or misconduct and is eligible to retire under the Workforce Transition Act or the Transitional Benefits Program. • The member dies in service and the member’s survivor or beneficiary is eligible for a monthly death-in-service benefit.
<p>Disability Coverage For members who are eligible to be considered for disability retirement and retire on disability, the retirement multiplier is 1.70% on all service, regardless of when it was earned, purchased or granted.</p> <p>Most state employees are covered under the Virginia Sickness and Disability Program (VSDP) and are not eligible for disability retirement.</p> <p>VSDP members are subject to a one-year waiting period before becoming eligible for non-work-related disability benefits.</p>	<p>Disability Coverage For members who are eligible to be considered for disability retirement and retire on disability, the retirement multiplier is 1.65% on all service, regardless of when it was earned, purchased or granted.</p> <p>Most state employees are covered under the Virginia Sickness and Disability Program (VSDP) and are not eligible for disability retirement.</p> <p>VSDP members are subject to a one-year waiting period before becoming eligible for non-work-related disability benefits.</p>	<p>Disability Coverage Employees of political subdivisions and school divisions (including Plan 1 and Plan 2 opt-ins) participate in the Virginia Local Disability Program (VLDP) unless their local governing body provides an employer-paid comparable program for its members.</p> <p>State employees (including Plan 1 and Plan 2 opt-ins) participating in the Hybrid Retirement Plan are covered under the Virginia Sickness and Disability Program (VSDP), and are not eligible for disability retirement.</p> <p>Hybrid members (including Plan 1 and Plan 2 opt-ins) covered under VSDP or VLDP are subject to a one-year waiting period before becoming eligible for non-work-related disability benefits.</p>

FIGURE 2.10 : RETIREMENT PLAN PROVISIONS, cont.

PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Purchase of Prior Service Members may be eligible to purchase service from previous public employment, active duty military service, an eligible period of leave or VRS refunded service as service credit in their plan. Prior service credit counts toward vesting, eligibility for retirement and the health insurance credit, if offered by the employer. Only active members are eligible to purchase prior service. Members also may be eligible to purchase periods of leave without pay.</p>	<p>Purchase of Prior Service Same as Plan 1.</p>	<p>Purchase of Prior Service <i>Defined Benefit Component:</i> Same as Plan 1, with the following exception: Hybrid Retirement Plan members are ineligible for ported service. <i>Defined Contribution Component:</i> Not applicable.</p>

B. CONTRIBUTIONS

Members and employers are required to contribute to the retirement plans as provided by Title 51.1 of the *Code of Virginia* (1950), as amended. The member contribution is 5.00% of compensation, contributed by members or employers each month to members’ contribution accounts. Members leaving covered employment are eligible to request a refund of their member contribution account balance. Vested members and those involuntarily separated from employment for causes other than job performance or misconduct are eligible for a full refund. Non-vested members are eligible for a refund of their account balance, excluding any member contributions made by employers to their accounts after July 1, 2010, and the interest on those contributions.

Each participating employer is required to contribute the remaining amounts necessary to fund the pension plans using the entry age normal actuarial cost method adopted by the Board of Trustees. The System’s actuary, Cavanaugh Macdonald Consulting LLC, computed the amount of contributions to be provided by state agency, state police and Virginia law officer employers; each participating political subdivision employer; and state judicial employers.

The contribution rates for fiscal years 2020 and 2019 were based on the actuary’s valuation as of June 30, 2017.

As shown in Figure 2.11, contributions to the pension plans for the fiscal years ended June 30, 2020 and 2019, totaled \$3,479,951,000 and \$3,336,113,000, respectively, in accordance with statutory requirements.

Employer contributions to the VRS cost-sharing pool for teachers in the fiscal year ended June 30, 2020 and 2019, represented 15.68% of covered payrolls and was the full actuarial cost. Employer contributions for state employees represented 13.52% of covered payrolls. Each political subdivision’s contributions ranged from zero (0.00%) to 40.89% of covered payrolls. State employer contributions to SPORS, VaLORS and JRS represented 24.88%, 21.61% and 34.39%, respectively, for the fiscal year. For state and teacher employers and a majority of the political subdivisions, these rates reflected the normal cost and the amortization of a portion of the unfunded actuarial accrued liability of each of the plans based on the June 30, 2017, actuarial valuation. For a small number of political subdivisions the rates reflect modified actuarial assumptions. This is discussed further in Note 12. Member contributions for both years represented 5.00% of covered payrolls.

FIGURE 2.11: MEMBER AND EMPLOYER CONTRIBUTIONS

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

Fiscal Year	System/Plan	Member Contributions	Employer Contributions	Total
2020	VRS - State	\$ 210,896	\$ 576,443	\$ 787,339
	VRS - Teacher	418,909	1,327,774	1,746,683
	VRS - Political Subdivisions	258,408	521,543	779,951
	Total VRS	888,213	2,425,760	3,313,973
	JRS	3,436	24,819	28,255
	SPORS	6,600	32,497	39,097
	VaLORS	18,712	79,914	98,626
Total	\$ 916,961	\$ 2,562,990	\$ 3,479,951	
2019	Total	\$ 880,618	\$ 2,455,495	\$ 3,336,113

C. EMPLOYERS' NET PENSION LIABILITY: PENSION PLANS

The most recent actuarial valuation to determine the net pension liabilities for the VRS pension plans was prepared as of June 30, 2020. The total pension liability was determined based on an actuarial

valuation as of June 30, 2019, using updated actuarial assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2020.

SCHEDULE OF EMPLOYERS' NET PENSION LIABILITY BY SYSTEM AND PLAN

AS OF JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Employers' Net Pension Liability/ (Asset) (a-b)	Plan Fiduciary Net Position as a % of the Total Pension Liability (b/a)	Covered Payroll (c)	Net Pension Liability/ (Asset) as a % of the Covered Employee Payroll (a-b)/(c)
Virginia Retirement System:						
State	\$ 26,014,925	\$18,770,068	\$ 7,244,857	72.15%	\$ 4,440,135	163.17%
Teacher	51,001,855	36,449,229	14,552,626	71.47%	8,766,667	166.00%
Political Subdivisions*	25,449,316	21,234,090	4,215,226	83.44%	5,368,250	78.52%
Total Virginia Retirement System	102,466,096	76,453,387	26,012,709		18,575,052	
State Police Officers' Retirement System	1,215,258	854,762	360,496	70.34%	130,759	275.69%
Virginia Law Officers' Retirement System	2,282,351	1,500,469	781,882	65.74%	369,996	211.32%
Judicial Retirement System	687,471	549,455	138,016	79.92%	74,769	184.59%
Grand Total	\$ 106,651,176	\$79,358,073	\$27,293,103		\$19,150,576	

* Political subdivision data is from the consolidated report provided by Cavanaugh Macdonald Consulting LLC.

SCHEDULE OF ACTUARIAL METHODS AND SIGNIFICANT ASSUMPTIONS – PENSION PLANS

	VRS					
	State	Teacher	Political Subdivisions	SPORS	ValORS	JRS
Valuation Date	June 30, 2019	June 30, 2019	June 30, 2019	June 30, 2019	June 30, 2019	June 30, 2019
Actuarial Cost Method	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal
Actuarial Assumptions:						
Investment Rate of Return*	6.75%	6.75%	6.75%	6.75%	6.75%	6.75%
Projected Salary Increases*						
State Employees/ Teachers	3.50% to 5.35%	3.50% to 5.95%	N/A	3.50% to 4.75%	3.50% to 4.75%	4.50%
Political Subdivisions – Non-Hazardous Duty Employees	N/A	N/A	3.50% to 5.35%	N/A	N/A	N/A
Political Subdivisions – Hazardous Duty Employees	N/A	N/A	3.50% to 4.75%	N/A	N/A	N/A
Post-Retirement Benefits Increases**						
Plan 1	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Plan 2	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
Hybrid	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%

* Includes inflation at 2.50%.

** Compounded annually.

Note: Additional information regarding mortality rate assumptions and experience studies can be found in the Actuarial Assumptions and Methods presentation in the Actuarial Section.

D. CHANGES IN DISCOUNT RATE

The discount rate used to measure the total pension liability was 6.75%. The projection of cash flows used to determine the discount rate assumed that contributions from participating employers will be based on the actuarially determined rates according to the Board's funding policy, which certifies the required rates under Title 51.1 of the *Code of Virginia* (1950), as amended. Based on those assumptions, the fiduciary net position was projected to be available to make all of the projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan

investments was applied to all periods of the projected benefit payments to determine the total pension liability. In accordance with GASB Statement No. 67, regarding the disclosure of the sensitivity of the net pension liability to changes in the discount rate, the table below presents the employers' net pension liability for each of the plans calculated using the discount rate of 6.75%, as well as what the employers' net pension liability would be if it were calculated using a discount rate that is 1.00% lower (5.75%) or 1.00% higher (7.75%) than the current rate.

SCHEDULE OF IMPACT OF CHANGES IN DISCOUNT RATE – PENSION PLANS

AS OF JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

System/Plan	Net Pension Liability		
	1.00% Decrease 5.75%	Current Discount Rate 6.75%	1.00% Increase 7.75%
Virginia Retirement System			
State	\$ 10,267,605	\$ 7,244,857	\$ 4,703,246
Teacher	21,351,971	14,552,625	8,928,708
Political Subdivisions	7,398,382	4,215,226	1,566,474
Total Virginia Retirement System	\$ 39,017,958	\$ 26,012,708	\$ 15,198,428
State Police Officers' Retirement System	506,547	360,496	237,673
Virginia Law Officers' Retirement System	1,073,240	781,881	541,239
Judicial Retirement System	199,907	138,014	84,168
Grand Total	\$ 40,797,652	\$ 27,293,099	\$ 16,061,508

3. Other Employee and Post-Employment Benefit Plans (OPEBs)

A. PLAN DESCRIPTIONS

The System administers other employee and post-employment benefit plans for active, deferred and retired members of VRS, SPORS, VaLORS and JRS. These plans are the Group Life Insurance Program, the Retiree Health Insurance Credit Program, the Virginia Sickness and Disability Program (VSDP) and the Virginia Local Disability Program (VLDP). The System also handles the administration of the Line of Duty Act Fund.

Contributions and payments for other employee benefit plans for active members occur on a current basis; therefore, the System does not record the net position of these plans and is not required to report their funding progress and employer contributions. However, the System does record plan net position and reports funding progress and employer contributions for post-employment benefit plans. This information is provided in the Required Supplementary Schedules following the Notes to Financial Statements. Additional information also is presented in the Statistical Section.

1. Group Life Insurance Program. The Group Life Insurance Program is a cost-sharing, multiple-employer plan. Members whose employers participate in the Group Life Insurance Program are covered automatically under the Basic Group Life Insurance Program upon employment. They also are eligible to elect additional coverage for themselves as well as a spouse or dependent children through the Optional Group Life Insurance Program.

Participating employers and covered employees are required by Title 51.1 of the *Code of Virginia* (1950), as amended, to contribute to the cost of group life insurance benefits. Employers may assume employees' contributions. The premium contributions collected during members' active careers, less the amount required to cover current life insurance premiums and claims plus administrative and other expenses, are retained in the Group Life Insurance Advance Premium Deposit Reserve to fund the claims for eligible retired and deferred members. Approximately 343,505 active members and 208,644 retirees were covered under the Basic Group Life Insurance Program at June 30, 2020.

For members who elect optional group life insurance coverage, the insurer bills employers directly for the premiums. Employers deduct the premiums from members' paychecks and pay the premiums to the insurer. Premiums are based on members' ages and are approved by the Board of Trustees. Any differences and adjustments are settled between the employer and the insurer. Approximately 71,025 active members and 3,362 retirees were covered under the Optional Group Life Insurance Program at June 30, 2020.

2. Retiree Health Insurance Credit Program. The Retiree Health Insurance Credit Program is composed of a single-employer plan for state employees; a cost-sharing, multiple-employer plan for teachers; three cost-sharing, multiple-employer plans for constitutional officers, social services employees and registrars; and an agent, multiple-employer plan for political subdivisions electing coverage. It provides eligible retirees a tax-free

reimbursement for health insurance premiums for single coverage under qualifying health plans, including coverage under a spouse's plan, not to exceed the amount of the monthly premium or the maximum credit, whichever is less. Premiums for health plans covering specific conditions are ineligible for reimbursement. Employers are required by Title 51.1 of the *Code of Virginia* (1950), as amended, to contribute to the program. The amount is financed based on employer contribution rates determined by the System's actuary. Approximately 129,855 retirees were covered under the Health Insurance Credit program at June 30, 2020.

3. Virginia Sickness and Disability Program. The Virginia Sickness and Disability Program (VSDP) is a single-employer plan. It provides state employees with sick, family and personal leave, and short-term and long-term disability benefits. State agencies are required by Title 51.1 of the *Code of Virginia* (1950), as amended, to contribute to the cost of providing long-term disability benefits and administering the program. Approximately 80,166 members were covered under VSDP at June 30, 2020, and approximately 2,488 former members were receiving benefits from the program during the fiscal year.

4. Virginia Local Disability Program. The Virginia Local Disability Program (VLDP) is composed of two multiple-employer cost-sharing pools, one for teachers and one for employees of political subdivisions. It provides eligible employees with short-term and long-term disability benefits. Local government employers are required by Title 51.1 of the *Code of Virginia* (1950), as amended, to provide long-term disability benefits for their Hybrid employees, either through a local plan or through VLDP. Approximately 24,117 members were covered under VLDP at June 30, 2020, and 48 former members received benefits from the program during the fiscal year.

5. Commonwealth of Virginia (COV) Voluntary Group Long Term Care Insurance Program. The COV Voluntary Group Long Term Care Insurance Program is a participant-paid long-term care

insurance program for eligible VRS members, retirees and family members. The program provides a maximum monthly allowance for covered long-term care expenses such as nursing home care, adult day care, in-home care or assistance with other activities of daily living. Approximately 14,727 members, retirees and their eligible family members were covered under the program at June 30, 2020.

6. Line of Duty Act Program. The Line of Duty Act Program is a cost-sharing, multiple-employer plan. It provides death and health insurance reimbursement benefits to eligible state employees and local government employees, including volunteers, who

die or become disabled as a result of the performance of their duties as public safety officers. Beginning July 1, 2017, the System was responsible for the program and for managing the assets of the employers participating in the program. Participating employers made contributions to the program beginning in fiscal year 2012. The employer contribution rate was determined by the System's actuary using the anticipated program costs and the number of covered individuals associated with all participating employers. Provisions for other employee benefit and post-employment benefit plans are presented in Figure 2.12.

SCHEDULE OF PARTICIPATING EMPLOYERS: OTHER POST-EMPLOYMENT BENEFIT (OPEB) PLANS

AT JUNE 30, 2020

OPEB Plan	Number of Participating Employers			Total
	State	Teachers	Political Subdivisions	
Group Life Insurance	230	144	549*	923
Retiree Health Insurance Credit	230	144	139*	513
Disability Insurance Trust Fund	230	—	—	230
Virginia Local Disability Program	—	35	198*	233
Line of Duty Act Trust Fund	69	—	62	131

* Also includes school division non-professional employees, as applicable.

FIGURE 2.12: OTHER EMPLOYEE BENEFIT AND POST-EMPLOYMENT BENEFIT PLAN PROVISIONS

AS ESTABLISHED BY TITLE 51.1 OF THE *CODE OF VIRGINIA* (1950), AS AMENDED

	Eligible Employees	Coverage
<p>VRS Group Life Insurance Program: Basic Coverage</p>	<p>The VRS Group Life Insurance Program was established July 1, 1960, for state employees, teachers and employees of political subdivisions that elect the program, including the following employers that do not participate in VRS for retirement: City of Richmond, City of Portsmouth, City of Roanoke, City of Norfolk and Roanoke City School Board.</p> <p>Basic group life insurance coverage is automatic upon employment. Coverage ends for employees who leave their position before retirement eligibility or who take a refund of their member contributions and accrued interest.</p>	<ul style="list-style-type: none"> • Natural death benefit equal to the employee’s compensation rounded to the next highest thousand and then doubled. • Accidental death benefit, which is double the natural death benefit. • Accidental dismemberment benefit, safety belt benefit, repatriation benefit, felonious assault benefit and accelerated death benefit option. • Continuation of death benefit and accelerated death benefit option for employees who retire or who have met the age and service requirements for retirement upon separation from employment. <p>Coverage begins to reduce by 25% on the January 1 following one calendar year after employment ends and reduces by 25% each January 1 until it reaches 25% of its original value.</p> <p>If a member has at least 30 years of service credit, coverage cannot reduce below \$8,463. This minimum will be increased annually based on the VRS Plan 2 cost-of-living adjustment calculation. The member may end employment and defer retirement until a later date; however, the group life insurance will begin reducing based on the last month of employment.</p>
<p>Optional Group Life Insurance Program</p>	<p>Employees covered under the VRS Group Life Insurance Program are eligible to elect additional coverage for themselves as well as a spouse or dependent children through the Optional Group Life Insurance Program. Employees pay the premiums through payroll deduction. Spousal coverage ends if the employee’s coverage ends or the couple divorce. Coverage for dependent children ends if the employee’s coverage ends or when the children marry, become self-supporting, reach age 21 or reach age 25 as a dependent attending college full time.</p> <p>Coverage continues for dependent unmarried children who are disabled. Employees who meet qualifications for retirement may continue a portion of their coverage upon leaving employment.</p>	<p>The program provides natural death and accidental death or dismemberment coverage:</p> <ul style="list-style-type: none"> • Employees select one, two, three or four times their compensation, not to exceed \$800,000. • Spouses may be covered for up to half the maximum amount of the employees’ coverage, not to exceed \$400,000. Dependent children who are at least 15 days old may be covered for \$10,000, \$20,000 or \$30,000, depending on the option employees select. • Accidental death and dismemberment coverage ends upon retirement. A retired employee may elect within 31 days of the last day of the month in which he or she leaves employment to continue optional life coverage provided he or she has 60 months of coverage prior to leaving service. As a retiree, the participant can elect either one or two times his or her compensation, not to exceed \$300,000 or the amount of coverage in place when the employee left service. • Coverage begins to reduce beginning with the retiree’s normal retirement age under his or her plan and all coverage ends at age 80. Upon retirement, spouse coverage can continue at one-half the amount of the retiree’s coverage and dependent coverage can continue at the same level previously covered prior to retirement. Premiums for coverage are at the same rates as active employees. If the retiree previously had coverage exceeding \$300,000, he or she can elect to convert the excess over this amount to an individual policy with individual rates. • If an employee terminates with fewer than 60 months of optional life coverage, he or she may convert the policy and any spouse and/or dependent coverage to an individual policy (without evidence of insurability if done within 31 days of termination). However, it may be at higher premiums than those paid by active employees.

FIGURE 2.12: OTHER EMPLOYEE BENEFIT AND POST-EMPLOYMENT BENEFIT PLAN PROVISIONS, cont.

Retiree Health Insurance Credit Program The Retiree Health Insurance Credit Program was established January 1, 1990, for retired state employees covered under VRS, SPORS, VaLORS and JRS who retire with at least 15 years of service credit. The program was opened to teachers and eligible employees of participating political subdivisions on July 1, 1993. The health insurance credit is a tax-free reimbursement in an amount set by the General Assembly for each year of service credit against qualified health insurance premiums retirees pay for single coverage, excluding any portion covering a spouse or dependents. The credit cannot exceed the amount of the premiums and ends upon the retiree’s death.

Health Insurance Credit Dollar Amounts at Retirement

	Amount per Year of Service	Maximum Credit per Month**
State employees*	\$4.00	No Cap
Teachers and other professional school employees	\$4.00	No Cap
General registrars and their employees, constitutional officers and their employees, and local social service employees	\$1.50	\$45.00
General registrars and their employees, constitutional officers and their employees and local social service employees, if the political subdivision elects the \$1.00 enhancement	\$2.50	\$75.00
Other political subdivision employees as elected by the employer	\$1.50	\$45.00

Health Insurance Credit Dollar Amounts at Disability Retirement and for VSDP and VLDP Long-Term Disability

Employees who retire on disability or go on long-term disability under the Virginia Sickness and Disability Program (VSDP) or the Virginia Local Disability Program (VLDP) are eligible for the health insurance credit.***

Eligible Employees	Coverage
State employees other than state police officers	\$120 per month or \$4 per year of service credit per month, whichever is higher.
State police officers	Non-work-related disability: \$120 per month or \$4 per year of service credit per month, whichever is higher. Work-related disability: No health insurance credit for premiums qualified under the Virginia Line of Duty Act; may receive the credit for premiums paid for other qualified health plans.
Teachers and other professional school employees	Either (a) \$4 multiplied by twice the amount of service credit per month; or (b) \$4 multiplied by the amount of service earned had the employee been active until age 60 per month, whichever is lower.
Political subdivision employees as elected by the employer	\$45 per month. No health insurance credit premiums for premiums qualified under LODA. May receive the credit for premiums paid for other qualified health plans.

* For JRS employees, the calculation is based on weighted service.

** Not to exceed the individual premium amount.

*** Not to exceed the individual premium amount. Employees who retire from being on long-term disability under VSDP or VLDP must have at least 15 years of service credit to qualify for the health insurance credit as a retiree.

FIGURE 2.12: OTHER EMPLOYEE BENEFIT AND POST-EMPLOYMENT BENEFIT PLAN PROVISIONS, cont.

	Eligible Employees	Coverage
<p>Virginia Sickness and Disability Program (VSDP)</p>	<p>VSDP, also known as the Disability Insurance Trust Fund, was established January 1, 1999, to provide short-term and long-term disability benefits for non-work-related and work-related disabilities.</p> <p>Eligible employees are enrolled automatically upon employment. They include:</p> <ul style="list-style-type: none"> • Full-time and part-time permanent, salaried state employees covered under VRS, SPORS and VaLORS (members new to VaLORS following its creation on October 1, 1999, have been enrolled since the inception of VSDP). • State employees hired before January 1, 1999, who elected to transfer to VSDP rather than retain their eligibility to be considered for VRS disability retirement. 	<ul style="list-style-type: none"> • Sick, family and personal leave. • Short-term disability benefit beginning after a seven-calendar-day waiting period from the first day of disability. The benefit provides income replacement beginning at 100% of the employee’s pre-disability income, reducing to 80% and then 60%. • Long-term disability benefit beginning after 125 workdays of short-term disability and continuing until the employee reaches his or her normal retirement age. The benefit provides income replacement of 60% of the employee’s pre-disability income. If an employee becomes disabled within five years of his or her normal retirement age, the employee will receive up to five years of VSDP benefits, provided he or she remains medically eligible. • Income replacement adjustment to 80% for catastrophic conditions. • VSDP Long-Term Care Plan, a self-funded program that assists with the cost of covered long-term care services.

Notes:

- Employees hired or rehired on or after July 1, 2009, must satisfy eligibility periods before becoming eligible for non-work-related short-term disability coverage and certain income-replacement levels.
- A state employee who is approved for VSDP benefits on or after the date that is five years prior to his or her normal retirement date is eligible for five years of VSDP benefits.
- Employees on work-related short-term disability receiving only a workers’ compensation payment may be eligible to purchase service credit for this period if retirement contributions are not being withheld from the workers’ compensation payment. The rate will be based on 5.00% of the employee’s compensation.
- Public college and university faculty members who elect the VRS defined benefit plan. They may participate in VSDP or their institution’s disability program, if offered. If the institution does not offer the program or the faculty member does not make an election, he or she is enrolled in VSDP.

FIGURE 2.12: OTHER EMPLOYEE BENEFIT AND POST-EMPLOYMENT BENEFIT PLAN PROVISIONS, cont.

	Eligible Employees	Coverage
Virginia Local Disability Program (VLDP)	<p>VLDP was implemented January 1, 2014, to provide short-term and long-term disability benefits for non-work-related and work-related disabilities. Eligible employees are enrolled automatically upon employment, unless their employer has elected to provide comparable coverage. Eligible employees include:</p> <ul style="list-style-type: none"> • Teacher or other professional employee of a local public school division. • General employee of a VRS-participating political subdivision such as a city, county, town, authority or commission. • Local law enforcement officer, firefighter or emergency medical technician if the employer does not provide enhanced hazardous duty benefits. 	<p>Short-term disability benefit beginning after a seven-calendar day waiting period from the first day of disability. Employees become eligible for non-work-related short-term disability coverage after one year of continuous participation in VLDP with their current employer.</p> <ul style="list-style-type: none"> • Eligibility for work-related short-term disability coverage begins upon employment. • During the first five years of continuous participation in VLDP with their current employer, employees are eligible for 60% of their pre-disability income if they go on non-work-related or work-related short-term disability. • Once the eligibility period is satisfied, employees are eligible for higher income-replacement levels. • VLDP long-term benefit beginning after 125 workdays of short-term disability. Members are eligible if they are unable to work at all or are working fewer than 20 hours a week. • Members approved for long-term disability will receive 60% of their pre-disability income. If approved for work-related long-term disability, the VLDP benefit will be offset by the workers' compensation benefit. Members will not receive a VLDP benefit if their workers' compensation is greater than the VLDP benefit amount. • Members approved for short-term or long-term disability at age 60 or older will be eligible for a benefit, provided they remain medically eligible. • VLDP Long-Term Care Plan, a self-funded program that assists with the cost of covered long-term care services.
Commonwealth of Virginia (COV) Voluntary Group Long Term Care Insurance Program	<p>The following members and retirees between the ages of 18 and 75 are eligible to apply:</p> <ul style="list-style-type: none"> • State employees and public college and university faculty members. • Employees of school divisions and political subdivisions whose employers have elected to participate in the program (VRS membership is not required). • Vested deferred members (their employers are not required to have elected the program). • Retirees receiving a VRS-administered benefit. • Retirees of Virginia public colleges and universities. • Select family members of eligible members. 	<p>The program provides assistance with covered long-term care expenses at group rates. Active members pay the premiums for themselves and any covered family members through payroll deduction or directly to Genworth Life Insurance Company, the insurer, provided the employer has arranged for payroll deductions with Genworth Life. All other participants pay the premiums directly to Genworth.</p>

FIGURE 2.12: OTHER EMPLOYEE BENEFIT AND POST-EMPLOYMENT BENEFIT PLAN PROVISIONS, cont.

	Eligible Employees	Coverage
Line of Duty Act (LODA) Program	Paid employees and volunteers in hazardous duty positions in Virginia localities, including hazardous duty employees covered under VRS, SPORS and VaLORS.	<p>Coverage provides death and health insurance benefits. The LODA death benefit is a one-time payment made to the beneficiary or beneficiaries.</p> <p>Amounts vary as follows:</p> <ul style="list-style-type: none"> • \$100,000 when a death occurs as the direct or proximate result of performing duty as of January 1, 2006, or after • \$25,000 when the cause of death is attributed to one of the applicable presumptions and occurred earlier than five years after the retirement date • An additional \$20,000 benefit is payable when certain members of the National Guard and U.S. military reserves are killed in action in any armed conflict on or after October 7, 2001 <p>The System is responsible for managing the assets of the Line of Duty Act Fund.</p>
Cost-of-Living Adjustments (COLA) for OPEB Plans	<ul style="list-style-type: none"> • VRS Group Life Insurance Program, Basic Coverage: If a member has at least 30 years of service credit, coverage cannot reduce below an \$8,000 minimum established in 2015. This minimum will be increased annually based on the VRS Plan 2 COLA calculation. • Optional Group Life Insurance: The actuary reviews the maximum coverage levels every five years for possible increases. • Virginia Local Disability Program (VLDP): For participating members taking a service retirement immediately when their period of long-term disability ends, the COLA may be increased annually by an amount recommended by the actuary and approved by the board, from the date of the commencement of the disability to the date of retirement. • Virginia Sickness and Disability Program (VSDP): <ul style="list-style-type: none"> ◦ During periods an employee receives long-term disability benefits, the COLA may be increased annually by an amount recommended by the actuary and approved by the Board. ◦ For participating full-time employees taking a service retirement, the COLA may be increased annually by an amount recommended by the actuary and approved by the Board, from the date of the commencement of the disability to the date of retirement. ◦ For participating full-time employees receiving supplemental (work-related) disability benefits, the COLA may be increased annually by an amount recommended by the actuary and approved by the Board, from the date of the commencement of the disability to the date of retirement. 	

B. EMPLOYERS’ NET OPEB LIABILITY – OTHER POST-EMPLOYMENT BENEFIT PLANS

The most recent actuarial valuation to determine the net OPEB liabilities for the OPEB plans was prepared as of June 30, 2020. The total OPEB liability was determined based on an actuarial valuation as of June 30, 2019, using updated actuarial assumptions, applied to all periods

included in the measurement and rolled forward to the measurement date of June 30, 2020.

Actuarial methods and assumptions for the OPEB plans are presented in the Actuarial Section. The following schedule presents selected information as of the latest actuarial valuation:

SCHEDULE OF EMPLOYERS' NET OPEB LIABILITY BY PROGRAM AND PLAN

AS OF JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Employers' Net OPEB Liability/ (Asset) (a-b)	Plan Fiduciary Net OPEB as a % of the Total OPEB Liability (b/a)	Covered Payroll (c)	Net OPEB Liability/(Asset) as a % of the Covered Payroll (a-b)/(c)
Group Life Insurance Fund	\$ 3,523,937	\$ 1,855,102	\$ 1,668,835	52.64%	\$ 20,612,888	8.10%
Health Insurance Credit Fund:						
State	1,043,382	125,378	918,004	12.02%	7,237,090	12.68%
Teacher	1,448,675	144,161	1,304,514	9.95%	8,766,759	14.88%
Political Subdivisions*	77,490	24,466	53,024	31.57%	1,477,727	3.59%
Constitutional Officers	32,405	5,112	27,293	15.78%	719,390	3.79%
Social Services Employees	14,815	1,935	12,880	13.06%	298,257	4.32%
Registrars	595	126	469	21.18%	12,745	3.68%
Total Health Insurance Credit	2,617,362	301,178	2,316,184		18,511,968	
Disability Insurance Trust Fund	269,531	490,220	(220,689)	181.88%	4,365,296	(5.06%)
Virginia Local Disability Program:						
Teacher	3,687	2,886	801	78.28%	591,499	0.14%
Political Subdivisions	4,317	3,317	1,000	76.84%	372,635	0.27%
Total Virginia Local Disability Program	8,004	6,203	1,801		964,134	
Line of Duty Act Trust Fund	423,147	4,333	418,814	1.02%	**	N/A
Grand Total	\$ 6,841,981	\$ 2,657,036	\$ 4,184,945		\$ 44,454,286	

* Political subdivision data is from the consolidated report provided by Cavanaugh Macdonald Consulting LLC.

** Contributions into the Line of Duty Act Trust Fund are based on the number of participants in the program using a per capita-based contribution versus a payroll-based contribution.

**SCHEDULE OF ACTUARIAL METHODS AND SIGNIFICANT ASSUMPTIONS:
OTHER POST-EMPLOYMENT BENEFIT (OPEB) PLANS**

	Group Life Insurance Fund	Retiree Health Insurance Credit Fund	Disability Insurance Trust Fund	Line of Duty Act Trust Fund	Virginia Local Disability Program
Valuation Date	June 30, 2019	June 30, 2019	June 30, 2019	June 30, 2019	June 30, 2019
Actuarial Cost Method	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal
Amortization Method	Level Percent of Pay, Closed	Level Percent of Pay, Closed	Level Percent of Pay, Closed	Level Percent of Pay, Open	Level Percent of Pay, Closed
Payroll Growth Rate:					
State Employees	3.00%	3.00%	3.00%	3.00%	N/A
Teachers	3.00%	3.00%	N/A	N/A	3.00%
Political Subdivision Employees	3.00%	3.00%	N/A	3.00%	3.00%
State Police and Virginia Law Officers	3.00%	3.00%	3.00%	3.00%	N/A
Judges	3.00%	3.00%	N/A	N/A	N/A
Asset Valuation Method					
State Employees and Teachers	5-Year, Smoothed Market	5-Year, Smoothed Market	5-Year, Smoothed Market	Market Value	5-Year, Smoothed Market
Political Subdivision Employees and State-Funded Local Employees	5-Year, Smoothed Market	Market Value	N/A	Market Value	5-Year, Smoothed Market
Actuarial Assumptions					
Investment Rate of Return*	6.75%	6.75%	6.75%	4.75%	6.75%
Projected Salary Increases:**					
State Employees	3.50% to 5.35%	3.50% to 5.35%	3.50% to 5.35%	N/A	N/A
Teachers	3.50% to 5.95%	3.50% to 5.95%	N/A	N/A	3.50% to 5.95%
Political Subdivision Non-Hazardous Duty Employees	3.50% to 5.35%	3.50% to 5.35%	N/A	N/A	3.50% to 5.35%
Political Subdivision Hazardous Duty Employees	3.50% to 4.75%	3.50% to 4.75%	N/A	N/A	N/A
State Police and Virginia Law Officers	3.50% to 4.75%	3.50% to 4.75%	3.50% to 4.75%	N/A	N/A
Judges	4.50%	4.50%	N/A	N/A	N/A
Medical Trend Assumptions (Under Age 65)	N/A	N/A	N/A	7.00% to 4.75%	N/A
Medical Trend Assumptions (Age 65 and Older)	N/A	N/A	N/A	5.375% to 4.75%	N/A
Year of Ultimate Trend Rate					
Post-65	N/A	N/A	N/A	2023	N/A
Pre-65	N/A	N/A	N/A	2028	N/A

* Includes inflation at 2.50%. The Line of Duty Act Program uses 4.75% for the investment rate of return.

** Projected salary increases for the Retiree Health Insurance Credit Fund are used in the application of the actuarial cost method. Projected salary increase factors are not applicable to the Line of Duty Act Program since neither the benefit nor the cost is salary-based.

C. CHANGES IN DISCOUNT RATE

The discount rate used to measure the total OPEB liability was 6.75% for the prefunded plans. These include the Group Life Insurance Program, the Retiree Health Insurance Program, the Disability Insurance Program and the Virginia Local Disability Program. The projection of cash flows used to determine the discount rate assumed that contributions from participating employers will be based on the actuarially determined rates based on the Board's funding policy, which certifies the required rates under Title 51.1 of the *Code of Virginia* (1950), as amended. Based on those assumptions, the fiduciary net position was projected to be available to make all of the projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of the projected benefit payments to determine the total OPEB liability.

In accordance with GASB Statement No. 74, regarding the disclosure of the sensitivity of the net pension liability to changes in the discount rate, the table below presents the employers' net pension liability for each of the plans calculated using the discount rate of 6.75%, as well as what the employers' net pension liability would be if it were calculated using a discount rate that is 1.00% lower (5.75%) or 1.00% higher (7.75%) than the current rate. The Line of Duty Act Program is funded on a pay-as-you-go basis. As a result, the liabilities are valued using a discount rate of 2.21%, which approximates the risk-free rate of return. This Single Equivalent Interest Rate (SEIR) is the applicable municipal bond index rate based on the Bond Buyer General Obligation 20-year Municipal Bond Index published monthly by the Board of Governors of the Federal Reserve System as of the measurement date of June 30, 2020.

SCHEDULE OF IMPACT OF CHANGES IN DISCOUNT RATE: LINE OF DUTY ACT (LODA) PLAN

AS OF JUNE 30, 2020			
	1.00% Decrease	Current Discount Rate	1.00% Increase
System/Plan	1.21%	2.21%	3.21%
Net LODA OPEB Liability	\$497,128	\$418,814	\$359,785

SCHEDULE OF IMPACT OF CHANGES IN HEALTH CARE TREND RATE: LODA PLAN

AS OF JUNE 30, 2020			
	1.00% Decrease	Health Care Cost Trend Rates	1.00% Increase
System/Plan	(6.00% decreasing to 3.75%)	(7.00% decreasing to 4.75%)	(8.00% decreasing to 5.75%)
Net LODA OPEB Liability	\$346,165	\$418,814	\$513,842

SCHEDULE OF IMPACT OF CHANGES IN DISCOUNT RATE: NON-LODA OPEB PLANS

AS OF JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

System/Plan	Net OPEB Liability		
	1.00% Decrease (5.75%)	Current Discount Rate (6.75%)	1.00% Increase (7.75%)
Group Life Insurance Fund	\$ 2,193,813	\$ 1,668,835	\$ 1,242,506
Health Insurance Credit Fund:			
State	1,017,245	918,004	832,612
Teacher	1,460,270	1,304,514	1,172,137
Political Subdivisions	61,093	53,024	46,059
Constitutional Officers	30,755	27,293	24,354
Social Services Employees	14,322	12,880	11,650
Registrars	522	469	422
Total Health Insurance Credit	2,584,207	2,316,184	2,087,234
Disability Insurance Trust Fund	(201,354)	(220,689)	(238,044)
Virginia Local Disability Program:			
Teacher	1,249	800	417
Political Subdivisions	1,339	1000	702
Total Virginia Local Disability Program	2,588	1,800	1,119
Grand Total	\$ 4,579,254	\$ 3,766,130	\$ 3,092,815

4. Reserve Accounts

The reserve account balances available for benefits at June 30, 2020 and 2019, are presented in Figure 2.13. These funds are required by Titles 51.1 and 2.2 of the *Code of Virginia* (1950), as amended, to provide for the payment of current and future benefits as follows:

- Member and employer contributions and investment income fund the member and employer reserves. Each member has a member contribution account that accumulates member contributions plus annual interest of 4.00% calculated on the balance as of the previous June 30. Each employer has a retirement allowance account that accumulates employer contributions, transfers of investment income less administrative expenses incurred in operating the retirement plans and transfers of member contributions and accrued interest upon a member's retirement. Benefit payments are charged to employers' retirement allowance accounts.
- The Group Life Insurance Advance Premium Deposit Reserve accumulates a portion of insurance premium contributions collected during members' active careers and their investment earnings, and is charged for life insurance benefits paid and expenses incurred in operating the Group Life Insurance Program.
- Employer contributions and investment income fund the Retiree Health Insurance Credit Reserve. It is charged for credit reimbursements applied to the monthly health insurance premiums of eligible retired members and expenses incurred in operating the Retiree Health Insurance Credit Program.
- Employer contributions and investment income fund the Disability Insurance Trust Fund. It is charged for long-term disability benefits and expenses incurred in operating the Virginia Sickness and Disability Program (VSDP).
- Employer contributions and investment income fund the Line of Duty Act Trust Fund. It is charged for Line of Duty Act death and health insurance benefits and expenses incurred in operating the Line of Duty Act Program.
- Employer contributions and investment income fund the Local Disability Insurance Trust Fund. It is charged for long-term disability benefits and expenses incurred in operating the Virginia Local Disability Program (VLDP).

FIGURE 2.13: NET POSITION RESTRICTED FOR BENEFITS

AT JUNE 30 (EXPRESSED IN THOUSANDS)

	2020	2019
Virginia Retirement System		
Member Reserve	\$ 14,082,163	\$ 13,613,905
Employer Reserve	62,371,224	63,258,006
Total VRS	76,453,387	76,871,911
State Police Officers' Retirement System		
Member Reserve	109,787	105,943
Employer Reserve	744,975	759,330
Total SPORS	854,762	865,273
Virginia Law Officers' Retirement System		
Member Reserve	250,900	244,233
Employer Reserve	1,249,569	1,251,757
Total VaLORS	1,500,469	1,495,990
Judicial Retirement System		
Member Reserve	42,320	42,660
Employer Reserve	507,135	514,881
Total JRS	549,455	557,541
Group Life Insurance Advance Premium Deposit Reserve	1,855,102	1,762,972
Retiree Health Insurance Credit Reserve	301,178	269,346
Disability Insurance Trust Fund (VSDP)	490,220	488,241
Line of Duty Act Trust Fund	4,333	2,840
Disability Insurance Trust Fund (VLDP)	6,204	3,623
VRS Investment Portfolio DC Plans	45,466	45,380
Commonwealth Health Research Fund	39,633	40,481
Volunteer Firefighters' and Rescue Squad Workers Service Award Fund	4,180	4,147
Commonwealth's Attorneys Training Fund	21,071	21,537
Total Pension and Other Employee Benefit Reserves	\$ 82,125,460	\$ 82,429,282

5. Deposits and Investment Risk Disclosures

A. DEPOSITS

Deposits of the System maintained by the Treasurer of Virginia at June 30, 2020 and 2019, as shown in Figure 2.14, were partially insured under the Virginia Security for Public Deposits Act, Section 2.2-4400 et seq. of the *Code of Virginia* (1950), as amended, which provides for an assessable, multiple financial institution collateral pool. The remainder of the funds held by the Treasurer of Virginia for the System are invested in accordance with its policy to invest public funds in a manner which will provide the highest investment return with the maximum security while meeting the daily cash flow demands of the entity and conforming to all statutes governing the investment of public funds. Deposits with the System's master custodian, BNY Mellon, were entirely insured by federal depository insurance coverage. Other reflects cash temporarily invested in a Money Market account at Wells Fargo Bank, N.A. for the Volunteer Firefighters' and Rescue Squad Workers' Service Award Fund (VolSAP).

FIGURE 2.14: DEPOSITS

AT JUNE 30 (EXPRESSED IN THOUSANDS)

	2020 Carrying Amount	2019 Carrying Amount
Treasurer of Virginia	\$ 58,746	\$ 45,732
Master Custodian	8,581	74,743
Other	33	134
Total Deposits	\$ 67,360	\$ 120,609

B. INVESTMENTS

1. Authorized Investments. The Board of Trustees of the System has full power to invest and reinvest the trust funds in accordance with Section 51.1-124.30 of the *Code of Virginia* (1950), as amended. This section requires the Board to discharge its duties solely in the interests of members, retirees and beneficiaries. It also requires the Board to invest the assets with the care, skill, prudence and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims.

Investment value and earnings of the investment pool are proportionally allocated among the System's trust and custodial funds on the basis of each fund's equity interest in the common investment pool. An Investment Summary is included in the Investment Section. The equity interest of each fund as of June 30, 2020 and 2019, is presented in Figure 2.15.

FIGURE 2.15: EQUITY INTERESTS

AT JUNE 30

Fund	2020	2019
Virginia Retirement System	93.038%	93.213%
State Police Officers' Retirement System	1.043%	1.052%
Virginia Law Officers' Retirement System	1.829%	1.817%
Judicial Retirement System	0.670%	0.678%
Group Life Insurance Fund	2.326%	2.193%
Retiree Health Insurance Credit Fund	0.363%	0.323%
Disability Insurance Trust Fund (VSDP)	0.585%	0.582%
Line of Duty Act Trust Fund	0.005%	0.003%
Virginia Local Disability Program	0.007%	0.004%
VRS Investment Portfolio	0.055%	0.055%
Commonwealth Health Research Fund	0.048%	0.049%
Volunteer Firefighters' and Rescue Squad Workers Service Award Fund	0.005%	0.005%
Commonwealth's Attorneys Training Fund	0.026%	0.026%
Total Equity Interests	100.000%	100.000%

2. Fair Value Measurements. The System categorizes the fair value measurements within the hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements).

The System's master custodian uses a proprietary matrix based on asset class as the basis for the Fair Value Hierarchy, which utilizes industry standard asset categories to assign a fair value level to each investment.

Level 1: Unadjusted quoted prices for identical instruments in active markets.

Level 2: Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-driven valuations in which all significant inputs are observable.

Level 3: Valuations derived from valuation techniques in which significant inputs are unobservable.

Investments that are measured at fair value using the net asset value (NAV) per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy. Cash equivalents and certain other short-term, highly liquid investments that are measured at amortized cost, as described in Note 1F(1) Investment Valuation, are also not classified in the fair value hierarchy.

In instances where inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant in the valuation. The System's assessment of significant particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability. Figure 2.16 shows the fair value leveling of the investments for the System and the following recurring fair value measurements as of June 30, 2020, and June 30, 2019.

FIGURE 2.16: INVESTMENTS AND DERIVATIVE INSTRUMENTS MEASURED AT FAIR VALUE

AS OF JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	6/30/2020	Fair Value Measurements Using		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments by Fair Value Level:				
Debt Securities:				
U.S. Government Securities	\$ 2,577,712	\$ 1,401,243	\$ 1,176,469	\$ —
Agencies	2,950,717	—	2,950,717	—
Municipal Securities	105,037	—	105,037	—
Supranational and Non-U.S. Government Bonds	1,076,161	—	1,076,161	—
Asset-Backed Securities	968,617	—	968,617	—
Collateralized Mortgage Obligations	523,227	—	523,227	—
Commercial Mortgages	500,487	—	500,487	—
Corporate and Other Bonds	8,081,029	—	8,081,029	—
Fixed-Income Commingled Funds	19,651	—	—	19,651
Mutual and Money Market Funds	246,837	246,837	—	—
Negotiable Certificates of Deposit	175,109	—	175,109	—
Other Debt Securities	20,568	—	—	20,568
Total Debt Securities	17,245,152	1,648,080	15,556,853	40,219
Equity Securities:				
Common and Preferred Stocks	22,842,164	22,819,038	22,022	1,104
Total Equity Securities	22,842,164	22,819,038	22,022	1,104
Hedge Funds	30,001	—	—	30,001
Credit Strategies Funds	15	—	—	15
Private Equity Funds	3,476	—	—	3,476
Real Estate and Real Asset Funds	953,221	—	—	953,221
Total Investments by Fair Value Level	\$41,074,029	\$ 24,467,118	\$ 15,578,875	\$ 1,028,036
Investments Measured at the Net Asset Value (NAV):				
Hedge Funds	\$ 7,973,661			
Credit Strategies Funds	7,988,917			
Private Equity Funds	10,705,671			
Equity International Commingled Funds	2,117,346			
Fixed-Income Commingled Funds	1,357,513			
Real Estate and Real Asset Funds	8,978,409			
U.S. Equity Commingled Funds	109,863			
Total Investments Measured at the NAV	39,231,380			
Total Investments Measured at Fair Value	\$80,305,409			
Investment Derivative Instruments:				
Foreign Currency Forwards	\$ 16,671	\$ —	\$ 16,671	
Futures Contracts	10,827	10,827	—	
Credit Default Swaps	1,162	—	1,162	
Inflation Swaps	288	—	288	
Interest Rate Swaps	67	—	67	
Total Return Swaps	134,194	—	134,194	
Total Investment Derivative Instruments	\$ 163,209	\$ 10,827	\$ 152,382	

FIGURE 2.16: INVESTMENTS AND DERIVATIVE INSTRUMENTS MEASURED AT FAIR VALUE, cont.

AS OF JUNE 30, 2019

(EXPRESSED IN THOUSANDS)

	6/30/2019	Fair Value Measurements Using		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments by Fair Value Level:				
Debt Securities:				
U.S. Government Securities	\$ 4,102,838	\$ 3,359,846	\$ 742,992	\$ —
Agencies	3,540,542	—	3,540,542	—
Municipal Securities	138,049	—	138,049	—
Supranational and Non-U.S. Government Bonds	2,136,551	—	2,136,551	—
Asset-Backed Securities	924,392	—	924,392	—
Collateralized Mortgage Obligations	415,354	—	415,354	—
Commercial Mortgages	441,271	—	441,271	—
Corporate and Other Bonds	7,505,553	—	7,505,553	—
Fixed-Income Commingled Funds	20,323	—	—	20,323
Mutual and Money Market Funds	168,196	168,196	—	—
Negotiable Certificates of Deposit	107,746	—	107,746	—
Total Debt Securities	19,500,815	3,528,042	15,952,450	20,323
Equity Securities:				
Common and Preferred Stocks	24,697,438	24,588,461	107,770	1,207
Total Equity Securities	24,697,438	24,588,461	107,770	1,207
Hedge Funds	26,229	—	—	26,229
Credit Strategies Funds	84	—	—	84
Private Equity Funds	4,059	—	—	4,059
Equity International Commingled Funds	—	—	—	—
Real Estate and Real Asset Funds	823,559	—	—	823,559
Total Investments by Fair Value Level	\$45,052,184	\$ 28,116,503	\$ 16,060,220	\$ 875,461
Investments Measured at the Net Asset Value (NAV):				
Hedge Funds	8,835,794			
Credit Strategies Funds	5,558,089			
Private Equity Funds	9,521,407			
Equity International Commingled Funds	2,080,203			
Fixed-Income Commingled Funds	1,322,090			
Real Estate and Real Asset Funds	9,053,640			
U.S. Equity Commingled Funds	127,270			
Total Investments Measured at the NAV	36,498,493			
Total Investments Measured at Fair Value	\$81,550,677			
Investment Derivative Instruments:				
Foreign Currency Forwards	\$ 6,242	\$ —	\$ 6,242	
Foreign Currency Options	(59)	—	(59)	
Foreign Currency Swaps	3,099	—	3,099	
Swaptions	(3)	—	(3)	
Futures Contracts	26,197	26,197	—	
Credit Default Swaps	1,600	—	1,600	
Interest Rate Swaps	4,049	—	4,049	
Total Return Swaps	7,649	—	7,649	
Total Investment Derivative Instruments	\$ 48,774	\$ 26,197	\$ 22,577	

Description of Investments Measured at Fair Value

Equity and debt securities classified in Level 1 are valued using quoted prices in active markets for those securities. Debt securities classified in Level 2 are valued using a proprietary matrix pricing technique. This pricing technique defines a primary source and secondary sources to be used if the primary pricing source does not provide a value. Typically, these securities are valued using bid evaluations. Valuation techniques may include market participants' assumptions, quoted prices for similar assets, benchmark yield curves, market corroborated inputs and other data inputs. Those classified in Level 3 are valued using proprietary information.

Equity securities in Level 2 are typically valued using quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; or model-driven valuations in which all significant inputs are observable. Equity securities in Level 3 include common and preferred equity securities, privately issued securities and other securities with limited trading volume and are valued using proprietary information or single source pricing.

Other investments in Level 3 include investments in hedge and commingled funds and private equity, credit strategies and real estate and real assets funds. These investments have been assigned a Level 3, as they are valued using unobservable inputs. When observable inputs are not available for these investments, one or more valuation techniques (e.g., the market approach, the income approach and/or the cost approach) are used for which sufficient and reliable data is available. Within Level 3, the use of the market approach generally consists of using comparable market transactions or other data, while

the use of the income approach generally consists of the net present value of estimated future cash flows. The cost approach is often based on the amount that would currently be required to replace an asset with one of comparable utility. In particular, the System has an investment in a real estate multi-family housing development company that is employing the cost approach by using the cumulative cost of construction in progress as a proxy for fair value.

The System also has investments in hedge and commingled funds and private equity, credit strategies and real estate and real assets funds that are not categorized under the fair value hierarchy and are shown at net asset value (NAV). Investments at NAV are commonly calculated by subtracting the fair value of liabilities from the fair value of assets. In some cases, the actual NAV has not been determined by the external fund or investment managers as of the System's reporting date and must be projected using a roll-forward process. The projected NAV is the value at the end of the prior quarter, adjusted for any contributions or distributions and an estimate of income and management fees. There is no adjustment for realized or unrealized gains and losses. These investments are discussed below in "Description of Investments Measured at the NAV."

Derivative instruments classified as Level 1 of the Fair Value Hierarchy are valued using prices quoted in active markets for those securities. The derivative instruments in Level 1 consist of futures contracts on commodities, U.S. Treasury bonds and notes, non-U.S. government bonds, and U.S. and non-U.S. equity indexes. Derivative instruments classified as Level 2 are valued using a number of modeling approaches that take into account observable market levels, benchmark rates and foreign exchange rates.

FIGURE 2.17: INVESTMENTS MEASURED AT THE NAV

AS OF JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Fair Value	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Hedge Funds:				
Equity Long/Short Funds	\$ 4,290,933	\$ —	Quarterly, annually	45-90 days
Equity Long-Only Funds	1,861,278	—	Daily, quarterly, annually	14-90 days
Credit Funds	151,576	—	Quarterly, annually	45-90 days
Multi-Strategy Funds	1,669,874	—	Monthly, semi-annually	30-60 days
Total Hedge Funds	7,973,661	—		
Credit Strategies Funds:				
Bank Loan and Direct Lending Funds	3,280,914	1,666,702		
Distressed Debt Funds	847,694	851,468		
Mezzanine Debt Funds	578,705	769,242		
Multi-Strategy Funds	1,276,074	1,370,166		
Opportunistic Funds	1,979,611	380,532		
Other Funds	25,919	130,141		
Total Credit Strategies Funds	7,988,917	5,168,251		
Private Equity Funds:				
Buyout Funds	5,656,032	3,031,590		
Energy Funds	499,633	144,527		
Growth Funds	1,413,063	937,834		
International Buyout Funds	1,427,026	738,046		
Special Situations Funds	1,106,583	1,341,351		
Subordinated Debt Funds	129,060	199,516		
Turnaround Funds	419,538	365,823		
Venture Capital Funds	54,736	13,854		
Total Private Equity Funds	10,705,671	6,772,541		
Equity International Commingled Funds	2,117,346	—		
Fixed-Income Commingled Funds	1,357,513	—		
Real Estate and Real Asset Funds:				
Infrastructure Funds	1,757,561	800,134		
Natural Resources Funds	1,374,892	441,716		
Private Investment Real Estate Funds	5,662,183	774,743		
Private Real Estate Investment Trusts	183,773	—		
Total Real Estate and Real Asset Funds	8,978,409	2,016,593		
U.S. Equity Commingled Funds	109,863	—		
Total Investments Measured at the NAV	\$ 39,231,380	\$ 13,957,385		

FIGURE 2.17: INVESTMENTS MEASURED AT THE NAV, cont.

AS OF JUNE 30, 2019

(EXPRESSED IN THOUSANDS)

	Fair Value	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Hedge Funds:				
Equity Long/Short Funds	\$ 4,495,242	\$ —	Monthly, quarterly, semi-annually, annually	45-90 days
Equity Long-Only Funds	1,774,781	—	Daily, quarterly, annually	14-90 days
Credit Funds	765,672	—	Quarterly, annually	45-90 days
Multi-Strategy Funds	1,800,099	—	Monthly, quarterly, semi-annually	30-90 days
Total Hedge Funds	8,835,794	—		
Credit Strategies Funds:				
Bank Loan and Direct Lending Funds	1,846,954	1,397,660		
Distressed Debt Funds	695,018	636,531		
Mezzanine Debt Funds	429,050	465,024		
Multi-Strategy Funds	1,085,684	1,595,625		
Opportunistic Funds	1,501,383	232,487		
Total Credit Strategies Funds	5,558,089	4,327,327		
Private Equity Funds:				
Buyout Funds	5,023,821	2,590,662		
Energy Funds	701,245	255,246		
Growth Funds	1,055,431	751,653		
International Buyout Funds	1,200,400	810,058		
Special Situations Funds	935,717	862,472		
Subordinated Debt Funds	76,655	265,319		
Turnaround Funds	469,383	193,567		
Venture Capital Funds	58,755	15,754		
Total Private Equity Funds	9,521,407	5,744,731		
Equity International Commingled Funds	2,080,203	—		
Fixed-Income Commingled Funds	1,322,090	—		
Real Estate and Real Asset Funds:				
Infrastructure Funds	1,750,510	590,367		
Natural Resources Funds	1,328,116	551,870		
Private Investment Real Estate Funds	5,761,136	822,172		
Real Estate Investment Trusts	213,878	—		
Total Real Estate and Real Asset Funds	9,053,640	1,964,409		
U.S. Equity Commingled Funds	127,270	—		
Total Investments Measured at the NAV	\$ 36,498,493	\$ 12,036,467		

Description of Investments Measured at the NAV

Figure 2.17 presents the investments measured at the net asset value (NAV) per share (or its equivalent). Below are the valuation methods used for those investments:

HEDGE FUNDS:

- **Equity Long/Short Hedge Funds:** This type included investments in 10 hedge funds at June 30, 2020, and 11 hedge funds at June 30, 2019, which invest in global long and short equity positions. Management of each hedge fund has the ability to invest from value to growth strategies, from small to large capitalization stocks and may vary net exposure considerably. The fair values of the investments in this type have been determined using the NAV per share of the investments. Investments representing approximately 60% of the value of the investments in this type of fund cannot be redeemed because the investments include restrictions that do not allow redemption in the first 12 to 60 months after acquisition. The remaining restriction period for these investments was within 12 months at June 30, 2020.
- **Equity Long-Only Hedge Funds:** This type included an investment in four hedge funds at both June 30, 2020, and June 30, 2019, which invest in global long-only equity positions. These hedge funds are generally fully invested and only very occasionally may take short positions for hedging purposes. The fair value of the investment in this type has been determined using the NAV per share of the investments. Investments representing approximately 50% of the value of the investments in this type of fund cannot be redeemed because the investments include restrictions that do not allow redemption in the first 12 to 60 months after acquisition. The remaining restriction period for these investments was less than 12 months at June 30, 2020.
- **Credit Hedge Funds:** This type included investments in two hedge funds at both June 30, 2020, and June 30, 2019, which invest in event-driven, distressed and special situation credit opportunities. The fair values of the investments in this type have been determined using the NAV per share of the investments. At June 30, 2020, there were no restrictions preventing the redemption of any of the investments in this category during the next 12 months.
- **Multi-Strategy Hedge Funds:** This type included investments in six hedge funds at both June 30, 2020, and June 30, 2019, which invest in multiple asset classes, combining exposure to balance risks. Such exposure can include traditional and alternative investments. The fair values of the investments in this type have been determined using the NAV per share of the investments. Investments representing approximately 35% of the value of the investments in this type of fund cannot be redeemed because the investments include restrictions that do not allow redemption in the first 36 to 60 months after acquisition. The remaining restriction period for these investments was one to 12 months at June 30, 2020.
- **Credit Strategies Funds:** This type consists of many fund categories, including bank loan and direct lending funds, distressed debt funds, mezzanine debt funds, multi-strategy funds and opportunistic funds. The fair value of the investments in these funds have been determined using the NAV per share of the investments. The nature of the investments in this type is that distributions are received through the liquidation of the underlying assets in the fund. If these investments were held, it is expected that the underlying assets in the fund would be liquidated over three to five years.
- **Private Equity Funds:** This type consists of many fund categories including Venture Capital, Buyout, Subordinated Debt, Growth Capital,

Turnaround, Energy and Special Situations. The fair value of the investments in these funds have been determined using the NAV per share of the investments. The nature of the investments involves receiving distributions through liquidation of the underlying fund assets. It is expected that hold periods for the underlying fund assets will range from three to eight years.

- **Equity International Commingled Funds:** This type includes investments in eight institutional investment funds at June 30, 2020, which invest in international equities. These funds employ a variety of investment strategies in global developed and emerging markets. The fair values of the investments in these funds have been determined using the NAV per share of the investments. Redemptions can be made from these funds, given the appropriate notice, any regular trading day on the NYSE.
- **Fixed-Income Commingled Funds:** This type consists of nine institutional investment funds that invest in U.S. and multi-national fixed income markets. The fair values of the investments in these funds have been determined using the NAV per share of the investments.
- **U.S. Equity Commingled Funds:** This type includes investments in five institutional investment funds at June 30, 2020, which invest in domestic equities. These funds employ a variety of investment strategies in small-, mid-, and large-cap U.S. stocks. The fair values of the investments in these funds have been determined using the NAV per share of the investments. Redemptions can be made from these funds, given the appropriate notice, any regular trading day on the NYSE.

- **Real Assets:** This type includes investments in many fund categories including Private Investment Real Estate, Private Real Estate Investment Trusts, Infrastructure and Natural Resources. The fair value of the investments in these funds have been determined using the NAV per share of the investments. The nature of the investments in this type is that distributions are received through income as well as the liquidation of the underlying assets in the fund. If these investments were held, it is expected that the underlying assets of the funds would be liquidated over one to 14 years.

3. Interest Rate Risk. Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. The risk is managed within the portfolio using the effective duration (option-adjusted) methodology. It is widely used in the management of fixed-income portfolios in that it quantifies, to a much greater degree, the risk of interest rate changes. The methodology takes into account optionality on bonds and scales the risk of price changes on bonds depending on the degree of change in rates and the slope of the yield curve. All of the System's fixed-income portfolios are managed in accordance with investment guidelines, most of which are specific as to the degree of interest rate risk that can be taken.

As of June 30, 2020, the System's investments include securities that are highly sensitive to interest rate fluctuations, as they are subject to early payment in a period of declining interest rates (i.e., collateralized and mortgage pass-through). The resulting reduction in expected total cash flows affects the fair value of these securities.

The following table presents the weighted average effective duration for the System's investments subject to interest rate risk as of June 30, 2020:

FIGURE 2.18: DEBT SECURITIES SUBJECT TO INTEREST RATE RISK

AT JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

Investment Type	Weighted Average Effective Duration	Fair Value	Percent of Debt Securities
Effective Duration:			
Agencies	2.13	\$ 2,950,717	13.5%
Asset-Backed Securities	1.78	954,099	4.4%
Collateralized Mortgage Obligations	2.55	523,227	2.4%
Commercial Mortgages	4.38	498,688	2.3%
Commercial Paper	0.20	1,556,489	7.1%
Corporate Bonds and Notes	5.67	8,128,906	37.2%
Fixed-Income Commingled Funds	5.53	1,377,164	6.3%
Fixed-Income Derivatives	—	243	—%
Municipal Securities	7.96	105,037	0.5%
Mutual & Money Market Funds	5.47	246,837	1.1%
Negotiable Certificates of Deposit	0.29	668,908	3.1%
Other Debt Securities	0.37	20,502	0.1%
Supranational & Non-U.S. Government Bonds	8.10	1,074,861	4.9%
Time Deposits	—	291,000	1.3%
U.S. Government	3.85	2,876,014	13.2%
No Effective Duration:			
Mutual & Money Market Funds	N/A	387,780	1.8%
Commercial Paper	N/A	99,625	0.5%
Corporate Bonds and Notes	N/A	41,480	0.2%
Asset-Backed Securities	N/A	14,518	0.1%
Commercial Mortgages	N/A	1,799	—%
Supranational & Non-U.S. Government Bonds	N/A	1,300	—%
Fixed Income Derivatives	N/A	1,119	—%
Other Debt Securities	N/A	66	—%
Total Debt Securities	4.12	\$ 21,820,379	100.0%

Through its Securities Lending program, the System receives cash collateral from borrowers that is reported in the statement of net position as an asset with an offsetting liability. The cash collateral held at June 30, 2020, was reinvested in cash equivalents and short-term investments that carry little interest rate risk as shown in Figure 2.19:

FIGURE 2.19: SECURITIES LENDING COLLATERAL SUBJECT TO INTEREST RATE RISK

AT JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

Investment Type	Carrying Amount	Weighted Average Effective Duration
Commercial Paper	\$ 530,174	0.242
Corporate Bonds and Notes	1,645,364	0.046
Mutual & Money Market Funds	623,216	0.003
Negotiable Certificates of Deposit	203,632	0.199
Repurchase Agreements	446,312	0.003
Supranational & Non-U.S. Government Bonds	10,486	0.447
Total	\$ 3,459,184	0.073

4. Credit Risk. Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations to the System. As of June 30, 2020, the System's fixed-income assets that are not government-guaranteed represented 87% of the fixed-income assets.

The System's policy for credit risk is based on the concept of a risk budget rather than specific limitations related to the rating of an individual security. The System's risk budget is allocated among the different investment strategies. The System's fixed-income portfolio credit quality and exposure levels as of June 30, 2020, are summarized in Figure 2.20.

Credit risk for derivative instruments held by the System results from counterparty risk assumed by the System. This is essentially the risk that the borrower will be unable to meet its obligation. Information regarding the System's credit risk related to derivatives is provided in Note 5.B.8. Policies related to credit risk pertaining to the System's securities lending program are provided in Note 5.B.6. A summary of the ratings of the reinvested securities lending cash collateral subject to credit risk is provided in Figure 2.21.

FIGURE 2.20: CREDIT QUALITY AND EXPOSURE LEVELS OF NON-GOVERNMENT-GUARANTEED SECURITIES*

AS OF JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

Carrying Amount by Most Conservative Credit Rating – Moody's/S&P/Fitch								
U.S. Government and Short-Term Debt	Aaa/AAA	Aa/AA	A	Baa/BBB	P/A-1, AAAM/F1**	Less than Investment Grade	Unrated	Totals
U.S. Government Agencies:								
FHLB	\$ —	\$ 28,205	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 28,205
FHLMC	5,729	491,977	5,535	3,868	—	1,231	—	508,340
FNMA	3,959	1,042,612	4,564	2,015	—	15,609	1,398,029	2,466,788
Other Agencies	7,808	45,776	—	—	—	—	—	53,584
Short-Term Debt:								
Commercial Paper	—	—	135,247	—	1,470,929	—	49,938	1,656,114
Mutual and Money Market Funds	—	—	25,918	—	361,958	88,855	157,886	634,617
Negotiable Certificates of Deposit	—	—	131,799	—	342,000	—	195,109	668,908
Time Deposits	—	—	—	—	291,000	—	—	291,000
Total U.S. Government and Short-Term Debt	17,496	1,608,570	303,063	5,883	2,465,887	105,695	1,800,962	6,307,556
Long-Term Debt								
Asset-Backed Securities	323,035	275,773	137,895	59,990	—	143,294	28,630	968,617
Collateralized Mortgage Obligations	181,401	14,507	1,791	4,824	—	40,555	176,351	419,429
Commercial Mortgages	347,831	88,002	131	6,410	—	38,187	17,524	498,085
Corporate Bonds and Notes	6,339	313,208	1,878,481	2,313,725	46,250	3,012,140	600,243	8,170,386
Fixed-Income Commingled Funds	—	—	—	—	—	—	1,377,164	1,377,164
Fixed-Income Derivatives	—	—	—	—	—	—	1,362	1,362
Municipal Securities	344	94,362	10,331	—	—	—	—	105,037
Other Debt Securities	—	—	—	3,378	—	17,190	—	20,568
Supranational and Non-U.S. Government Bonds	77,125	75,260	117,775	341,448	—	450,267	14,286	1,076,161
Total Long-Term Debt	936,075	861,112	2,146,404	2,729,775	46,250	3,701,633	2,215,560	12,636,809
Total	\$ 953,571	\$ 2,469,682	\$ 2,449,467	\$ 2,735,658	\$ 2,512,137	\$ 3,807,328	\$ 4,016,522	\$ 18,944,365

* Excludes investments that are obligations of the U.S. government or obligations explicitly guaranteed by the U.S. government that are not subject to the GASB 40 credit quality disclosures.

** Investment-grade short-term credit ratings.

FIGURE 2.21: SECURITIES LENDING COLLATERAL SUBJECT TO CREDIT RISK

AS OF JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

Investment Type	Carrying Amount by Most Conservative Credit Rating – Moody's/S&P/Fitch				
	Aa/AA	A	P/A-1, AAAm/F1**	Unrated	Totals
Commercial Paper	\$ —	\$ —	\$ 530,174	\$ —	\$ 530,174
Corporate Bonds and Notes	290,871	1,212,154	142,339	—	1,645,364
Mutual & Money Market Funds	—	—	623,216	—	623,216
Negotiable Certificates of Deposits	—	—	203,632	—	203,632
Repurchase Agreements	9,131	—	—	—	9,131
Supranational & Non U. S. Government Bonds	—	—	10,486	—	10,486
Total*	\$ 300,002	\$ 1,212,154	\$ 1,509,847	\$ —	\$ 3,022,003

* This figure does not include \$437,181,000 in equity and U.S. government security repurchase agreements that are not subject to GASB 40 disclosure. The total of the investments in the securities lending collateral portfolio is \$3,459,184,000.

** Investment-grade short-term credit ratings.

- Concentration of Credit Risk.** This is the risk of loss that may be attributed to the magnitude of a government's investment in a single issuer. The System's investment guidelines for each specific portfolio limits investments in any corporate entity to no more than 5.00% of the market value of the account for both the internally and externally managed portfolios. The System has no investments in any commercial or industrial organization whose fair value equals 5.00% or more of the System's net fiduciary position.
- Custodial Credit Risk.** This is the risk that in the event of the failure of the counterparty, the System will not be able to recover the value of its investment or collateral securities that are in the possession of an outside party. As of June 30, 2020, investment securities (excluding cash equivalents and repurchase agreements held as

securities lending collateral) were registered and held in the name of the System for the benefit of the System's trust and custodial funds and were not exposed to custodial credit risk. It is the standard practice and policy of the System, through the relevant provisions in its contracts and agreements with third parties, to minimize all known custodial credit risks.

5. Foreign Currency Risk. Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment. The System's currency risk exposures, or exchange rate risk, primarily exist in the international and global equity investment holdings. The System's exposure to foreign currency risk as of June 30, 2020, is highlighted in Figure 2.22.

FIGURE 2.22: CURRENCY EXPOSURES BY ASSET CLASS

AS OF JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

Currency	Cash and Short-term Investments	Equity	Fixed Income	Private Equity	Real Assets	International Funds	Forward Contracts	Total
U.S. Dollar	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 1,972,020	\$ —	\$ 1,972,020
Euro Currency Unit	40,229	1,848,235	56,362	789,714	399,125	—	232,315	3,365,980
Japanese Yen	15,953	1,948,970	4,736	—	3,229	374,291	321,476	2,668,655
Hong Kong Dollar	3,793	1,045,138	6,411	—	2,175	—	(30,411)	1,027,106
Pound Sterling	3,761	817,791	2,947	—	20,978	—	44,848	890,325
South Korean Won	331	350,867	—	—	285	—	411	351,894
Swiss Franc	28,986	575,673	3,234	—	—	—	164,997	772,890
New Zealand Dollar	376	17,113	—	—	1,135	—	(131,258)	(112,634)
Canadian Dollar	7,964	611,140	—	—	20,264	—	9,905	649,273
Brazilian Real	309	106,007	2,027	—	7,301	—	(545)	115,099
Australian Dollar	1,203	425,652	—	—	10,824	—	112,776	550,455
Indian Rupee	1,460	216,075	—	—	—	—	(1,447)	216,088
South African Rand	955	123,872	1,735	—	1,058	—	(3,540)	124,080
New Taiwan Dollar	247	268,061	—	—	—	—	(2,216)	266,092
Thailand Baht	81	46,313	—	—	—	—	(156)	46,238
Swedish Krona	2,410	248,356	—	—	851	—	417,620	669,237
Indonesian Rupiah	861	45,044	5,075	—	—	—	(2,367)	48,613
Mexican Peso	534	35,215	434	—	6,364	—	2,112	44,659
Turkish Lira	50	48,605	—	—	986	—	874	50,515
Polish Zloty	(543)	14,260	—	—	—	—	907	14,624
Russian Ruble (New)	124	12,027	4,349	—	—	—	(808)	15,692
Malaysian Ringgit	642	21,344	—	—	—	—	—	21,986
Danish Krone	2,911	125,767	—	—	565	—	(6,922)	122,321
Colombian Peso	30	357	—	—	—	—	(2,094)	(1,707)
Peruvian Sol	3	—	6,911	—	—	—	(3,487)	3,427
Czech Koruna	1,033	1,091	—	—	—	—	2,616	4,740
Hungarian Forint	241	8,852	—	—	—	—	2,020	11,113
Chinese Yuan Renminbi	893	69,055	—	—	—	—	(45,864)	24,084
Israeli Shekel	75	36,460	—	—	2,264	—	(11,573)	27,226
Chilean Peso	607	17,045	—	—	—	—	1,030	18,682
Egyptian Pound	74	1,548	—	—	—	—	—	1,622
Philippines Peso	108	5,075	—	—	—	—	(2,075)	3,108
Dominican Republic Peso	—	—	1,568	—	—	—	—	1,568
UAE Dirham	177	7,696	—	—	—	—	—	7,873
Argentine Peso	2,766	—	—	—	—	—	—	2,766
Kazakhstani Tenge	—	—	1,353	—	—	—	—	1,353
Qatari Riyal	339	3,200	—	—	—	—	—	3,539
Uruguayan Peso	—	—	2,444	—	—	—	—	2,444
Ukrainian Hryvnia	—	—	2,637	—	—	—	—	2,637
Romanian Leu	—	—	—	—	—	—	2,069	2,069
Chinese R Yuan HK	—	—	—	—	—	—	1,400	1,400
Moroccan Dirham	1	—	—	—	—	—	—	1
Saudi Arabian Riyal	201	5,119	—	—	—	—	—	5,320
Singapore Dollar	1,886	153,087	—	—	—	—	(79,429)	75,544
Norwegian Krone	1,174	86,565	—	—	—	—	(64,105)	23,634
Total	\$ 122,245	\$ 9,346,675	\$ 102,223	\$ 789,714	\$ 477,404	\$ 2,346,311	\$ 929,079	\$ 14,113,651

6. Securities Lending. Under authorization of the Board, the System lends its fixed-income and equity securities to various broker-dealers on a temporary basis. This program is administered through an agreement with the System's custodial agent bank.

All security loan agreements are collateralized by cash, securities or an irrevocable letter of credit issued by a major bank, and have a fair value equal to at least 102% of the fair value for domestic securities and 105% for international securities. Securities received as collateral cannot be pledged or sold by the System unless the borrower defaults. Contracts require the lending agents to indemnify the System if the borrowers fail to return the securities lent and related distributions and if the collateral is inadequate to replace the securities lent. All securities loans can be terminated on demand by either the System or the borrowers. The majority of loans are open loans, meaning the rebate is set daily. This results in a maturity of one or two days on average, although securities are often on loan for longer periods. The maturity of loans generally does not match the maturity of collateral investments, which averages 27 days. At year-end, the System had no credit risk exposure to borrowers because the amounts it owes the borrowers exceeded the amounts the borrowers owe the System. All securities are marked to market daily and carried at fair value. The fair value of securities on loan at June 30, 2020 and 2019, was \$5,624,194,000 and \$8,574,945,000, respectively. The June 30, 2020 and 2019, balances were composed of U.S. government and agency securities of \$879,329,000 and \$2,710,732,000, respectively; corporate and other bonds of \$1,460,701,000 and \$1,177,523,000, respectively; common and preferred stocks of \$3,232,034,000 and \$4,573,701,000, respectively; and supranational and non-U.S. government bonds of \$52,130,000 and \$112,989,000, respectively.

The value of collateral (cash and non-cash) at June 30, 2020 and 2019, was \$5,943,894,000 and \$9,044,872,000, respectively. Securities on loan are included with investments on the statement of plan net position. The invested cash collateral is included

in the statement of plan net position as an asset and corresponding liability.

At June 30, 2020, the invested cash collateral had a cost of \$3,459,184,000 and was composed of negotiable certificates of deposit of \$203,632,000, floating rate notes of \$1,645,364,000, commercial paper of \$530,174,000, money market and mutual funds of \$623,216,000, supranational & non-U.S. government bonds of \$10,486,000 and repurchase agreements of \$446,312,000.

7. Accounts Receivable/Accounts Payable for Security Transactions. In addition to unsettled purchases and sales, accounts receivable and accounts payable for security transactions at June 30, 2020 and 2019, included (1) receivables for deposits with brokers for securities sold short of \$719,428,000 and \$620,745,000, respectively; and (2) payables for securities sold short and not covered with fair values of \$621,562,000 and \$624,614,000, respectively.

8. Derivative Financial Instruments. Derivative instruments are financial contracts whose values depend on the values of one or more underlying assets, reference rates or financial indexes. All derivatives held by the System are considered investments. The fair value of all derivative financial instruments is reported on a net basis on the Statement of Fiduciary Net Position. The derivative instruments are either subject to an enforceable master netting arrangement or similar agreement. The master netting arrangements allow the System to net applicable liabilities or payment obligations to counterparties to the derivative contracts against amounts owed to the System by the counterparties.

The System holds investments in swaps and futures and enters into forward foreign currency exchange contracts. Futures, currency forwards and options contracts provide the System with the opportunity to build passive benchmark positions, manage portfolio duration in relation to various benchmarks, adjust portfolio yield curve exposure and gain market exposure to various indexes in a more efficient way and at lower transaction costs.

Derivatives that are exchange-traded are not subject to credit risk, but all over-the-counter derivatives, such as swaps and currency forwards, do expose the System to counterparty credit risk. Counterparty credit risk for the System's investments in derivatives instruments is summarized in Figure 2.27.

Market risks arise from adverse changes in market prices, interest rates and foreign exchange rates. The System's level of exposure to interest rate risk through derivative instruments is shown in Figure 2.24. The System's investments in derivative instruments at June 30, 2020, are summarized in Figure 2.23.

FIGURE 2.23: DERIVATIVE INSTRUMENTS SUMMARY

(EXPRESSED IN THOUSANDS)

Investment	Net Appreciation/ (Depreciation) in Fair Value for the Fiscal Year Ended June 30, 2020	Classification	Fair Value June 30, 2020	
			Amount	Notional (Dollars)
Derivatives (by Type)	Amount		Amount	Notional (Dollars)
Commodity Futures Long	\$ 119	Equity Securities	\$ 327	\$ 11,070
Credit Default Swaps Bought	(241)	Debt Securities	1,162	29,175
Credit Default Swaps Written	(197)	Debt Securities	—	—
Fixed-Income Futures Long	(29,040)	Debt Securities	1,567	2,205,969
Fixed-Income Futures Short	20,059	Debt Securities	(1,898)	(745,243)
Foreign Currency Futures Short	348	Debt Securities	—	—
Foreign Currency Options Written	59	Equity Securities	—	—
FX Forwards	10,429	Investment Sales/Purchases	16,671	(931,892)
Index Futures Long	(7,160)	Equity Securities	11,350	1,063,264
Index Futures Short	304	Equity Securities	(519)	(639,998)
Receive Fixed Foreign Currency Swaps	(3,099)	Debt Securities	—	—
Pay Fixed-Inflation Swaps	288	Debt Securities	288	14,775
Pay Fixed-Interest Rate Swaps	8,316	Debt Securities	(80)	2,514
Receive Fixed-Interest Rate Swaps	(12,299)	Debt Securities	147	2,536
Swaptions Written	3	Equity Securities	—	—
Total Return Bond Index Swaps	(1,381)	Equity Securities	(432)	144,620
Total Return Equity Index Swaps	127,926	Equity Securities	134,626	1,286,956
Total	\$ 114,434		\$ 163,209	

FIGURE 2.24: DERIVATIVE INSTRUMENTS SUBJECT TO INTEREST RATE RISK

(EXPRESSED IN THOUSANDS)

Investment Type	Fair Value June 30, 2020	Investment Maturities (in years)			
		Under-1	1-5	6-10	Greater than 10
Credit Default Swaps Bought	\$ 1,162	\$ —	\$ 1,162	\$ —	\$ —
Pay Fixed Inflation Swaps	288	—	—	288	—
Pay Fixed Interest Rate Swaps	(80)	—	(80)	—	—
Receive Fixed Interest Rate Swaps	147	—	147	—	—
Total Return Swaps – Equity Index	181	181	—	—	—
Total	\$ 1,698	\$ 181	\$ 1,229	\$ 288	\$ —

9. Futures. Futures contracts are contracts to deliver or receive securities at a specified future date and at a specified price or yield. Futures contracts are traded on organized exchanges (exchange-traded) and require an initial margin (collateral) in the form of cash or marketable securities. The net change in the futures contract value is settled daily, in cash, with the exchanges. The net gains or losses resulting from the daily settlements are included in the System’s Statement of Changes in Fiduciary Net Position. Holders of futures contracts look to the exchange for performance under the contract and not to the entity holding the offsetting futures position. Accordingly, the amount at risk posed by nonperformance of counterparties to futures contracts is minimal. Information on the System’s investments in fixed income, foreign currency, commodities and equity index futures at June 30, 2020, is shown in Figure 2.23.

10. Currency Forwards. Currency forwards represent foreign exchange contracts and are used by the System to effect settlements and to protect the base currency (\$U.S.) value of portfolio assets denominated in foreign currencies against fluctuations in the exchange rates of those currencies. A forward foreign currency exchange contract is a commitment to purchase or sell a foreign currency at a future date at a negotiated price. The credit risk of currency contracts that are exchange-traded lies with the clearinghouse of the exchange where the contracts are traded. The credit risk of currency contracts traded over the counter lies with the counterparty, and exposure usually is equal to the unrealized profit on in-the-money contracts. The market risk in foreign currency contracts is related to adverse movements in currency exchange rates. The gain or loss arising from the difference between the original contracts and the closing of such contracts is included in the net realized gains or losses on foreign currency-related transactions in the Statement of Changes in Fiduciary Net Position. Information on the System’s currency forward contracts at June 30, 2020, is shown in Figures 2.23 and 2.25.

FIGURE 2.25: CURRENCY FORWARDS

AS OF JUNE 30

(EXPRESSED IN THOUSANDS)

Currency	Cost	Pending Foreign Exchange Purchases	Pending Foreign Exchange Sales	Fair Value 2020	Fair Value 2019
Argentine Peso	\$ —	\$ —	\$ —	\$ —	\$ 719
Australian Dollar	103,363	327,674	(215,179)	112,495	(322,821)
Brazilian Real	(610)	3,199	(3,744)	(545)	5,083
British Pound Sterling	45,518	377,819	(331,983)	45,836	(745,995)
Canadian Dollar	3,827	366,764	(355,599)	11,165	(476,188)
Chilean Peso	1,043	4,587	(3,556)	1,031	(5,330)
Chinese Yuan Renminbi	(45,551)	—	(45,864)	(45,864)	(46,209)
Chinese Yuan Renminbi HK	1,394	1,400	—	1,400	189
Colombian Peso	(2,077)	3,008	(5,103)	(2,095)	18,618
Czech Koruna	2,632	5,412	(2,795)	2,617	35,543
Danish Krone	(6,844)	311	(7,334)	(7,023)	(60,608)
Egyptian Pound	—	—	—	—	8,727
Euro Currency Unit	245,048	749,973	(512,672)	237,301	(1,499,912)
Hong Kong Dollar	(36,415)	—	(36,417)	(36,417)	(170,488)
Hungarian Forint	2,188	7,163	(5,143)	2,020	(4,998)
Indian Rupee	(1,432)	3,181	(4,628)	(1,447)	10,676
Indonesian Rupiah	(2,295)	1,065	(3,432)	(2,367)	(17,081)
Israeli Shekel	(11,572)	3,131	(14,694)	(11,563)	(21,688)
Japanese Yen	327,059	575,778	(250,063)	325,715	(664,419)
Kazakhstani Tenge	—	—	—	—	331
Malaysian Ringgit	—	—	—	—	6,292
Mexican Peso	2,169	5,813	(3,698)	2,115	29,193
New Taiwan Dollar	(2,200)	1,674	(3,890)	(2,216)	(4,240)
New Zealand Dollar	(129,408)	118,036	(249,294)	(131,258)	333,422
Nigerian Naira	—	—	—	—	9,082
Norwegian Krone	(65,660)	63,684	(127,790)	(64,106)	(299,644)
Omani Rial	—	—	—	—	(5,080)
Peruvian Sol	(3,630)	5,648	(9,135)	(3,487)	(7,030)
Philippine Peso	(2,042)	2,297	(4,372)	(2,075)	3,441
Polish Zloty	925	1,909	(1,002)	907	16,101
Romanian Leu	2,109	4,921	(2,851)	2,070	(4,437)
Russian Ruble (New)	(754)	4,019	(4,828)	(809)	(11,059)
Singapore Dollar	(75,980)	57,062	(132,593)	(75,531)	(320,568)
South African Rand	(3,424)	3,732	(7,272)	(3,540)	(20,283)
South Korean Won	(432)	1,123	(1,556)	(433)	(17,780)
Swedish Krona	410,240	543,870	(126,401)	417,469	(87,182)
Swiss Franc	162,260	195,630	(30,836)	164,794	(255,278)
Thai Baht	(116)	4,628	(4,784)	(156)	8,948
Turkish Lira	876	2,209	(1,335)	874	4,718
Ukrainian Hryvnia	—	—	—	—	1,180
U.S. Dollar	(920,206)	2,334,209	(3,254,415)	(920,206)	4,582,297
Total Forwards Subject to Foreign Currency Risk				\$ 16,671	\$ 6,242

11. Options. Options may be either exchange-traded or negotiated directly between two counterparties over the counter. Options grant the holder the right, but not the obligation, to purchase (call) or sell (put) a financial instrument at a specified price and within a specified period of time from the writer of the option.

As a purchaser of options, the System typically pays a premium at the outset. This premium is reflected as an asset on the financial statements. The System then retains the right, but not the obligation, to exercise the options and purchase the underlying financial instrument. Should the option not be exercised, it expires worthless, and the premium is recorded as a loss.

A writer of options assumes the obligation to deliver or receive the underlying financial instrument on exercise of the option. Certain option contracts may involve cash settlements based on specified indexes such as stock indexes. As a writer of options, the System receives a premium at the outset. This premium is reflected as a liability on the financial statements, and the System bears the risk of an unfavorable change in the price of the financial instrument underlying the option. Information on the System's investments in

options contracts at June 30, 2020, is shown in Figure 2.23. The System had no investments in options contracts at June 30, 2020, although it did have investments in foreign currency options during the fiscal year.

12. Swap Agreements. Swaps are negotiated contracts between two counterparties for the exchange of payments at certain intervals over a predetermined timeframe. The payments are based on a notional principal amount and calculated using either fixed or floating interest rates or total returns from certain instruments or indexes. Swaps are used to manage risk and enhance returns. To reduce the risk of counterparty nonperformance, the System generally requires collateral on any material gains from these transactions. During fiscal year 2020, the System had activity in credit default, inflation, interest rate and total return swaps. Gains and losses on swaps are determined based on fair values and are recorded in the Statement of Changes in Fiduciary Net Position. Information on the System's swap balances at June 30, 2020, is shown in Figure 2.23, and the terms, fair values and notional values of the System's investments in swap agreements that are highly sensitive to interest rate changes are disclosed in Figure 2.26.

FIGURE 2.26: DERIVATIVE INSTRUMENTS HIGHLY SENSITIVE TO INTEREST RATE CHANGES

(EXPRESSED IN THOUSANDS)

Investment Type	Reference Rate	Fair Value June 30, 2020	Notional Amount
Interest Rate Swaps	Receive Fixed 6.15%, Pay Variable 28-day MTIIE	\$ 89	\$ 1,528
Interest Rate Swaps	Receive Fixed 6.1%, Pay Variable 28-day MTIIE	57	1,008
Interest Rate Swaps	Receive Variable 28-day MTIIE, Pay Fixed 5.53%	(80)	2,514
Subtotal Interest Rate Swaps		\$ 66	\$ 5,050
Total Return Bond Index Swaps	Receive Variable Barclays Capital US Aggregate Index, Pay Variable 1-month LIBOR - 20 bps	\$ 316	\$ 50,000
Total Return Bond Index Swaps	Receive Variable Barclays Capital US Aggregate Index, Pay Variable 1-month LIBOR + 39 bps	452	50,000
Total Return Bond Index Swaps	Receive Variable IBOXHY Liquid High Yield Index, Pay Variable 3-month LIBOR	(1,200)	44,620
Total Return Equity Index Swaps	Receive Variable BCMSIMVA Index, Pay Variable 3-month LIBOR + 20 bps	19	15,577
Total Return Equity Index Swaps	Receive Variable BCMSIVA5 Index, Pay Variable 3-month LIBOR + 20 bps	(335)	9,246
Total Return Equity Index Swaps	Receive Variable BCMSIVA5 Index, Pay Variable 3-month LIBOR + 20 bps	(166)	7,034
Total Return Equity Index Swaps	Receive Variable BCMSIVA5 Index, Pay Variable 3-month LIBOR + 20 bps	(176)	7,034
Total Return Equity Index Swaps	Receive Variable 3-month LIBOR + 17 bps, Pay Variable BCMSIAN5 Index	37	6,515
Total Return Equity Index Swaps	Receive Variable 3-month LIBOR + 17 bps, Pay Variable BCMSIAN5 Index	2	2,787
Total Return Equity Index Swaps	Receive Variable 3-month LIBOR + 17 bps, Pay Variable BCMSILV5 Index	47	3,582
Total Return Equity Index Swaps	Receive Variable 3-month LIBOR + 17 bps, Pay Variable BCMSILV5 Index	26	3,817
Total Return Equity Index Swaps	Receive Variable 3-month LIBOR + 17 bps, Pay Variable BCMSILV5 Index	42	3,817
Total Return Equity Index Swaps	Receive Variable 3-month LIBOR + 17 bps, Pay Variable BCMSILV5 Index	(4)	15,623
Total Return Equity Index Swaps	Receive Variable 3-month LIBOR + 17 bps, Pay Variable JPMSU5GB Index	32	2,787
Total Return Equity Index Swaps	Receive Variable MSCI ACWI IMI Index, Pay Variable 3-month LIBOR + 31 bps	51,521	382,958
Total Return Equity Index Swaps	Receive Variable MSCI ACWI IMI Index, Pay Variable 3-month LIBOR + 36 bps	76,353	470,068
Total Return Equity Index Swaps	Receive Variable M1CXVRS Index, Pay Variable 3-month LIBOR + 27 bps	—	3
Total Return Equity Index Swaps	Receive Variable GDUEACWF Index, Pay Variable 3-month LIBOR + 21 bps	5,446	261,776
Total Return Equity Index Swaps	Receive Variable MIMUJPNN Index, Pay Variable 3-month LIBOR - 5 bps	111	22,454
Total Return Equity Index Swaps	Receive Variable MIMUUKGN Index, Pay Variable 3-month LIBOR + 20bps	(16)	12,780
Total Return Equity Index Swaps	Receive Variable MIMUUSAG Index, Pay Variable 3-month LIBOR + 10 bps	205	13,020
Total Return Equity Index Swaps	Receive Variable NDUEEGF Index, Pay Variable 3-month LIBOR - 2 bps	26	19,294
Total Return Equity Index Swaps	Receive Variable MSCI China A Index, Pay Variable 3-month LIBOR - 675 bps	1,456	26,784
Subtotal Total Return Swaps		\$ 134,194	\$ 1,431,576
Total		\$ 134,260	\$ 1,436,626

FIGURE 2.27: DERIVATIVE INSTRUMENTS SUBJECT TO COUNTERPARTY CREDIT RISK

AT JUNE 30, 2020

Counterparty	Percentage of Net Exposure	Moody's Ratings	S & P Ratings	Fitch Ratings
Goldman Sachs Bank USA/New York NY	80.38%	A1	A+	A+
Morgan Stanley Capital Services LLC	11.48%	A1	A+	—
Goldman Sachs International	5.64%	A1	A+	A+
Barclays Bank PLC	1.57%	A1	A	A+
Bank of New York Mellon Corp-London	0.93%	—	—	—
Total	100.00%			

13. Asset Allocation. The long-term expected rate of return on the System's investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The long-term target allocations are based on the Strategic Asset Allocation Implementation

Schedule and Allowable Ranges document, which was approved by the VRS Board of Trustees on October 10, 2019. Best estimates of arithmetic real rates of return for each major asset class included in the System's long-term target asset allocation are summarized in Figure 2.28. This provided the basis for the 6.75% long-term rate of return actuarial assumption used in the calculation of the Pension and OPEB liabilities with the Measurement Date of June 30, 2020. See the Investments Section for more detailed asset allocation and performance information.

FIGURE 2.28: ASSET ALLOCATION

FOR THE YEAR ENDED JUNE 30, 2020

Asset Class (Strategy)	Long-Term Target Asset Allocation	Arithmetic Long-Term Expected Rate of Return	Weighted Average Long-Term Expected Rate of Return*
Public Equity	34%	4.65%	1.58%
Fixed Income	15%	0.46%	0.07%
Credit Strategies	14%	5.38%	0.75%
Real Assets	14%	5.01%	0.70%
Private Equity	14%	8.34%	1.17%
MAPS – Multi-Asset Public Strategies	6%	3.04%	0.18%
PIP – Private Investment Partnerships	3%	6.49%	0.19%
Total	100%		4.64%
		Inflation	2.50%
		* Expected arithmetic nominal return	7.14%

* The above allocation provides a one-year expected return of 7.14%. However, one-year returns do not take into account the volatility present in each of the asset classes. In setting the long-term expected return for the System, stochastic projections are employed to model future returns under various economic conditions. The results provide a range of returns over various time periods that ultimately provide a median return of 7.11%, including expected inflation of 2.50%. On October 10, 2019, the VRS Board elected a long-term rate of return of 6.75%, which is roughly at the 40th percentile of expected long-term results of the VRS fund asset allocation. More recent capital market assumptions compiled for the FY 2020 actuarial valuations, provide a median return of 6.81%.

6. Capital Assets

The System's non-depreciable and depreciable capital assets for the year ended June 30, 2020, and

the changes by category from the prior fiscal year-end are presented in Figure 2.29.

FIGURE 2.29: PROPERTY, PLANT, FURNITURE, EQUIPMENT AND INTANGIBLE ASSETS

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Balance June 30, 2019	Increases	Decreases	Balance June 30, 2020
Non-Depreciable Capital Assets:				
Land	\$ 1,368	\$ —	\$ —	\$ 1,368
Construction in progress	1,135	725	585	1,275
Total Non-Depreciable Capital Assets	2,503	725	585	2,643
Depreciable Capital and Intangible Assets:				
Building	4,632	—	—	4,632
Furniture and Equipment	7,132	—	—	7,132
Intangible Assets	69,616	585	—	70,201
Total Depreciable Capital Assets	81,380	585	—	81,965
Less Accumulated Depreciation:				
Building	2,432	116	—	2,548
Furniture and Equipment	5,784	338	—	6,122
Intangible Assets	31,928	7,460	—	39,388
Total Accumulated Depreciation	40,144	7,914	—	48,058
Total Depreciable Capital Assets – Net	41,236	(7,329)	—	33,907
Total Net Capital Assets	\$ 43,739	\$ (6,604)	\$ 585	\$ 36,550

Depreciation expense amounted to \$7,914,000 and \$6,439,000 in 2020 and 2019, respectively.

7. Operating Leases

The System has commitments under various operating leases for office space and parking. In general, the leases are for a 10-year term. In most cases, the System expects that in the normal course of business, these leases will be replaced by similar leases. Total rental expense for the year ended June 30, 2020, was \$2,049,000. The System's total future minimum rental payments as of June 30, 2020, are presented in Figure 2.30.

FIGURE 2.30: OPERATING LEASES – FUTURE PAYMENTS

AS OF JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

Year	Amount
2021	\$ 1,628
2022	1,669
2023	1,718
2024	1,767
Total Future Minimum Rental Payments	\$ 6,782

8. System Employee Benefit Plan Obligations

All full-time permanent, salaried employees of the System are employees of the Commonwealth of Virginia and included in the Commonwealth's participation as an employer in VRS. The Commonwealth, not the System, has overall responsibility for contributions to the VRS pension trust fund as well as other employee benefit and post-employment benefit trust funds for System employees. The state's pension contribution requirement for general employees was 13.52% for the fiscal years ended June 30, 2020, and 2019.

There were approximately 59,554 state retirees, including System retirees, at June 30, 2020. Note 2.B provides information on the state's contribution toward funding the defined benefit plan for state employees for fiscal year 2020 and fiscal year 2019. The System's contribution requirement for its employees for fiscal year 2020 and fiscal year 2019 was \$4,359,000 and \$4,091,000, respectively of

which \$4,096,000 related to the defined benefit plan and \$263,000 related to the hybrid defined contribution plan for fiscal year 2020. For fiscal year 2019, \$3,872,000 related to the defined benefit plan and \$219,000 related to the defined contribution plan. The System's financial obligations for other employee benefit and post-employment benefit plans were as follows:

- The state's contribution requirement for the Group Life Insurance Program for the years ended June 30, 2020 and 2019, was 1.31% of covered payroll. There were approximately 88,306 active state employees, 13,205 inactive vested participants and 55,918 state retirees, including System employees and retirees, eligible for group life insurance coverage at June 30, 2020. The System's contribution requirement for its employees and retirees for fiscal year 2020 and fiscal year 2019 was \$426,000 and \$399,000, respectively.
- The state's contribution requirement for the Retiree Health Insurance Credit Program for the years ended June 30, 2020 and 2019, was 1.17% of covered payroll. There were approximately 45,808 state retirees, including System retirees, receiving the health insurance credit at June 30, 2020. The System's contribution requirement for its employees for fiscal year 2020 and fiscal year 2019 was \$380,000 and \$356,000, respectively.
- The state's contribution requirement for the Virginia Sickness and Disability Program (VSDP) for the years ended June 30, 2020, and June 30, 2019, was 0.62%. There were approximately 80,166 state employees, including System employees, enrolled in VSDP at June 30, 2020. The System's contribution requirement for its employees for fiscal year 2020 and fiscal year 2019 was \$198,000 and \$186,000, respectively.

Information regarding the Commonwealth's funding progress is presented in the Commonwealth's *Comprehensive Annual Financial*

Report. Information about the pension plans is provided in Note 2; information about other employee and post-employment benefit plans is provided in Note 3.

9. Litigation

The System, including its Board of Trustees, officers and employees, is a defendant in claims and lawsuits that are pending, are in progress or have been settled since June 30, 2020. The Attorney General and outside counsel have reviewed the status of these claims, lawsuits and the System's potential liability arising from them. Based on their review, it is the opinion of management that such liability, if any, would have no material adverse effect on the System's financial condition.

10. Risk Management

To cover its exposure to various risks of loss, the System, as an independent agency of the Commonwealth of Virginia, participates in the Commonwealth's self-insurance programs for state employee health care and risk management. The latter program includes property, general (tort) liability, medical malpractice and automobile plans.

The System's employees are covered by the Virginia Workers' Compensation Program administered by the Department of Human Resource Management. In addition, the System is self-insured for fiduciary liability as well as directors' and officers' liability under a program administered by the Commonwealth's Division of Risk Management. There were no claims in excess of coverage and no reductions in coverage during fiscal year 2020 and the three preceding fiscal years.

11. Commitments

The System extends investment commitments in the normal course of business. At June 30, 2020 and 2019, these commitments amounted to \$18,021,577,000 and \$15,292,063,000, respectively.

12. Statutory Contribution Adjustment

For fiscal years 2020 and 2019, the employer retirement contribution rate for state employees was 13.52% and the employer retirement contribution rate for teachers was 15.68%. The rates for both of these groups were 100% of the adjusted actuarially determined rate. Additionally, the employer retirement contribution rates for SPORS, VaLORS and JRS were funded at 100% of the adjusted actuarially determined rate and were 24.88%, 21.61% and 34.39%, respectively. There was no adjustment to the employer contribution rates for political subdivision employers or to the member contribution rate of 5.00%.

For fiscal years 2020 and 2019, other post-employment benefit plan contributions due or required also were based on the June 30, 2017, actuarial valuation, which used a 30-year funding period for the UAAL. The rate for Group Life Insurance was 1.31%, the rate for the Retiree Health Insurance Credit Program for state

employees was 1.17% and the rate for the Retiree Health Insurance Credit Program for teachers was 1.20% of covered payroll. The rate for VSDP was 0.62%, and the rates for VLDP for teachers and political subdivision employers were 0.41% and 0.72% of covered payroll, respectively.

Contributions to the VRS-administered other post-employment programs, with the exception of the Group Life Insurance program, are fully paid by the employer. The Group Life Insurance Program has a total contribution rate, which is allocated into an employee and an employer component using a 60/40 split. For fiscal years 2020 and 2019, the split yields an employee contribution rate of 0.79% of covered payroll and an employer contribution rate of 0.52% of covered payroll. Employers may elect to pay all or part of the employee contribution; however, the employer must pay all of the employer contribution.

**REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET PENSION LIABILITY:
VIRGINIA RETIREMENT SYSTEM – STATE**

FOR THE PLAN YEARS ENDED JUNE 30

	VRS State		
	2020	2019	2018
Total pension liability:			
Service cost	\$ 406,776	\$ 379,359	\$ 375,965
Interest	1,666,047	1,627,637	1,606,772
Benefit changes	—	—	—
Difference between actual and expected experience	(12,440)	181,189	(327,289)
Assumption changes	—	663,566	—
Benefit payments	(1,427,873)	(1,360,833)	(1,296,803)
Refunds of contributions	(27,427)	(26,897)	(30,236)
Net change in total pension liability	605,083	1,464,021	328,409
Total pension liability – beginning	25,409,842	23,945,821	23,617,412
Total pension liability – ending (a)	\$ 26,014,925	\$ 25,409,842	\$ 23,945,821
Plan fiduciary net position:			
Contributions – employer	\$ 576,443	\$ 545,584	\$ 548,158
Contributions – member	210,896	201,481	201,920
Net investment income	361,061	1,211,722	1,302,241
Benefit payments	(1,427,873)	(1,360,833)	(1,296,803)
Refunds of contributions	(27,427)	(26,897)	(30,236)
Administrative expense	(12,603)	(12,374)	(11,481)
Other	(539)	(762)	28,502
Net change in plan fiduciary net position	(320,042)	557,921	742,301
Plan fiduciary net position – beginning	19,090,110	18,532,189	17,789,888
Plan fiduciary net position – ending (b)	18,770,068	\$ 19,090,110	\$ 18,532,189
Net pension liability – ending (a-b)	7,244,857	\$ 6,319,732	\$ 5,413,632
Plan fiduciary net position as a percentage of the total pension liability (b/a)	72.15%	75.13%	77.39%
Covered payroll (c)	\$ 4,440,135	\$ 4,197,484	\$ 4,152,368
Net pension liability as a percentage of covered payroll ((a-b)/c)	163.17%	150.56%	130.37%

Note: This schedule should present 10 years of data; however, the information prior to fiscal year 2014 is not available.

(EXPRESSED IN THOUSANDS)

VRS State

	2017		2016		2015		2014
\$	370,235	\$	369,779	\$	375,149	\$	369,120
	1,562,819		1,533,764		1,482,951		1,436,064
	—		—		—		—
	(85,975)		(245,642)		59,923		—
	76,965		—		—		—
	(1,234,388)		(1,195,198)		(1,136,102)		(1,081,866)
	(30,837)		(25,240)		(27,724)		(25,036)
	658,819		437,463		754,197		698,282
	22,958,593		22,521,130		21,766,933		21,068,651
\$	23,617,412	\$	22,958,593	\$	22,521,130	\$	21,766,933
\$	535,424	\$	722,617	\$	480,657	\$	343,259
	201,391		200,184		195,582		198,035
	1,963,811		277,166		728,083		2,243,999
	(1,234,388)		(1,195,198)		(1,136,102)		(1,081,866)
	(30,837)		(25,240)		(27,724)		(25,036)
	(11,612)		(10,140)		(10,302)		(12,341)
	(1,743)		(122)		(154)		123
	1,422,046		(30,733)		230,040		1,666,173
	16,367,842		16,398,575		16,168,535		14,502,362
\$	17,789,888	\$	16,367,842	\$	16,398,575	\$	16,168,535
\$	5,827,524	\$	6,590,751	\$	6,122,555	\$	5,598,398
	75.33%		71.29%		72.81%		74.28%
\$	4,020,893	\$	3,977,759	\$	3,878,632	\$	3,861,712
	144.93%		165.69%		157.85%		144.97%

**REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET PENSION LIABILITY:
VIRGINIA RETIREMENT SYSTEM – TEACHER**

FOR THE PLAN YEARS ENDED JUNE 30

	VRS Teacher		
	2020	2019	2018
Total pension liability:			
Service cost	\$ 938,143	\$ 889,003	\$ 885,510
Interest	3,269,776	3,184,697	3,099,338
Benefit changes	—	—	—
Difference between actual and expected experience	(404,985)	(174,815)	(440,308)
Assumption changes	—	1,472,649	—
Benefit payments	(2,448,204)	(2,331,038)	(2,241,927)
Refunds of contributions	(36,211)	(36,715)	(40,578)
Net change in total pension liability	1,318,519	3,003,781	1,262,035
Total pension liability – beginning	49,683,336	46,679,555	45,417,520
Total pension liability – ending (a)	\$ 51,001,855	\$ 49,683,336	\$ 46,679,555
Plan fiduciary net position:			
Contributions – employer	\$ 1,327,774	\$ 1,280,964	\$ 1,292,988
Contributions – member	418,909	403,258	391,490
Net investment income	689,010	2,311,028	2,421,157
Benefit payments	(2,448,204)	(2,331,038)	(2,241,927)
Refunds of contributions	(36,211)	(36,715)	(40,578)
Administrative expense	(23,649)	(22,843)	(20,945)
Other	(1,169)	(1,448)	(2,167)
Net change in plan fiduciary net position	(73,540)	1,603,206	1,800,018
Plan fiduciary net position – beginning	36,522,769	34,919,563	33,119,545
Plan fiduciary net position – ending (b)	\$ 36,449,229	\$ 36,522,769	\$ 34,919,563
Net pension liability – ending (a-b)	\$ 14,552,626	\$ 13,160,567	\$ 11,759,992
Plan fiduciary net position as a percentage of the total pension liability (b/a)	71.47%	73.51%	74.81%
Covered payroll (c)	\$ 8,766,667	\$ 8,387,503	\$ 8,086,986
Net pension liability as a percentage of covered payroll ((a-b)/c)	166.00%	156.91%	145.42%

Note: This schedule should present 10 years of data; however, the information prior to fiscal year 2014 is not available.

(EXPRESSED IN THOUSANDS)

VRS Teacher

2017	2016	2015	2014
\$ 830,475	\$ 828,856	\$ 828,901	\$ 831,501
3,016,207	2,931,065	2,834,138	2,722,788
—	—	—	—
(642,745)	(391,881)	(212,089)	—
218,559	—	—	—
(2,147,781)	(2,081,069)	(1,980,353)	(1,874,636)
(39,521)	(35,067)	(36,058)	(36,103)
1,235,194	1,251,904	1,434,539	1,643,550
44,182,326	42,930,422	41,495,883	39,852,333
\$ 45,417,520	\$ 44,182,326	\$ 42,930,422	\$ 41,495,883
\$ 1,137,976	\$ 1,062,338	\$ 1,267,250	\$ 853,634
392,730	380,314	373,525	371,241
3,632,291	516,704	1,327,047	4,042,441
(2,147,781)	(2,081,069)	(1,980,353)	(1,874,636)
(39,521)	(35,067)	(36,058)	(36,103)
(21,123)	(18,859)	(18,238)	(22,036)
(3,238)	(222)	(284)	217
2,951,334	(175,861)	932,889	3,334,758
30,168,211	30,344,072	29,411,183	26,076,425
\$ 33,119,545	\$ 30,168,211	\$ 30,344,072	\$ 29,411,183
\$ 12,297,975	\$ 14,014,115	\$ 12,586,350	\$ 12,084,700
72.92%	68.28%	70.68%	70.88%
\$ 7,891,783	\$ 7,624,612	\$ 7,434,932	\$ 7,313,025
155.83%	183.80%	169.29%	165.25%

**REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET PENSION LIABILITY:
VIRGINIA RETIREMENT SYSTEM – POLITICAL SUBDIVISIONS**

FOR THE PLAN YEARS ENDED JUNE 30

	VRS Political Subdivisions		
	2020	2019	2018
Total pension liability:			
Service cost	\$ 603,766	\$ 556,149	\$ 544,762
Interest	1,593,594	1,535,532	1,472,680
Benefit changes	19,657	3,948	10,811
Difference between actual and expected experience	221,364	45,032	(43,177)
Assumption changes	—	691,407	—
Benefit payments	(1,157,505)	(1,082,791)	(1,010,021)
Refunds of contributions	(38,323)	(40,249)	(41,324)
Net change in total pension liability	1,242,553	1,709,028	933,731
Total pension liability – beginning	24,206,763	22,497,735	21,564,004
Total pension liability – ending (a)	\$ 25,449,316	\$ 24,206,763	\$ 22,497,735
Plan fiduciary net position:			
Contributions – employer	\$ 521,543	\$ 499,293	\$ 490,286
Contributions – member	258,408	248,421	241,339
Net investment income	405,051	1,345,759	1,415,454
Benefit payments	(1,157,505)	(1,082,791)	(1,010,021)
Refunds of contributions	(38,323)	(40,249)	(41,324)
Administrative expense	(13,842)	(13,369)	(12,236)
Other	(274)	(853)	(30,924)
Net change in plan fiduciary net position	(24,942)	956,211	1,052,574
Plan fiduciary net position – beginning	21,259,032	20,302,821	19,250,247
Plan fiduciary net position – ending (b)	\$ 21,234,090	\$ 21,259,032	\$ 20,302,821
Net pension liability – ending (a-b)	\$ 4,215,226	\$ 2,947,731	\$ 2,194,914
Plan fiduciary net position as a percentage of the total pension liability (b/a)	83.44%	87.82%	90.24%
Covered payroll (c)	\$ 5,368,250	\$ 5,118,622	\$ 4,932,344
Net pension liability as a percentage of covered payroll ((a-b)/c)	78.52%	57.59%	44.50%

Note: This schedule should present 10 years of data; however, the information prior to fiscal year 2014 is not available.

(EXPRESSED IN THOUSANDS)

VRS Political Subdivisions

	2017		2016		2015		2014
\$	541,594	\$	535,322	\$	530,945	\$	524,758
	1,422,753		1,362,892		1,309,484		1,243,386
	36,652		2,053		1,135		—
	(205,649)		(87,268)		(185,419)		—
	(64,510)		—		—		—
	(941,856)		(893,585)		(819,201)		(754,706)
	(42,068)		(37,380)		(36,898)		(36,876)
	746,916		882,034		800,046		976,562
	20,817,088		19,935,054		19,135,008		18,158,446
\$	21,564,004	\$	20,817,088	\$	19,935,054	\$	19,135,008
\$	477,563	\$	543,947	\$	533,877	\$	539,366
	238,636		231,934		227,060		225,555
	2,113,973		300,995		761,164		2,272,284
	(941,856)		(893,585)		(819,201)		(754,706)
	(42,068)		(37,380)		(36,898)		(36,876)
	(12,220)		(10,696)		(10,358)		(12,153)
	(1,887)		(130)		(162)		120
	1,832,141		135,085		655,482		2,233,590
	17,418,106		17,283,021		16,627,539		14,393,949
\$	19,250,247	\$	17,418,106	\$	17,283,021	\$	16,627,539
\$	2,313,757	\$	3,398,982	\$	2,652,033	\$	2,507,469
	89.27%		83.67%		86.70%		86.90%
\$	4,765,842	\$	4,628,806	\$	4,513,335	\$	4,434,764
	48.55%		73.43%		58.76%		56.54%

**REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET PENSION LIABILITY:
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)**

FOR THE PLAN YEARS ENDED JUNE 30

	SPORS		
	2020	2019	2018
Total pension liability:			
Service cost	\$ 22,167	\$ 20,079	\$ 18,187
Interest	77,231	72,715	71,251
Benefit changes	—	—	—
Difference between actual and expected experience	4,466	45,330	(7,248)
Assumption changes	—	31,773	—
Benefit payments	(64,991)	(62,683)	(58,197)
Refunds of contributions	(552)	(805)	(867)
Net change in total pension liability	38,321	106,409	23,126
Total pension liability – beginning	1,176,937	1,070,528	1,047,402
Total pension liability – ending (a)	\$ 1,215,258	\$ 1,176,937	\$ 1,070,528
Plan fiduciary net position:			
Contributions – employer	\$ 32,497	\$ 31,437	\$ 35,806
Contributions – member	6,600	6,379	6,311
Net investment income	16,333	54,792	58,148
Benefit payments	(64,991)	(62,683)	(58,197)
Refunds of contributions	(552)	(805)	(867)
Administrative expense	(360)	(488)	(509)
Other	(38)	(61)	(63)
Net change in plan fiduciary net position	(10,511)	28,571	40,629
Plan fiduciary net position – beginning	865,273	836,702	796,073
Plan fiduciary net position – ending (b)	\$ 854,762	\$ 865,273	\$ 836,702
Net pension liability – ending (a-b)	\$ 360,496	\$ 311,664	\$ 233,826
Plan fiduciary net position as a percentage of the total pension liability (b/a)	70.34%	73.52%	78.16%
Covered payroll (c)	\$ 130,759	\$ 126,483	\$ 124,003
Net pension liability as a percentage of covered payroll ((a-b)/c)	275.69%	246.41%	188.56%

Note: This schedule should present 10 years of data; however, the information prior to fiscal year 2014 is not available.

SPORS

(EXPRESSED IN THOUSANDS)

	2017		2016		2015		2014
\$	18,880	\$	18,700	\$	18,847	\$	18,341
	74,042		72,618		70,350		67,978
	—		—		—		—
	(5,327)		(14,711)		(2,890)		—
	(68,707)		—		—		—
	(57,814)		(53,515)		(53,338)		(50,467)
	(630)		(584)		(375)		(685)
	(39,556)		22,508		32,594		35,167
	1,086,958		1,064,450		1,031,856		996,689
\$	1,047,402	\$	1,086,958	\$	1,064,450	\$	1,031,856
\$	31,888	\$	33,655	\$	28,427	\$	42,683
	5,701		5,759		5,680		5,646
	87,265		12,634		32,466		98,682
	(57,814)		(53,515)		(53,338)		(50,467)
	(630)		(584)		(375)		(685)
	(926)		(590)		(471)		(431)
	(99)		(23)		(27)		—
	65,385		(2,664)		12,362		95,428
	730,688		733,352		720,990		625,562
\$	796,073	\$	730,688	\$	733,352	\$	720,990
\$	251,329	\$	356,270	\$	331,098	\$	310,866
	76.00%		67.22%		68.89%		69.87%
\$	111,395	\$	114,395	\$	110,059	\$	112,010
	225.62%		311.44%		300.84%		277.53%

**REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET PENSION LIABILITY:
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)**

FOR THE PLAN YEARS ENDED JUNE 30

	VaLORS		
	2020	2019	2018
Total pension liability:			
Service cost	\$ 48,003	\$ 44,526	\$ 45,179
Interest	143,708	139,307	136,289
Benefit changes	—	—	—
Difference between actual and expected experience	22,645	11,067	(26,111)
Assumption changes	—	62,090	—
Benefit payments	(117,137)	(109,193)	(104,776)
Refunds of contributions	(4,893)	(4,933)	(5,604)
Net change in total pension liability	92,326	142,864	44,977
Total pension liability – beginning	2,190,025	2,047,161	2,002,184
Total pension liability – ending (a)	\$ 2,282,351	\$ 2,190,025	\$ 2,047,161
Plan fiduciary net position:			
Contributions – employer	\$ 79,914	\$ 75,327	\$ 73,793
Contributions – member	18,712	17,871	17,496
Net investment income	28,579	93,872	98,292
Benefit payments	(117,137)	(109,193)	(104,776)
Refunds of contributions	(4,893)	(4,933)	(5,604)
Administrative expense	(623)	(831)	(861)
Other	(73)	(103)	(247)
Net change in plan fiduciary net position	4,479	72,010	78,093
Plan fiduciary net position – beginning	1,495,990	1,423,980	1,345,887
Plan fiduciary net position – ending (b)	\$ 1,500,469	\$ 1,495,990	\$ 1,423,980
Net pension liability – ending (a-b)	\$ 781,882	\$ 694,035	\$ 623,181
Plan fiduciary net position as a percentage of the total pension liability (b/a)	65.74%	68.31%	69.56%
Covered payroll (c)	\$ 369,996	\$ 349,998	\$ 345,531
Net pension liability as a percentage of covered payroll ((a-b)/c)	211.32%	198.30%	180.35%

Note: This schedule should present 10 years of data; however, the information prior to fiscal year 2014 is not available.

VaLORS

(EXPRESSED IN THOUSANDS)

	2017		2016		2015		2014
\$	47,189	\$	45,608	\$	47,531	\$	46,504
	135,453		129,756		124,579		119,040
	—		—		—		—
	(1,457)		4,997		(4,849)		—
	(63,457)		—		—		—
	(96,224)		(92,270)		(84,990)		(78,412)
	(4,938)		(4,524)		(4,797)		(4,665)
	16,566		83,567		77,474		82,467
	1,985,618		1,902,051		1,824,577		1,742,110
\$	2,002,184	\$	1,985,618	\$	1,902,051	\$	1,824,577
\$	73,816	\$	79,392	\$	62,084	\$	67,483
	17,598		17,574		17,081		17,908
	146,039		20,899		52,312		156,786
	(96,224)		(92,270)		(84,990)		(78,412)
	(4,938)		(4,524)		(4,797)		(4,665)
	(1,540)		(940)		(743)		(681)
	(310)		(38)		(44)		—
	134,441		20,093		40,903		158,419
	1,211,446		1,191,353		1,150,450		992,031
\$	1,345,887	\$	1,211,446	\$	1,191,353	\$	1,150,450
\$	656,297	\$	774,172	\$	710,698	\$	674,127
	67.22%		61.01%		62.64%		63.05%
\$	344,468	\$	345,504	\$	338,562	\$	352,492
	190.52%		224.07%		209.92%		191.25%

**REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET PENSION LIABILITY:
JUDICIAL RETIREMENT SYSTEM**

FOR THE PLAN YEARS ENDED JUNE 30

			JRS		
	2020		2019		2018
Total pension liability:					
Service cost	\$	20,649	\$	18,767	\$ 19,228
Interest		44,233		44,139	43,799
Benefit changes		—		—	—
Difference between actual and expected experience		(9,446)		(7,157)	(15,786)
Assumption changes		—		14,077	—
Benefit payments		(46,546)		(43,584)	(41,165)
Refunds of contributions		(12)		—	—
Net change in total pension liability		8,878		26,242	6,076
Total pension liability – beginning		678,593		652,351	646,275
Total pension liability – ending (a)	\$	687,471	\$	678,593	\$ 652,351
Plan fiduciary net position:					
Contributions – employer	\$	24,819	\$	22,890	\$ 28,096
Contributions – member		3,436		3,208	3,231
Net investment income		10,491		35,372	37,466
Benefit payments		(46,546)		(43,584)	(41,165)
Refunds of contributions		(12)		—	—
Administrative expense		(232)		(315)	(326)
Other		(42)		(39)	(42)
Net change in plan fiduciary net position		(8,086)		17,532	27,260
Plan fiduciary net position – beginning		557,541		540,009	512,749
Plan fiduciary net position – ending (b)	\$	549,455	\$	557,541	\$ 540,009
Net pension liability – ending (a-b)	\$	138,016	\$	121,052	\$ 112,342
Plan fiduciary net position as a percentage of the total pension liability (b/a)		79.92%		82.16%	82.78%
Covered payroll (c)	\$	74,769	\$	68,330	\$ 68,245
Net pension liability as a percentage of covered payroll ((a-b)/c)		184.59%		177.16%	164.62%

Note: This schedule should present 10 years of data, however, the information prior to fiscal year 2014 is not available.

JRS

(EXPRESSED IN THOUSANDS)

	2017		2016		2015		2014
\$	22,144	\$	21,978	\$	23,254	\$	24,024
	42,081		42,820		41,759		40,013
	—		(15,552)		—		—
	(14,774)		(18,681)		(9,107)		—
	16,114		—		—		—
	(40,895)		(41,341)		(40,205)		(37,984)
	—		—		—		—
	24,670		(10,776)		15,701		26,053
	621,605		632,381		616,680		590,627
\$	646,275	\$	621,605	\$	632,381	\$	616,680
\$	27,612	\$	41,502	\$	31,503	\$	27,727
	3,272		3,236		3,015		3,051
	56,029		8,112		20,051		60,833
	(40,895)		(41,341)		(40,205)		(37,984)
	—		—		—		—
	(594)		(363)		(283)		(268)
	(64)		(15)		(17)		—
	45,360		11,131		14,064		53,359
	467,389		456,258		442,194		388,835
\$	512,749	\$	467,389	\$	456,258	\$	442,194
\$	133,526	\$	154,216	\$	176,123	\$	174,486
	79.34%		75.19%		72.15%		71.71%
\$	66,826	\$	66,621	\$	61,092	\$	61,020
	199.81%		231.48%		288.29%		285.95%

REQUIRED SUPPLEMENTARY SCHEDULE OF EMPLOYER CONTRIBUTIONS: PENSION PLANS

FOR THE PLAN YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contribution	Contributions Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
VIRGINIA RETIREMENT SYSTEM (VRS) – STATE					
2020	\$ 600,306	\$ 600,306	\$ —	\$ 4,440,135	13.52%
2019	567,450	567,450	—	4,197,484	13.52%
2018	560,154	560,154	—	4,152,368	13.49%
2017	542,418	542,418	—	4,020,893	13.49%
2016	628,486	557,160	71,326	3,977,759	14.01%
2015	612,824	478,235	134,589	3,878,632	12.33%
2014	504,726	338,286	166,440	3,861,712	8.76%
2013	485,577	325,452	160,125	3,715,205	8.76%
2012	309,930	117,696	192,234	3,663,475	3.21%
2011	294,363	74,113	220,250	3,479,484	2.13%
VIRGINIA RETIREMENT SYSTEM (VRS) – TEACHER					
2020	\$ 1,374,613	\$ 1,374,613	\$ —	\$ 8,766,667	15.68%
2019	1,315,160	1,315,160	—	8,387,503	15.68%
2018	1,319,796	1,319,796	—	8,086,986	16.32%
2017	1,287,939	1,156,935	131,004	7,891,783	14.66%
2016	1,344,981	1,072,020	272,961	7,624,612	14.06%
2015	1,353,158	1,078,065	275,093	7,434,932	14.50%
2014	1,226,394	852,699	373,695	7,313,025	11.66%
2013	1,203,856	837,028	366,828	7,178,629	11.66%
2012	903,655	443,078	460,577	6,999,653	6.33%
2011	891,237	271,306	619,931	6,903,465	3.93%
VIRGINIA RETIREMENT SYSTEM (VRS) – POLITICAL SUBDIVISIONS					
2020	\$ 544,676	\$ 547,382	\$ (2,706)	\$ 5,368,250	10.20%
2019	515,904	518,513	(2,609)	5,118,622	10.13%
2018	504,955	505,603	(648)	4,932,344	10.25%
2017	487,067	487,702	(635)	4,765,842	10.22%
2016	554,335	549,408	4,927	4,628,806	11.87%
2015	540,859	535,919	4,940	4,513,335	11.87%
2014	551,822	539,131	12,691	4,434,764	12.16%
2013	537,657	525,385	12,272	4,321,565	12.16%
2012	400,879	400,879	—	4,142,150	9.68%
2011	391,531	391,531	—	4,078,580	9.60%

REQUIRED SUPPLEMENTARY SCHEDULE OF EMPLOYER CONTRIBUTIONS: PENSION PLANS, cont.

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contribution	Contributions Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)					
2020	\$ 32,533	\$ 32,533	\$ —	\$ 130,759	24.88%
2019	31,469	31,469	—	126,483	24.88%
2018	35,391	35,391	—	124,003	28.54%
2017	31,792	31,792	—	111,395	28.54%
2016	35,211	31,561	3,650	114,395	27.59%
2015	33,876	28,417	5,459	110,059	25.82%
2014	36,538	27,711	8,827	112,010	24.74%
2013	34,535	26,193	8,342	105,872	24.74%
2012	26,250	11,441	14,809	102,701	11.14%
2011	24,570	7,460	17,110	96,128	7.76%
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)					
2020	\$ 79,956	\$ 79,956	\$ —	\$ 369,996	21.61%
2019	75,635	75,635	—	349,998	21.61%
2018	72,734	72,734	—	345,531	21.05%
2017	72,511	72,511	—	344,468	21.05%
2016	72,763	65,101	7,662	345,504	18.84%
2015	71,301	59,824	11,477	338,562	17.67%
2014	68,806	52,169	16,637	352,492	14.80%
2013	66,463	50,392	16,071	340,489	14.80%
2012	55,306	24,481	30,825	347,181	7.05%
2011	53,686	17,255	36,431	337,010	5.12%
JUDICIAL RETIREMENT SYSTEM (JRS)					
2020	\$ 25,713	\$ 25,713	\$ —	\$ 74,769	34.39%
2019	23,498	23,498	—	68,330	34.39%
2018	28,642	28,642	—	68,245	41.97%
2017	28,047	28,047	—	66,826	41.97%
2016	37,008	33,291	3,717	66,621	49.97%
2015	35,336	31,560	3,776	61,092	51.66%
2014	33,018	27,728	5,290	61,020	45.44%
2013	32,185	27,028	5,157	59,481	45.44%
2012	27,631	18,907	8,724	59,053	32.02%
2011	28,101	17,303	10,798	60,058	28.81%

REQUIRED SUPPLEMENTARY SCHEDULE OF INVESTMENT RETURNS

FOR THE PLAN YEARS ENDED JUNE 30

	VRS Pooled Asset Portfolio*						
	2020	2019	2018	2017	2016	2015	2014**
Annual money-weighted rate of return, net of investment expense	1.42%	6.63%	7.57%	12.13%	1.83%	4.72%	15.67%

* Investments for all plans are pooled for investing purposes. Therefore, a money-weighted rate of return, net of investment expense, is only available for the pool and not for each individual plan.

** This schedule should present 10 years of data; however, the information prior to 2014 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS

FOR THE PLAN YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	Group Life Insurance Fund 2020	Group Life Insurance Fund 2019	Group Life Insurance Fund 2018	Group Life Insurance Fund 2017
Change in the Net OPEB Liability				
Total OPEB liability:				
Service cost	\$ 98,367	\$ 86,912	\$ 84,355	\$ 81,479
Interest	221,684	210,950	198,960	201,770
Changes in benefit terms	—	—	—	—
Difference between actual and expected experience	25,708	56,736	88,052	(39,461)
Changes of assumptions	—	122,011	—	(91,738)
Benefit payments	(212,060)	(199,879)	(200,285)	(184,092)
Net change in total OPEB liability	133,699	276,730	171,082	(32,042)
Total OPEB liability – beginning	3,390,238	3,113,508	2,942,426	2,974,468
Total OPEB liability – ending (a)	\$ 3,523,937	\$ 3,390,238	\$ 3,113,508	\$ 2,942,426
Plan fiduciary net position:				
Contributions – employer	\$ 107,252	\$ 102,175	\$ 98,530	\$ 94,082
Contributions – member	162,925	155,153	150,402	146,002
Net investment income	36,276	113,440	110,917	158,430
Benefit payments	(212,060)	(199,879)	(200,285)	(184,092)
Administrative expense	(824)	(709)	(664)	(31)
Other	(1,439)	(1,981)	(1,713)	(1,731)
Net change in plan fiduciary net position	92,130	168,199	157,187	212,660
Plan fiduciary net position – beginning	1,762,972	1,594,773	1,437,586	1,224,926
Plan fiduciary net position – ending (b)	\$ 1,855,102	\$ 1,762,972	\$ 1,594,773	\$ 1,437,586
Net OPEB liability – ending (a-b)	\$ 1,668,835	\$ 1,627,266	\$ 1,518,735	\$ 1,504,840
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	52.64%	52.00%	51.22%	48.86%
Covered employee payroll (c)	\$ 20,612,888	\$ 19,633,771	\$ 19,044,361	\$ 18,473,085
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	8.10%	8.29%	7.97%	8.15%

Note: This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS, cont.

FOR THE PLAN YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	Disability Insurance Trust Fund 2020	Disability Insurance Trust Fund 2019	Disability Insurance Trust Fund 2018	Disability Insurance Trust Fund 2017
Change in the Net OPEB Liability				
Total OPEB liability:				
Service cost	\$ 32,988	\$ 29,232	\$ 27,527	\$ 27,884
Interest	18,774	15,788	15,503	15,810
Changes in benefit terms	—	—	—	—
Difference between actual and expected experience	(46,473)	29,489	(11,237)	—
Changes of assumptions	—	4,180	—	(17,511)
Benefit payments	(27,804)	(24,376)	(31,073)	(30,056)
Net change in total OPEB liability	(22,515)	54,313	720	(3,873)
Total OPEB liability – beginning	292,046	237,733	237,013	240,886
Total OPEB liability – ending (a)	\$ 269,531	\$ 292,046	\$ 237,733	\$ 237,013
Plan fiduciary net position:				
Contributions – employer	\$ 26,994	\$ 25,263	\$ 27,260	\$ 24,130
Contributions – member	—	—	—	—
Net investment income	9,445	30,494	32,073	48,206
Benefit payments	(27,804)	(24,376)	(31,073)	(30,056)
Third-party administrator charges	(6,611)	(6,431)	(6,637)	(7,001)
Administrative expense	(631)	(787)	(961)	(717)
Other	586	1,117	(35)	(54)
Net change in plan fiduciary net position	1,979	25,280	20,627	34,508
Plan fiduciary net position – beginning	488,241	462,961	442,334	407,826
Plan fiduciary net position – ending (b)	\$ 490,220	\$ 488,241	\$ 462,961	\$ 442,334
Net OPEB liability – ending (a-b)	\$ (220,689)	\$ (196,195)	\$ (225,228)	\$ (205,321)
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	181.88%	167.18%	194.74%	186.63%
Covered employee payroll (c)	\$ 4,365,296	\$ 4,077,627	\$ 3,972,637	\$ 3,799,590
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	(5.06)%	(4.81)%	(5.67)%	(5.40)%

Note: This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS, cont.

FOR THE PLAN YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	Virginia Local Disability Program			
	Teachers 2020	Teachers 2019	Teachers 2018	Teachers 2017
Change in the Net OPEB Liability				
Total OPEB liability:				
Service cost	\$ 1,109	\$ 871	\$ 668	\$ 389
Interest	144	92	57	29
Changes in benefit terms	—	—	—	—
Difference between actual and expected experience	406	(19)	(66)	—
Changes of assumptions	—	63	—	53
Benefit payments	(213)	(167)	(131)	(36)
Net change in total OPEB liability	1,446	840	528	435
Total OPEB liability – beginning	2,241	1,401	873	438
Total OPEB liability – ending (a)	3,687	\$ 2,241	\$ 1,401	\$ 873
Plan fiduciary net position:				
Contributions – employer	\$ 2,426	\$ 1,966	\$ 1,160	\$ 589
Contributions – member	—	—	—	—
Net investment income	45	83	29	—
Benefit payments	(213)	(167)	(131)	(36)
Third-party administrator charges	(97)	(829)	(794)	(484)
Administrative expense	(935)	(40)	(76)	(84)
Other	0	—	180	294
Net change in plan fiduciary net position	1,226	1,013	368	279
Plan fiduciary net position – beginning	1,660	647	279	—
Plan fiduciary net position – ending (b)	2,886	\$ 1,660	\$ 647	\$ 279
Net OPEB liability – ending (a-b)	801	\$ 581	\$ 754	\$ 594
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	78.28%	74.07%	46.18%	31.96%
Covered employee payroll (c)	\$ 591,499	\$ 479,535	\$ 372,869	282,200
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	0.14%	0.12%	0.20%	0.21%

Note: This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS, cont.

(EXPRESSED IN THOUSANDS)

	Virginia Local Disability Program			
	Political Subdivisions 2020	Political Subdivisions 2019	Political Subdivisions 2018	Political Subdivisions 2017
Change in the Net OPEB Liability				
Total OPEB liability:				
Service cost	\$ 1,553	\$ 1,191	\$ 876	\$ 664
Interest	261	105	58	25
Changes in benefit terms	—	—	—	—
Difference between actual and expected experience	(1,250)	1,224	(95)	—
Changes of assumptions	—	69	—	(110)
Benefit payments	(236)	(188)	(165)	(44)
Net change in total OPEB liability	328	2,401	674	535
Total OPEB liability – beginning	3,989	1,588	914	379
Total OPEB liability – ending (a)	4,317	\$ 3,989	\$ 1,588	\$ 914
Plan fiduciary net position:				
Contributions – employer	\$ 2,684	\$ 2,226	\$ 1,463	\$ 740
Contributions – member	—	—	—	—
Net investment income	48	93	36	—
Benefit payments	(236)	(188)	(165)	(44)
Third-party administrator charges	(107)	(940)	(1,000)	(609)
Administrative expense	(1,034)	(45)	(96)	(106)
Other	—	—	227	370
Net change in plan fiduciary net position	1,355	1,146	465	351
Plan fiduciary net position – beginning	1,962	816	351	—
Plan fiduciary net position – ending (b)	3,317	\$ 1,962	\$ 816	\$ 351
Net OPEB liability – ending (a-b)	1,000	\$ 2,027	\$ 772	\$ 563
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	76.84%	49.19%	51.39%	38.40%
Covered employee payroll (c)	372,635	309,020	242,807	183,629
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	0.27%	0.66%	0.32%	0.31%

Note: This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS, cont.

(EXPRESSED IN THOUSANDS)

	Line of Duty Trust Fund 2020	Line of Duty Trust Fund 2019	Line of Duty Trust Fund 2018	Line of Duty Trust Fund 2017
Change in the Net OPEB Liability				
Total OPEB liability:				
Service cost	\$ 16,019	\$ 13,292	\$ 15,197	\$ 17,648
Interest	12,443	12,019	9,258	8,305
Changes in benefit terms	—	—	—	—
Difference between actual and expected experience	(64,121)	14,833	51,048	—
Changes of assumptions	109,371	18,941	(13,962)	(30,500)
Benefit payments	(12,191)	(12,854)	(12,398)	(10,255)
Net change in total OPEB liability	61,521	46,231	49,143	(14,802)
Total OPEB liability – beginning	361,626	315,395	266,252	281,054
Total OPEB liability – ending (a)	423,147	\$ 361,626	\$ 315,395	\$ 266,252
Plan fiduciary net position:				
Contributions – employer	\$ 13,567	\$ 13,377	\$ 10,035	\$ 11,024
Contributions – member	—	—	—	—
Net investment income	346	277	678	683
Benefit payments	(12,191)	(12,854)	(12,398)	(10,255)
Administrative expense	(810)	(508)	(742)	(1,283)
Other	581	659	855	584
Net change in plan fiduciary net position	1,493	951	(1,572)	753
Plan fiduciary net position – beginning	2,840	1,889	3,461	2,708
Plan fiduciary net position – ending (b)	4,333	\$ 2,840	\$ 1,889	\$ 3,461
Net OPEB liability – ending (a-b)	418,814	\$ 358,786	\$ 313,506	\$ 262,791
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	1.02%	0.79%	0.60%	1.30%
Covered employee payroll (c)	*	*	*	*
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	N/A	N/A	N/A	N/A

* Contributions to the Line of Duty Trust Fund are based on the number of participants in the program using a per-capita-based contribution versus a payroll-based contribution. Note: This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS, cont.

FOR THE PLAN YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	Health Insurance Credit			
	State 2020	State 2019	State 2018	State 2017
Change in the Net OPEB Liability				
Total OPEB liability:				
Service cost	\$ 20,142	\$ 19,446	\$ 19,645	\$ 19,231
Interest	67,288	68,023	66,883	66,641
Changes in benefit terms	—	—	—	—
Difference between actual and expected experience	(5,702)	(13,402)	745	—
Changes of assumptions	—	22,700	—	(12,229)
Benefit payments	(70,440)	(72,857)	(69,117)	(71,256)
Net change in total OPEB liability	11,288	23,910	18,156	2,387
Total OPEB liability – beginning	1,032,094	1,008,184	990,028	987,641
Total OPEB liability – ending (a)	1,043,382	\$ 1,032,094	\$ 1,008,184	\$ 990,028
Plan fiduciary net position:				
Contributions – employer	84,850	\$ 79,926	\$ 79,416	\$ 75,058
Net investment income	2,186	6,189	5,706	7,706
Benefit payments	(70,440)	(72,857)	(69,117)	(71,256)
Administrative expense	(231)	(135)	(149)	(131)
Other	(10)	(8)	536	(546)
Net change in plan fiduciary net position	16,355	13,115	16,392	10,831
Plan fiduciary net position –beginning	109,023	95,908	79,516	68,685
Plan fiduciary net position – ending (b)	125,378	\$ 109,023	\$ 95,908	\$ 79,516
Net OPEB liability – ending (a-b)	918,004	\$ 923,071	\$ 912,276	\$ 910,512
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	12.02%	10.56%	9.51%	8.03%
Covered employee payroll (c)	\$ 7,237,090	\$ 6,844,807	\$ 6,764,917	\$ 6,489,069
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	12.68%	13.49%	13.49%	14.03%

This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS, cont.

FOR THE PLAN YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	Health Insurance Credit			
	Teacher 2020	Teacher 2019	Teacher 2018	Teacher 2017
Change in the Net OPEB Liability				
Total OPEB liability:				
Service cost	\$ 21,737	\$ 20,979	\$ 20,887	\$ 20,351
Interest	93,964	93,526	92,399	91,661
Changes in benefit terms	—	—	—	—
Difference between actual and expected experience	(13,054)	(2,397)	(7,255)	—
Changes of assumptions	—	35,148	—	(15,003)
Benefit payments	(92,086)	(90,455)	(89,420)	(83,510)
Net change in total OPEB liability	10,561	56,801	16,611	13,499
Total OPEB liability – beginning	1,438,114	1,381,313	1,364,702	1,351,203
Total OPEB liability – ending (a)	1,448,675	\$ 1,438,114	\$ 1,381,313	\$ 1,364,702
Plan fiduciary net position:				
Contributions – employer	105,210	100,643	99,469	87,613
Net investment income	2,291	7,350	6,097	8,818
Benefit payments	(92,086)	(90,455)	(89,420)	(83,510)
Administrative expense	(258)	(152)	(152)	(120)
Other	(12)	(9)	(446)	436
Net change in plan fiduciary net position	15,145	17,377	15,548	13,237
Plan fiduciary net position – beginning	129,016	\$ 111,639	\$ 96,091	\$ 82,854
Plan fiduciary net position – ending (b)	144,161	\$ 129,016	\$ 111,639	\$ 96,091
Net OPEB liability – ending (a-b)	1,304,514	\$ 1,309,098	\$ 1,269,674	\$ 1,268,611
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	9.95%	8.97%	8.08%	7.04%
Covered employee payroll (c)	\$ 8,766,759	\$ 8,387,684	\$ 8,087,389	\$ 7,892,011
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	14.88%	15.61%	15.70%	16.07%

This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS, cont.

(EXPRESSED IN THOUSANDS)

Change in the Net OPEB Liability	Health Insurance Credit			
	Political Subdivisions 2020	Political Subdivisions 2019	Political Subdivisions 2018	Political Subdivisions 2017
Total OPEB liability:				
Service cost	\$ 1,063	\$ 997	\$ 960	\$ 972
Interest	2,797	2,721	2,644	2,618
Changes in benefit terms	32,238	—	—	—
Difference between actual and expected experience	624	964	339	—
Changes of assumptions	220	1,066	—	(1,015)
Benefit payments	(2,996)	(2,564)	(2,707)	(1,676)
Net change in total OPEB liability	33,946	3,184	1,236	899
Total OPEB liability – beginning	43,544	40,360	39,124	38,225
Total OPEB liability – ending (a)	77,490	\$ 43,544	\$ 40,360	\$ 39,124
Plan fiduciary net position:				
Contributions – employer	2,553	\$ 2,406	\$ 2,291	\$ 2,164
Net investment income	490	1,490	1,570	2,273
Benefit payments	(2,996)	(2,564)	(2,707)	(1,676)
Administrative expense	(47)	(32)	(37)	(37)
Other	(2)	(2)	(103)	111
Net change in plan fiduciary net position	(2)	1,298	1,014	2,835
Plan fiduciary net position – beginning	24,468	23,170	22,156	19,321
Plan fiduciary net position – ending (b)	24,466	\$ 24,468	\$ 23,170	\$ 22,156
Net OPEB liability – ending (a-b)	53,024	\$ 19,076	\$ 17,190	\$ 16,968
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	31.57%	56.19%	57.41%	56.63%
Covered employee payroll (c)	\$ 1,477,727	\$ 1,081,702	\$ 1,022,007	\$ 966,611
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	3.59%	1.76%	1.68%	1.76%

This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS, cont.

(EXPRESSED IN THOUSANDS)

	Health Insurance Credit			
	Constitutional Officers 2020	Constitutional Officers 2019	Constitutional Officers 2018	Constitutional Officers 2017
Change in the Net OPEB Liability				
Total OPEB liability:				
Service cost	\$ 746	\$ 687	\$ 677	\$ 671
Interest	2,050	2,010	1,913	1,890
Changes in benefit terms	—	—	—	—
Difference between actual and expected experience	223	98	569	—
Changes of assumptions	—	757	0	(578)
Benefit payments	(1,970)	(1,825)	(1,723)	(1,568)
Net change in total OPEB liability	1,049	1,727	1,436	415
Total OPEB liability – beginning	31,356	29,629	28,193	27,778
Total OPEB liability – ending (a)	32,405	\$ 31,356	\$ 29,629	\$ 28,193
Plan fiduciary net position:				
Contributions – employer	2,526	\$ 2,794	\$ 2,378	\$ 2,320
Net investment income	86	238	183	215
Benefit payments	(1,970)	(1,825)	(1,723)	(1,568)
Administrative expense	(9)	(6)	(4)	(4)
Other	—	—	17	(15)
Net change in plan fiduciary net position	633	1,201	851	948
Plan fiduciary net position – beginning	4,479	3,278	2,427	1,479
Plan fiduciary net position – ending (b)	5,112	\$ 4,479	\$ 3,278	\$ 2,427
Net OPEB liability – ending (a-b)	27,293	\$ 26,877	\$ 26,351	\$ 25,766
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	15.78%	14.28%	11.06%	8.61%
Covered employee payroll (c)	\$ 719,390	\$ 682,376	\$ 655,995	\$ 633,397
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	3.79%	3.94%	4.02%	4.07%

This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS, cont.

(EXPRESSED IN THOUSANDS)

Change in the Net OPEB Liability	Health Insurance Credit			
	Social Services Employees 2020	Social Services Employees 2019	Social Services Employees 2018	Social Services Employees 2017
Total OPEB liability:				
Service cost	\$ 291	\$ 260	\$ 257	\$ 263
Interest	958	960	933	928
Changes in benefit terms	—	—	—	—
Difference between actual and expected experience	(106)	(27)	186	—
Changes of assumptions	—	327	—	(162)
Benefit payments	(1,058)	(1,012)	(970)	(928)
Net change in total OPEB liability	85	508	406	101
Total OPEB liability – beginning	14,730	14,222	13,816	13,715
Total OPEB liability – ending (a)	14,815	\$ 14,730	\$ 14,222	\$ 13,816
Plan fiduciary net position:				
Contributions – employer	689	\$ 1,847	\$ 1,120	\$ 1,069
Net investment income	34	122	72	98
Benefit payments	(1,058)	(1,012)	(970)	(928)
Administrative expense	(3)	(3)	(1)	(2)
Other	—	—	7	(7)
Net change in plan fiduciary net position	(338)	954	228	230
Plan fiduciary net position – beginning	2,273	1,319	1,091	861
Plan fiduciary net position – ending (b)	1,935	\$ 2,273	\$ 1,319	\$ 1,091
Net OPEB liability – ending (a-b)	12,880	\$ 12,457	\$ 12,903	\$ 12,725
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	13.06%	15.43%	9.27%	7.90%
Covered employee payroll (c)	\$ 298,257	\$ 279,503	\$ 263,298	\$ 251,084
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	4.32%	4.46%	4.9%	5.07%

This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

REQUIRED SUPPLEMENTARY SCHEDULE OF CHANGES IN EMPLOYERS' NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS, cont.

(EXPRESSED IN THOUSANDS)

Change in the Net OPEB Liability	Health Insurance Credit			
	Registrars 2020	Registrars 2019	Registrars 2018	Registrars 2017
Total OPEB liability:				
Service cost	\$ 16	\$ 16	\$ 12	\$ 12
Interest	40	39	36	35
Changes in benefit terms	—	—	—	—
Difference between actual and expected experience	(44)	(22)	1	—
Changes of assumptions	—	12	—	(10)
Benefit payments	(7)	(12)	(12)	(27)
Net change in total OPEB liability	5	33	37	10
Total OPEB liability – beginning	590	557	520	510
Total OPEB liability – ending (a)	595	\$ 590	\$ 557	\$ 520
Plan fiduciary net position:				
Contributions – employer	44	\$ 36	\$ 32	\$ 47
Net investment income	2	5	4	3
Benefit payments	(7)	(12)	(12)	(27)
Administrative expense	—	—	—	—
Other	—	—	—	—
Net change in plan fiduciary net position	39	29	24	23
Plan fiduciary net position – beginning	87	58	34	11
Plan fiduciary net position – ending (b)	126	\$ 87	\$ 58	\$ 34
Net OPEB liability – ending (a-b)	469	\$ 503	\$ 499	\$ 486
Plan fiduciary net position as a percentage of the total OPEB liability (b/a)	21.18%	14.75%	10.41%	6.54%
Covered employee payroll (c)	\$ 12,745	\$ 11,770	\$ 11,512	\$ 11,047
Net OPEB liability as a percentage of covered employee payroll ((a-b)/c)	3.68%	4.27%	4.33%	4.40%

This schedule should present 10 years of data; however, the information prior to 2017 is unavailable.

**REQUIRED SUPPLEMENTARY SCHEDULE OF EMPLOYER CONTRIBUTIONS:
OTHER POST-EMPLOYMENT BENEFIT (OPEB) PLANS**

FOR THE PLAN YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contribution	Contributions Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
GROUP LIFE INSURANCE FUND					
2020	\$ 107,187	\$ 107,187	\$ —	\$ 20,612,888	0.52%
2019	102,096	102,096	—	19,633,771	0.52%
2018	99,031	99,031	—	19,044,361	0.52%
2017	96,060	96,060	—	18,473,085	0.52%
2016	95,383	86,385	8,998	17,996,821	0.48%
2015	92,864	84,103	8,761	17,521,463	0.48%
2014	91,580	82,940	8,640	17,279,273	0.48%
2013	88,985	80,590	8,395	16,789,539	0.48%
2012	71,957	47,293	24,664	16,353,785	0.29%
2011	70,312	44,744	25,568	15,980,013	0.28%
DISABILITY INSURANCE TRUST FUND					
2020	\$ 27,065	\$ 27,065	\$ —	\$ 4,365,296	0.62%
2019	25,281	25,281	—	4,077,627	0.62%
2018	26,219	26,219	—	3,972,637	0.66%
2017	25,077	25,077	—	3,799,590	0.66%
2016	27,187	24,580	2,607	3,724,248	0.66%
2015	26,244	23,728	2,516	3,595,080	0.66%
2014	20,610	16,701	3,909	3,553,444	0.47%
2013	21,032	17,043	3,989	3,626,208	0.47%
2012	30,285	1,096	29,189	4,037,955	0.03%
2011	28,646	—	28,646	3,819,462	0.00%
VIRGINIA LOCAL DISABILITY PROGRAM – TEACHER					
2020	\$ 2,425	\$ 2,425	\$ —	\$ 591,499	0.41%
2019	1,966	1,966	—	479,535	0.41%
2018	1,156	1,156	—	372,869	0.31%
2017	875	875	—	282,200	0.31%
2016	536	536	—	184,729	0.29%
2015	276	276	—	95,328	0.29%
2014*	10	10	—	3,549	0.29%
VIRGINIA LOCAL DISABILITY PROGRAM – POLITICAL SUBDIVISIONS					
2020	\$ 2,683	\$ 2,683	—	\$ 372,635	0.72%
2019	2,225	2,225	—	309,020	0.72%
2018	1,457	1,457	—	242,807	0.60%
2017	1,102	1,102	—	183,629	0.60%
2016	741	741	—	123,509	0.60%
2015	377	377	—	62,801	0.60%
2014*	41	41	—	6,818	0.60%
LINE OF DUTY TRUST FUND**					
2020	\$ 24,481	\$ 13,590	\$ 10,891	N/A	N/A
2019	24,176	13,421	10,755	N/A	N/A
2018	23,214	10,652	12,562	N/A	N/A
2017	23,503	10,785	12,718	N/A	N/A
2016	23,328	9,756	13,572	N/A	N/A
2015	23,847	9,974	13,873	N/A	N/A
2014	22,103	10,381	11,722	N/A	N/A
2013	21,895	9,341	12,554	N/A	N/A
2012	25,033	8,323	16,710	N/A	N/A
2011***	N/A	N/A	N/A	N/A	N/A

**REQUIRED SUPPLEMENTARY SCHEDULE OF EMPLOYER CONTRIBUTIONS:
OTHER POST-EMPLOYMENT BENEFIT (OPEB) PLANS, cont.**

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contribution	Contributions Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
HEALTH INSURANCE CREDIT – STATE					
2020	\$ 84,674	\$ 84,674	\$ —	\$ 7,237,090	1.17%
2019	80,084	80,084	—	6,844,807	1.17%
2018	79,802	79,802	—	6,762,917	1.18%
2017	76,571	76,571	—	6,489,069	1.18%
2016	73,961	66,375	7,586	6,321,454	1.05%
2015	71,522	64,186	7,336	6,112,951	1.05%
2014	63,385	60,367	3,018	6,036,629	1.00%
2013	59,618	56,779	2,839	5,677,848	1.00%
2012	60,222	7,686	52,536	5,681,295	0.14%
2011	57,193	5,395	51,798	5,395,598	0.10%
HEALTH INSURANCE CREDIT – TEACHER					
2020	\$ 105,201	\$ 105,201	\$ —	\$ 8,766,759	1.20%
2019	100,652	100,652	—	8,387,684	1.20%
2018	99,475	99,475	—	8,087,389	1.23%
2017	97,072	87,601	9,471	7,892,011	1.11%
2016	89,976	80,826	9,150	7,625,071	1.06%
2015	87,739	78,817	8,922	7,435,548	1.06%
2014	85,571	81,183	4,388	7,313,792	1.11%
2013	83,763	79,468	4,295	7,159,267	1.11%
2012	75,999	42,222	33,777	7,036,940	0.60%
2011	74,522	41,401	33,121	6,900,183	0.60%
HEALTH INSURANCE CREDIT – POLITICAL SUBDIVISIONS					
2020	\$ 2,494	\$ 2,494	\$ —	\$ 1,477,727	0.17%
2019	2,353	2,353	—	1,081,702	0.22%
2018	2,208	2,208	—	1,022,007	0.22%
2017	2,088	2,088	—	966,611	0.22%
2016	1,936	1,936	—	921,923	0.21%
2015	1,859	1,859	—	886,366	0.21%
2014	1,875	1,875	—	859,540	0.22%
2013	2,035	2,035	—	1,019,421	0.20%
2012	1,974	1,974	—	980,836	0.20%
2011	1,940	1,940	—	965,450	0.20%
HEALTH INSURANCE CREDIT – CONSTITUTIONAL OFFICERS					
2020	\$ 2,734	\$ 2,734	\$ —	\$ 719,390	0.38%
2019	2,593	2,593	—	682,376	0.38%
2018	2,362	2,362	—	655,995	0.36%
2017	2,280	2,280	—	633,397	0.36%
2016****	1,950	1,830	120	609,359	0.30%
HEALTH INSURANCE CREDIT – SOCIAL SERVICES EMPLOYEES					
2020	\$ 1,283	\$ 1,283	\$ —	\$ 298,257	0.43%
2019	1,202	1,202	—	279,503	0.43%
2018	1,106	1,106	—	263,298	0.42%
2017	1,055	1,055	—	251,084	0.42%
2016****	961	824	137	240,250	0.34%

**REQUIRED SUPPLEMENTARY SCHEDULE OF EMPLOYER CONTRIBUTIONS:
OTHER POST-EMPLOYMENT BENEFIT (OPEB) PLANS, cont.**

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Actuarially Determined Contribution	Contributions in Relation to the Actuarially Determined Contribution	Contributions Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
HEALTH INSURANCE CREDIT – REGISTRARS					
2020	\$ 50	\$ 50	\$ —	\$ 12,745	0.39%
2019	46	46	—	11,770	0.39%
2018	47	47	—	11,512	0.41%
2017	45	45	—	11,047	0.41%
2016****	36	30	6	9,987	0.30%

* Fiscal year 2014 was the first year for the Virginia Local Disability Program.

** Contributions to the Line of Duty Trust Fund are based on the number of participants in the program using a per-capita-based contribution versus a payroll-based contribution.

***Fiscal year 2011 was the first year for the Line of Duty Act Trust Fund. It was funded by a loan from the Group Life Insurance Trust Fund. As a result, there were no contributions required or paid during the fiscal year. Contributions of \$10,678,000 were recorded for fiscal year 2011; however, VRS did not receive contributions under the program until fiscal year 2012.

****Although the Health Insurance Credit Program for constitutional officers, social services employees and registrars existed prior to fiscal year 2016, the program was funded in a different manner and the results do not provide comparability with the current presentations.

SCHEDULE OF INVESTMENT EXPENSES

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	2020		2019
Management Fees:			
Public Equity Managers	\$ 49,662	\$	48,864
Fixed Income Managers	2,652		1,241
Credit Strategies Managers	64,132		58,953
Real Assets Managers	103,871		97,071
Alternative Investment Managers	128,799		127,552
Hedge Fund Managers	71,501		75,183
Dynamic Strategies Managers	4,331		4,329
Risk Based Investments Managers	16,751		15,492
Currency Managers	2,700		2,700
Total External Management Fees	444,399		431,385
Performance Fees	7,599		3,709
Miscellaneous Fees and Expenses:			
Custodial Fees	4,500		4,500
Legal Fees	770		614
Other Fees and Expenses	7,493		9,169
Total Miscellaneous Fees and Expenses	12,763		14,283
In-House Investment Management	38,183		37,122
Total Investment Expenses	\$ 502,944	\$	486,499

SCHEDULE OF ADMINISTRATIVE EXPENSES: ACTUAL TO BUDGET

YEARS ENDED JUNE 30, 2020 AND 2019

(EXPRESSED IN THOUSANDS)

	Totals	
	2020	2019
Personnel Services:		
Salaries and Wages	\$ 38,879	\$ 38,629
Per Diem Services	322	314
Retirement Contributions	4,184	3,979
Social Security	2,481	2,340
Group Life and Medical Insurance	5,455	5,879
Compensated Absences	874	299
Total Personnel Services	52,195	51,440
Professional Services:		
Data Processing	19,840	25,097
Actuarial and Consulting Services	2,857	2,773
Legal Services	506	525
Medical Review Services	804	557
Management Services	128	165
Personnel Development Services	50	162
Total Professional Services	24,185	29,279
Communication Services:		
Media Services	308	363
Printing	182	212
Postal and Delivery Services	412	677
Telecommunications	847	665
Total Communication Services	1,749	1,917
Rentals:		
Business Equipment	—	—
Office Space	2,049	3,356
Total Rentals	2,049	3,356
Other Services and Charges:		
Skilled and Clerical Services	161	224
Depreciation	7,914	6,438
Dues and Memberships	145	192
Equipment	2,791	4,638
Insurance	146	173
Repairs and Maintenance	753	—
Supplies and Materials	198	256
Travel and Transportation	683	820
Miscellaneous	265	219
Total Other Services and Charges	13,056	12,960
Total Administrative Expenses	\$ 93,234	\$ 98,952
Adjustment for Capitalization of Expenses	(725)	(9,194)
Total Administrative Expenses (GAAP basis)	92,509	89,758
Adjustments Necessary to Convert Administrative Expenses on the GAAP Basis to the Budgetary Basis at Year End (Net)	(7,099)	3,221
Administrative Expenses (Budgetary Basis)	\$ 85,410	\$ 92,979
Administrative Expenses Appropriated	\$ 94,721	\$ 95,844
Distribution of Administrative Expenses:		
Total Administrative Expenses	92,509	89,758
Less: In-house Investment Management	(38,183)	(37,122)
Net Administrative Expenses	\$ 54,326	\$ 52,636

SCHEDULE OF PROFESSIONAL AND CONSULTING SERVICES

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

Actuarial, Legal and Oversight Services		
Aon Consulting Inc	Actuarial Services and Benefits Consulting	\$ 4.0
Auditor of Public Accounts	Financial Reporting Auditor	247.2
Attorney General	Legal Services	21.1
Cavanaugh MacDonald, LLC	Actuarial Services and Benefits Consulting	859.3
Ice Miller LLP	Legal Services	121.4
Joint Legislative Audit Review Commission	Oversight Responsibilities	89.2
Total Actuarial, Legal and Oversight Services		\$ 1,342.2
Consulting Services		
Advantage 2000	Social Security Advocacy and Disability Tracking	\$ 69.9
Albourne America, LLC	Investment Consultant Services	400.0
Bishops Services	Due Diligence Services	75.2
Boynton Rothschild Rowland Architects	Parking Deck Study	18.8
CEM Benchmarking Inc.	Benchmarking Analysis	92.5
County Court Reporters	Court Reporting Services	4.1
Farnsworth & Taylor	Hearing Officer for Disability Cases	2.5
FX Transparency LLC	Investment Advisory Services	30.0
Gallagher Benefit Services	Recruitment Consulting	8.7
Gartner Group Inc.	Research & Advisory	178.8
Genex	Job Analysis	1.1
Harrison & Turk, PC	Fact Finding Hearing Officer for Disability Cases	28.2
Hartsoe Morgan PLLC	Hearing Officer for Disability Cases	3.8
AON Hewitt Investments	Investment Consultant Services	15.0
John Frye	Fact Finding Hearing Officer for Disability Cases	17.8
Life Status 360 LLC	Location Services	2.1
McGinley, Elsberg & Hutcheson, PLC	Fact Finding Hearing Officer for Disability Cases	3.3
McLagan Partners, Inc.	Investment Compensation Study	11.3
Michael Katzen	Fact Finding Hearing Officer for Disability Cases	196.8
MMRO	Medical Board Review and Examinations	804.2
Sagitec Solutions, LLC	VRS Modernization Project Solution Vendor	371.2
Torreycove Capital	Investment Consulting Services	50.0
Veteran Reporters	Court Reporting Services	6.2
Total Consulting Services		\$ 2,391.5
Total Professional and Consulting Services		\$ 3,733.7



Virginia
Retirement
System

3 Investment Section



HONORING OUR HEROES

VRS MEMBERS SERVING THE COMMONWEALTH

3

Investment Section

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Description of Hybrid Defined Contribution Plan

Description of Defined Contribution Plans Investment Options

Investment Option Performance Summary: Defined Contribution Plans

Chief Investment Officer's Letter



Ronald D. Schmitz, Chief Investment Officer

P.O. Box 2500 • 1200 East Main Street
Richmond, Virginia 23218-2500
Toll-free: 888-827-3847 • TDD: 804-344-3190

October 16, 2020

To: Members of the Board of Trustees and Participants of the Virginia Retirement System

There is an old saying: “May you live in interesting times.” It seems like that sentiment closely matches our experience during 2020. This year has seen some unique, if not unprecedented, events in a variety of areas: public health, financial markets, economic activity and politics.

The investment staff has temporarily transitioned to a work-from-home environment, as have most of our VRS colleagues. I am pleased to say the transition went smoothly, thanks to the hard work and dedication of the IT staff, senior management, the Board and all employees affected. Business continuity planning has long been considered a best practice in the business world, and it has been gratifying to see those efforts pay off.

The VRS response to the pandemic leads to the discussion of the response of the markets and the VRS portfolio during this time. The global economy and financial markets had an extremely sharp decline in February and March due to COVID-19. The economic recovery has been somewhat uneven, but the markets have come roaring back to achieve levels at or above those existing in the heady pre-pandemic days.

The stock market is forward-looking, and the recovery in market values shows that investors are discounting the short-term hit to revenues and earnings, focusing instead on the outlook for 2021. Between the government stimulus and the expectation of positive developments in vaccines and treatments for COVID-19, the market is clearly expecting a return to normal.

PERFORMANCE OVERVIEW

As shown in the table below, the Total Fund has tended to perform well versus its benchmark for the longer term, generally exceeding the benchmark by about half a percent and above the Board's target excess return. However, the excess return over the last three and five years has been more modest, given some difficulties in the equity and credit portfolios, discussed in the next section of this letter. Given our slightly defensive stance, the return for the current fiscal year was comfortably ahead of the benchmark.

Annualized Return for Periods Ended June 30, 2020:

	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
VRS Total Fund	1.4%	5.2%	5.8%	8.1%	6.4%	5.5%	7.8%
Benchmark*	1.0%	5.1%	5.6%	7.6%	6.0%	5.1%	7.2%

Investment return calculations were prepared using a time-weighted return methodology based on market value, net of investment expenses.

** The VRS Total Fund Benchmark is a blend of the asset class benchmarks at policy weights. Benchmarks are selected with the help of a third-party investment consultant.*

The investment objective of the VRS Defined Benefit Plan portfolio is to maximize returns while managing risk within an acceptable range. Because of the long-term nature of the plan's liabilities, VRS is a long-term investor with a long planning horizon. The total fund is highly diversified to help mitigate losses from significant market downturns similar to what we saw in the first quarter of 2020. Stocks, bonds, real estate, private equity, private debt, cash and other investment strategies serve to diversify the total portfolio to avoid all assets behaving in the same manner at the same time. Diversification also follows the mandate of the *Code of Virginia* (§ 51.1-124.30(C)) by helping to prevent frequent shifts in participating employers' contribution rates and providing rate consistency from year to year.

The VRS portfolio is positioned to provide diversification across five primary asset classes. Only two of the five primary asset classes outperformed for the fiscal year; however, it is important to note that the Total Fund did outperform its benchmark.

ASSET CLASS COMMENTARY

Figures 3.1 and 3.2, which follow this letter, show the asset allocation of the fund at June 30, 2020, as well as performance by asset class for various periods ending on that date. Comments about each portfolio's structure and holdings follow those graphics.

- The VRS Public Equity team adheres to a philosophy of favoring high-quality stocks that sell at prices below the intrinsic value suggested by current earnings. (Growth stocks – well-known technology names for example – sell at high prices relative to current earnings because of investors' belief that future earnings will be strong.) Value-oriented strategies, such as ours, have tended to underperform in recent years. Growth stocks have done well and are increasingly mispriced as judged by our value-oriented approach. Despite the near-term returns, we are confident in the efficacy of our approach and like to remind stakeholders that a similar phenomenon occurred in the late 1990s when the price of technology stocks moved ahead of their fundamentals. Our strategies performed quite well in the aftermath. We see a similar situation today and remain confident about our prospects going forward.
- Our Credit Strategies portfolio has also been under pressure in the short run. The biggest single driver of strong credit returns in the last year or so has been falling interest rates, which have driven up prices of fixed coupon, or rate-sensitive, securities. The Credit Strategies program is overweight in floating-rate debt, private debt and distressed debt. These positions are not as sensitive to falling interest rates,

and that has caused the program to lag its benchmark in the near term. We remain confident that being exposed to higher yielding private debt, with a first call on assets should a bankruptcy occur, will serve us well across both interest rate and credit cycles in the longer term.

- On a more positive note, Fixed Income, Real Assets and Private Equity all have solid long-term numbers. Fixed Income returns are strong across the board. The VRS team has achieved remarkable consistency in delivering excess returns. The level of outperformance is notable, given that the portfolio does not take much risk relative to its benchmark.
- Real Assets (real estate and other assets such as infrastructure, timber, agriculture and energy) has also been an excellent source of excess returns. Near term, we have experienced some write-downs, especially in the hospitality sector. Longer term, our emphasis on industrial/warehouse and multi-family properties – and underweight to office properties – has been a winner. Digital infrastructure and renewable energy have also been positive contributors to relative performance.
- Private Equity posted strong three-, five- and 10-year results versus its benchmark. In fact, Private Equity delivered returns that were 4% higher per year than Public Equity. That is exactly what we aim to achieve. Assets with a digital or technology focus have been unaffected by the pandemic. More traditional industries have had to engage in cost-cutting exercises and have, in many cases, attempted to shore up their respective balance sheets.

ASSET LIABILITY STUDY

During the fiscal year, the Board completed an asset and liability study. This effort involved long-term projections of liability growth as well as capital market assumptions on returns and risk. The Board maintained a similar risk/reward policy as had previously been in effect; however, there were slight modifications to the asset mix policy portfolio. Public Equity and Private Market asset classes were targeted at slightly lower levels, with an increase in Multi-Asset Public Strategies (MAPS).

These new strategies are an attempt to accomplish various portfolio objectives. The Private Investment Partnerships (PIP) portfolio comprises strategic relationships with two large private market general partners across the real estate, energy and credit opportunity sets. The MAPS portfolios seek value-added returns through active decisions around asset class and industry exposures, as well as through a risk mitigation strategy that attempts to temper volatile equity market return patterns.

MARKET OUTLOOK

The Economist's Intelligence Unit has revised its 2020 global growth estimate downward to -5.1% as of August from -2.5% in April, suggesting that a V-shaped recovery starting in the second half of the year may be fading. Likewise, world trade growth was revised

downward, as were export prices. This data supports a slowing in global recovery in the second half of 2020.

In its September 16 meeting, the Federal Open Market Committee (FOMC) left its upper and lower bounds for Federal Reserve funds unchanged at 0.25% and 0%, respectively. Initial and ongoing jobless claims, while still elevated, continue to decline but at a decelerating pace. Separately, Fed Chair Jerome Powell expressed some uncertainty around maintaining the strength of the current economic recovery.

Consumer price inflation at the end of August was growing annually by 1.3%, well below the Fed's target levels. The Fed has adopted a trailing average inflation target, which means that printed inflation above the target will be tolerated if policy can maintain the band around the target average of 2%. The Fed has stated that it will not hike rates to control inflation until it sees clear signs that inflation is above the target of 2%. Some critics argue that this approach may result in more inflation volatility, possibly igniting protracted inflationary episodes.

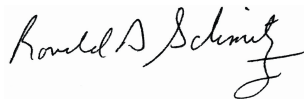
Despite the current lack of inflationary pressures, real average hourly earnings are growing at a 3.3% annual pace, while real average weekly earnings are growing at 3.9%, both offering strong support for growth in personal income and spending.

Given the conditions as described, the macro outlook remains mixed, with strong performance in some sectors like housing and a rebound in manufacturing. But weak advances in capacity utilization would support the Fed's worry that the recovery will continue to lose steam in 2020 without additional fiscal support. Expectations for 2021 remain benign.

A LAST WORD

I want to thank the VRS Board of Trustees and the Investment Advisory Committee for their dedication and support over this past year, as well as my colleagues in VRS administration. My appreciation also goes out to our outstanding team of investment professionals. Together, we will continue to build on VRS' legacy and plan for its future.

Sincerely,



Ronald D. Schmitz
Chief Investment Officer

The Investment Section provides detailed information regarding the structure of the investment portfolio. This information includes performance, asset allocations, portfolio highlights, a list of VRS' money managers and public equity commissions for the fiscal year. The section also presents the System's investment management fees and expenses and an investment summary.

Investment Account

The VRS Board of Trustees has fiduciary responsibility to invest the fund solely in the interest of the beneficiaries of the System. As established by the *Code of Virginia*, "the Board shall invest the assets of the Retirement System with the care, skill, prudence and due diligence that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of like character and with like aims."

Benefit payments are projected to occur over a long period of time, allowing VRS to adopt a long-term investment horizon and asset allocation policy for the management of fund assets. Asset allocation policy is critical because it defines the basic risk and return characteristics of the VRS investment portfolio. Asset allocation targets are established using an asset-liability analysis designed to assist the Board in determining an acceptable volatility target for the fund and an optimal asset allocation policy mix. The asset-liability analysis considers both sides of the VRS balance sheet in order to estimate the potential impact of various asset class mixes on key measures of total plan risk, including the resulting estimated impact on funded status and contribution rates.

The Board delegates authority to the Chief Investment Officer to allocate the System's investments within the approved asset allocation policy and within the Board-approved active risk budget. The total fund active risk budget describes the degree of tolerance for yearly variation in the fund's performance relative to the Total Fund VRS Custom Benchmark. The primary risk measure used for this purpose is Total Fund Tracking Error, calculated as the standard deviation of the difference between the fund's return and the return of the Total Fund VRS Custom Benchmark. From this measure, probability estimates can be derived to help the Board estimate the risk of underperforming the benchmark by certain margins.

The investment staff manages the VRS portfolio on a day-to-day basis according to policies and guidelines established by the Board. The staff manages assets on a direct basis and through outside investment managers. Managers employ both active and passive investment strategies. The Board has established various performance benchmarks to serve as tools for measuring progress toward the achievement of long-term investment goals.

The asset allocation mix of the VRS fund as of June 30, 2020, is shown in Figure 3.1:

FIGURE 3.1: ASSET ALLOCATION MIX

AS OF JUNE 30, 2020

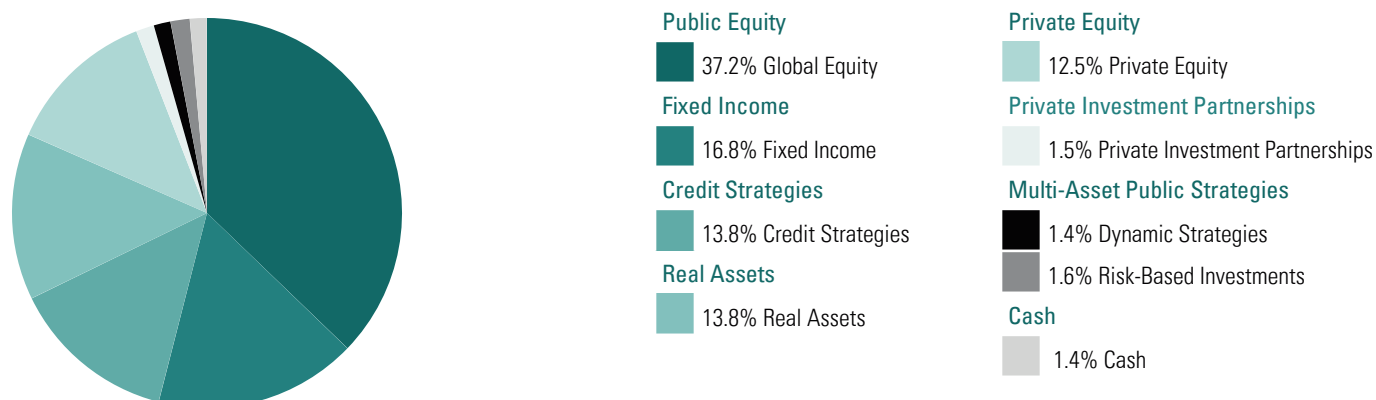


FIGURE 3.2: INVESTMENT PERFORMANCE SUMMARY

ANNUALIZED DATA FOR THE PERIOD ENDING JUNE 30, 2020

	1 Year	3 Years	5 Years	10 Years
1. Total Fund				
VRS	1.4%	5.2%	5.8%	8.1%
VRS Custom Benchmark ¹	1.0%	5.1%	5.6%	7.6%
2. Total Public Equity				
VRS	-0.7%	4.2%	5.2%	9.1%
Custom Benchmark ²	1.3%	5.6%	6.0%	9.0%
3. Total Fixed Income				
VRS	9.5%	5.8%	4.9%	4.5%
Custom Benchmark ³	7.9%	5.1%	4.1%	3.8%
4. Total Credit Strategies				
VRS	0.3%	4.1%	4.7%	6.2%
Custom Benchmark ⁴	1.3%	4.2%	4.7%	5.7%
5. Total Real Assets				
VRS	1.0%	6.0%	8.1%	11.1%
Custom Benchmark ⁵	2.3%	5.5%	7.0%	9.7%
6. Total Private Equity				
VRS	0.8%	10.0%	11.3%	12.8%
Custom Benchmark ⁶	-7.9%	5.1%	6.6%	10.9%
7. Total Private Investment Partnerships				
VRS	-6.4%	3.4%	5.2%	N/A
Custom Benchmark ⁷	-1.7%	5.2%	6.3%	N/A
8. Total Multi-Asset Public Strategies				
VRS	-3.2%	N/A	N/A	N/A
Custom Benchmark ⁸	3.9%	N/A	N/A	N/A

Investment return calculations were prepared using a time-weighted return methodology based on market value, net of investment expenses.

FIGURE 3.2: INVESTMENT PERFORMANCE SUMMARY, cont.

¹ The VRS Custom Benchmark is a blend of the Asset Class Benchmarks at policy weights.

² Effective February 2020, the Public Equity Custom Benchmark is the MSCI ACWI IMI (net VRS tax rates) Index.

³ Effective January 2020, the Fixed Income Custom Benchmark is a blend of the Bloomberg Barclays Aggregate Bond Index (90%), Bloomberg Barclays U.S. HY Ba/B 2% Issuer Cap Index (5%), and JP Morgan EMBI Global Core Index (5%).

⁴ Effective January 2020, the Credit Strategies Custom Benchmark is a blend of the S&P Performing Loan Index (60%), Bloomberg Barclays U.S. HY Ba/B 2% Issuer Cap Index (30%) and Bloomberg Barclays U.S. Aggregate Bond Index (10%).

⁵ Effective July 2014, the Real Assets Custom Benchmark is the market value weighted blend of the Total Real Estate Benchmark, of which 85% is the NCREIF Private Real Estate Benchmark (ODCE Index (net) lagged by three months) and 15% is the Total REIT Benchmark (FTSE/EPRA/NAREIT Developed REIT Index), and the Other Real Assets Custom Benchmark (the CPI-U Index plus 400 basis points per annum lagged by three months) with modified benchmarking for Other Real Assets during the increased allocation period.

⁶ Effective January 2020, the Private Equity Custom Benchmark is the MSCI ACWI IMI Index (net VRS tax rates) lagged by three months plus 250 basis points per annum with modified benchmarking during the increased allocation period.

⁷ Effective January 2020, the Private Investment Partnerships Benchmark is the weighted average of the custom Private Equity Benchmark (MSCI ACWI IMI Index (net VRS tax rates) lagged by three months plus 250 basis points) (40%), the NCREIF Private Real Estate Benchmark (ODCE Index (net) lagged by three months) (30%), the Other Real Assets Custom Benchmark (the CPI-U Index plus 400 basis points per annum lagged by three months) (10%), the Bloomberg Barclays US HY Ba/B 2% Issuer Cap Index (10%), and the S&P Performing Loan Index (10%).

⁸ Effective July 2018, the Multi-Asset Public Strategies Custom Benchmark is the market value weighted average of the benchmarks of the mandates (Dynamic Strategies and Risk-Based Investments) within the program.

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Portfolio Highlights

PUBLIC EQUITY

The market value of the Total Public Equity Program as of June 30, 2020, was \$31.0 billion, representing approximately 37% of the total fund. The program is dominated by traditional strategies valued at \$23.7 billion or 76.7%. The program also employs equity-oriented hedge fund strategies valued at \$7.2 billion or 23.3%. The objective of the portfolio is to exceed the Custom Benchmark over longer-term periods, net of all costs. The current Custom Benchmark is the MSCI All Country World Index (ACWI) IMI (net of VRS tax rates).

The Traditional Public Equity portfolio had 56% invested in domestic equity and 44% in international equity, and 40% was managed internally.

At fiscal year-end, the ACWI IMI benchmark was comprised of 56.9% of the MSCI U.S. Investible Market Index (IMI), 31.2% of the MSCI World excluding U.S. IMI and 11.9% in the MSCI Emerging IMI.

Traditional Public Equity versus the MSCI ACWI IMI strategic sectors and region weights are as follows:

FIGURE 3.3: TRADITIONAL EQUITY CUSTOM BENCHMARK SECTORS AND REGIONS*

Strategic Sectors	VRS	MSCI ACWI	Regions	VRS	MSCI ACWI
Communication Services	9.76%	8.68%	North America	58.61%	59.71%
Consumer Discretionary	11.00%	11.89%	Europe/Middle East/Africa	18.10%	19.10%
Consumer Staples	8.21%	7.70%	Asia/Pacific	22.16%	20.22%
Energy	2.57%	3.43%	Latin and South America	1.13%	0.97%
Financials	13.12%	13.27%	Total	100.00%	100.00%
Health Care	15.19%	12.87%			
Industrials	8.66%	10.26%			
Information Technology	19.70%	20.05%			
Materials	4.36%	4.95%			
Real Estate	3.25%	3.72%			
Utilities	4.18%	3.18%			
Total	100.00%	100.00%			

* Based on Barra's classification of sectors and regions and excludes cash.

The top 10 holdings in the Total Public Equity Program comprised 7.9% of the program at fiscal year-end. One company, Visa, was replaced by Bristol-Myers Squibb on this year's schedule.

FIGURE 3.4: PUBLIC EQUITY – TOP 10 EXPOSURES*

AS OF JUNE 30, 2020

Company	Fair Value	Shares
Microsoft	\$ 484,862,168	2,382,498
Apple	363,657,082	996,867
Alphabet	280,850,173	198,385
Amazon.com	262,366,541	95,101
Johnson & Johnson	246,101,937	1,749,996
Roche Holding	214,417,003	618,763
Verizon Communications	164,089,428	2,976,409
MasterCard	141,125,782	477,260
Facebook	140,615,595	619,261
Bristol-Myers Squibb	140,404,835	2,601,627

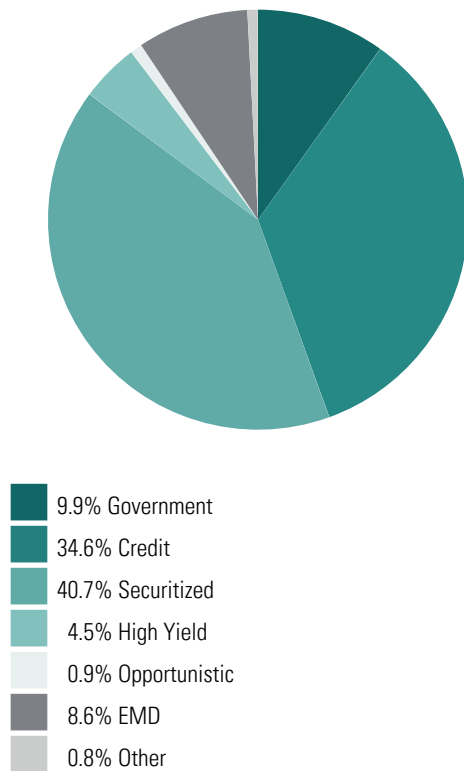
* Aggregated various share classes based on parent company. Refer to the "More Information" section on page 158 for details on how to request additional information.

FIXED INCOME

VRS invests a portion of its portfolio in fixed income investments to reduce total fund volatility, produce income and provide for some protection in the event of a deflationary environment. The market value of the Fixed Income Program as of June 30, 2020, was \$12.5 billion, representing 15.3% of the total fund.

FIGURE 3.5: FIXED INCOME PORTFOLIO BY SECTOR ALLOCATION

AS OF JUNE 30, 2020



The Fixed Income Program is internally invested in a diversified portfolio of debt securities, such as government securities, corporate securities, mortgage-backed securities and emerging market debt. The objective of the program is to exceed the return of the Fixed Income blended benchmark comprised of 90% Bloomberg Barclays U.S. Aggregate Index, 5% JPM EMBI Global Core Index, and 5% Bloomberg Barclays U.S. HY Ba/B 2% Issuer Constrained Index, while staying in compliance with risk limits. For fiscal year 2020, the return of the program was 9.5% versus a return of 7.9% for the benchmark.

FIGURE 3.6: FIXED INCOME PORTFOLIO BY CREDIT QUALITY BREAKDOWN

AS OF JUNE 30, 2020

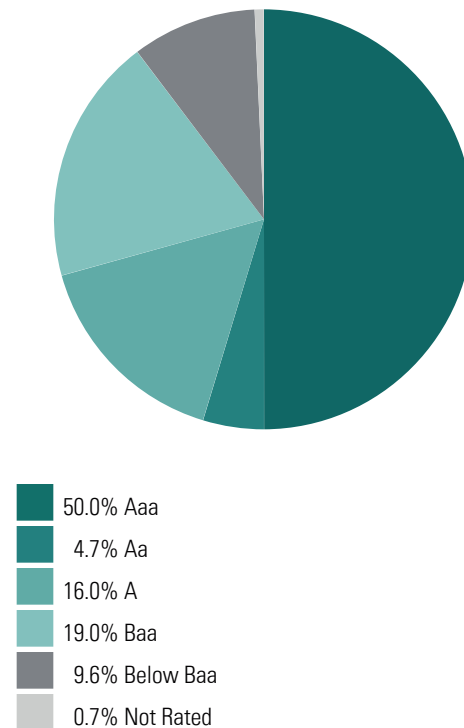


FIGURE 3.7: FIXED INCOME – TOP 10 HOLDINGS BY MARKET VALUE*

AS OF JUNE 30, 2020

Security	Par Value	Fair Value
GINNIE MAE MBS	\$245,000,000	\$259,518,700
FREDDIE MAC UMBS	240,000,000	250,190,400
GINNIE MAE MBS	200,000,000	211,016,000
FREDDIE MAC MBS	160,000,000	166,481,600
FREDDIE MAC MBS	152,000,000	159,785,440
GINNIE MAE MBS	150,000,000	157,548,000
FREDDIE MAC MBS	140,000,000	147,140,000
FREDDIE MAC MBS	132,000,000	138,186,840
FANNIE MAE MBS	111,320,401	119,645,433
TREASURY NOTE	85,000,000	88,204,500

* Refer to the "More Information" section on page 158 for details on how to request additional information.

SHORT-TERM INVESTMENTS AND TRANSITION ACTIVITY

Generally, VRS desires to remain fully invested at all times and seeks to minimize its holdings of cash investments. Temporary cash balances are invested in short-term money market instruments with the goal of maintaining high credit quality and liquidity, as well as to synthetically replicate exposure to equity and/or fixed income.

PRIVATE EQUITY

VRS invests in private equity to achieve returns greater than those available in the public equity markets. Specifically, the program seeks to outperform the Morgan Stanley Capital International All Country World Index (MSCI ACWI) by 2.5% per year. Program returns are calculated on both a time-weighted basis and a dollar-weighted, or internal rate-of-return (IRR) basis. On a time-weighted basis, the program return for fiscal year 2020 was 0.8%. On a dollar-weighted, or IRR basis, the private equity one-year return was 0.0% as of March 31, 2020.

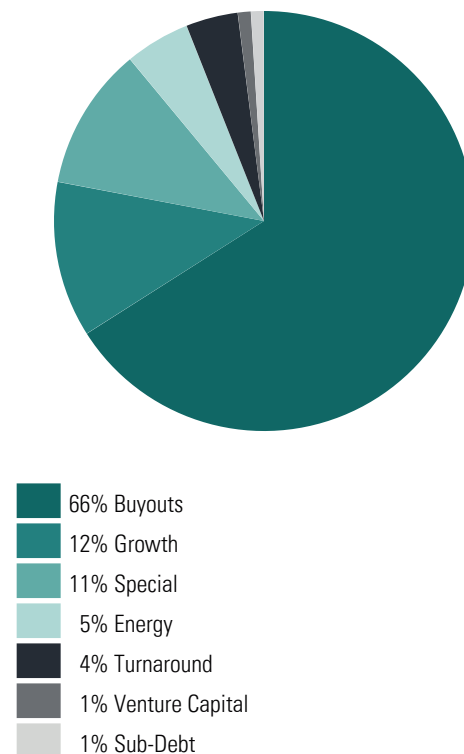
As of June 30, 2020, the carrying value of the program was approximately \$10.2 billion. Most of the program is invested in limited partnerships.

Sectors in which the program invests include leveraged buyouts, venture capital, growth, sub-

debt, turnaround, energy and special situations. The Private Equity Program’s market value by subclass was as follows:

FIGURE 3.8: PRIVATE EQUITY PROGRAM

AS OF JUNE 30, 2020



REAL ASSETS

A portion of the VRS portfolio is invested in real assets to help diversify the Total Fund by providing exposure to asset classes and sectors that offer low historical correlations with the public markets and with the additional objectives of generating competitive risk-adjusted returns, significant operating cash flows and inflation linkages. The portfolio continued to grow in fiscal year 2020, producing a 1.0% return and underperforming the benchmark by 130 basis points. The private real estate portfolio delivered a 5.9% return while the real estate investment trusts (REITs) produced a total return of -17.9%. Investments in infrastructure, natural resources, timberland and farmland produced a -2.9% return for the fiscal year.

The percentage of the Total Fund represented by the real assets portfolio fluctuated over the course of the year but grew slightly to 13.8%. In dollar terms, the real asset portfolio grew \$101 million due primarily to asset income and appreciation, with distributions from existing investments slightly outpacing contributions to new investments by approximately \$10.5 million.

At fiscal year-end, the portfolio strategy composition was approximately 60% private real estate, 16% infrastructure, 10% REITs, 7% energy and mining, 4% timberland and 3% farmland. Portfolio leverage as a percentage of total real assets was 31.0% as of June 30, 2020.

FIGURE 3.9: REAL ASSETS BY SECTOR

AS OF JUNE 30, 2020

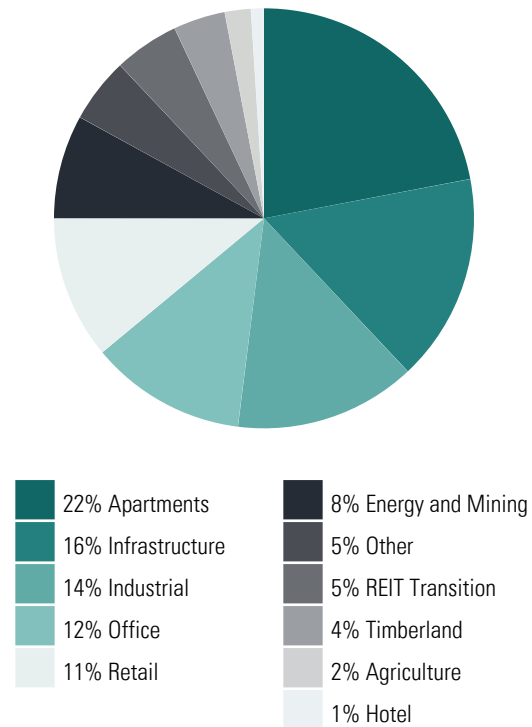
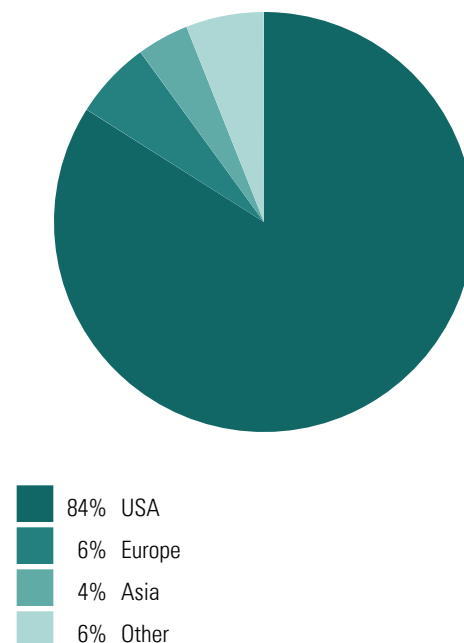


FIGURE 3.10: REAL ASSETS BY GEOGRAPHIC REGION

AS OF JUNE 30, 2020

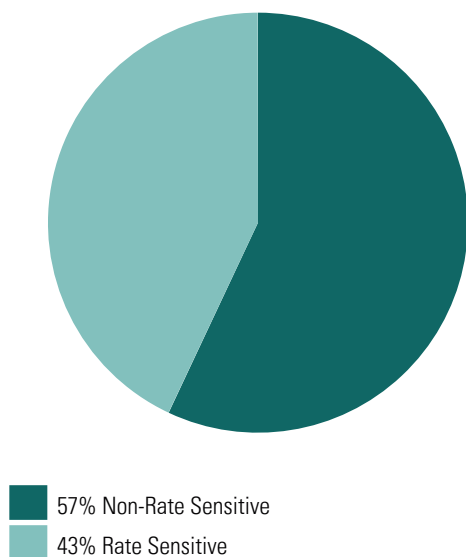


CREDIT STRATEGIES

VRS allocates a portion of the portfolio to credit-related investments. The Credit Strategies program generates returns through income and capital appreciation. The objective of the program is to provide an attractive risk/return profile relative to the Custom Credit Strategies benchmark. For the fiscal year, the program returned 0.3%, while the program's custom benchmark returned 1.3%.

FIGURE 3.11: CREDIT STRATEGIES PROGRAM

AS OF JUNE 30, 2020



CURRENCY

VRS has currency risk due to its investments in non-dollar-denominated assets. To help control this risk, VRS has a Currency Program that uses a combination of internal hedging strategies and external management. The external currency management part aims to lower overall Fund volatility and provide diversified alpha across the Fund. Investments include constrained positions in global currencies. The currency positions are typically traded on a forward basis, and thus no capital is necessary at the time of the trade. At forward settlement date, gains and losses are received/paid out against a notional value.

The current notional value, as of June 30, 2020, was \$1.8 billion. For the fiscal year, it returned 3.7% versus a zero benchmark.

MULTI-ASSET PUBLIC STRATEGIES

The Board of Trustees approved the Multi-Asset Public Strategies (MAPS) program on July 1, 2018, to manage strategies that add value and mitigate risk beyond the structure allowed by individual asset class program mandates. The program is separated into two portfolios with differing objectives. The Risk-Based Investment portfolio invests in strategies that offer meaningful diversification to the exposures of the overall Plan. The Dynamic Strategies portfolio seeks to add value across asset classes through the incorporation of macro perspectives. As of June 30, 2020, the total program had a market value of \$2.4 billion and was invested with six multi-asset class public investments managers and one internally managed fixed income strategy. During the fiscal year, it returned -3.2% against the program's custom benchmark, which returned 3.9%.

PRIVATE INVESTMENT PARTNERSHIPS

Beginning July 1, 2018, the VRS Board approved a strategic allocation to Private Investment Partnerships (PIP). These investments had previously been part of the Strategic Opportunities Portfolio. The objective of the program is to provide an attractive risk/return profile relative to the Private Investment Partnerships benchmark.

Managers in this program invest broadly across the private and less liquid components of the credit, private equity, real asset and real estate investment spaces. During the fiscal year the program returned -6.4% while the program's custom benchmark returned -1.7%.

MORE INFORMATION

A complete list of the investment portfolio is available upon request. Address requests to the VRS FOIA Coordinator, Virginia Retirement System, P.O. Box 2500, Richmond, VA 23218-2500. More information is available at varetire.org/web-policy/foia.

VRS Money Managers

The diversified investment structure as of June 30, 2020, is reflected in the following tables, which list VRS managers by investment program and style.

PUBLIC EQUITY MONEY MANAGERS

External Managers – Top 10 Managers	Style Description
Acadian Asset Management	Emerging, Non-U.S. Small-Cap
Ariel	Global
Arrowstreet Capital	Global
Baillie Gifford	Emerging, Global
J.P. Morgan	U.S. Large-Cap
Jackson Square	U.S. Small-Cap
LSV Asset Management	Global, Non-U.S. Small-Cap, U.S. Small-Cap
Nordea	Emerging, Global
Internal Portfolios	Style Description
Afton	U.S. Small
Matoaka	Non-U.S. Large
Mobjack	U.S. Large
Piedmont	Non-U.S. Large
Potomac	U.S. Large
Internal Emerging	Emerging
Top 10 Equity Hedge Funds	Style Description
Cevian	Activist
Eminence	Long/Short
Farallon	Multi-Strat
Lansdowne Partners	Long/Short
Maverick Capital	Long/Short
Nitorum	Long/Short
Select	Long/Short
Taiyo	Activist
Theleme	Long/Short
ValueAct Capital	Activist

FIXED INCOME

Internal Portfolios	Style Description
VRS Investment Grade Credit	High-Quality Corporates
VRS Securitized	Mortgage and Other Asset-Backed Securities
VRS Government	U.S. and Other Government-Related Debt
VRS Emerging Market Debt	EM Sovereign and Quasi-Sovereign Debt
VRS Systematic High Yield	High-Yield Corporates
VRS Fixed-Income Opportunistic	Various Fixed-Income Related Assets

(Continued)

VRS Money Managers *(continued)*

PRIVATE EQUITY – TOP 10 MANAGERS

Style Description

Apax Partners	Buyout
Apollo	Buyout
Bain Capital	Buyout
CVC Capital	Buyout
General Atlantic	Growth
Grosvenor	Customized Separate Account
Hellman and Friedman	Buyout
TA Associates	Growth
TPG Partners	Buyout
Veritas	Buyout

CREDIT STRATEGIES – TOP 10 MANAGERS

Style Description

Beach Point Capital Management	Distressed, Leveraged Loans, Opportunistic
Prudential	Investment-Grade, Mezzanine
J.P. Morgan	High-Yield
Pacific Investment Management Co.	High-Yield
Solus	Opportunistic, Leveraged Loan
Anchorage Capital	Hedge Fund, High Yield
Allianz Global Investors	Convertibles
Schroders	Structured Securities, Private Debt
Blackrock	Direct Lending
KKR	Direct Lending, Special Situations, Real Estate Lending

PRIVATE INVESTMENT PARTNERSHIPS

Style Description

Carlyle	Multi-Asset Class Private Investments
KKR	Multi-Asset Class Private Investments

CURRENCY

Style Description

First Quadrant	Developed
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REAL ASSETS – TOP 10 MANAGERS

Style Description

Blackstone Real Estate Partners	Core, Enhanced Core, Opportunistic Real Estate
Clarion Partners	Enhanced Core Real Estate
Industry Funds Management	Global Infrastructure
J.P. Morgan Asset Management Inc.	Core Real Estate
Morgan Stanley	Core, Enhanced Core Real Estate & Global Infrastructure
Pantheon Ventures	Global Infrastructure, Global Natural Resources
PGIM	Core & Enhanced Core Real Estate
Pritzker Realty Group	Enhanced Core & Opportunistic Real Estate
Stonepeak Infrastructure Partners	Core-plus Infrastructure
VRS – Internal Equity Management	Global REITs

MULTI-ASSET PUBLIC STRATEGIES

Style Description

AQR	Multi-Asset Class Public Investments
Blackrock	Multi-Asset Class Public Investments
Capstone	Multi-Asset Class Public Investments
J.P. Morgan	Multi-Asset Class Public Investments
Morgan Stanley	Multi-Asset Class Public Investments
Internal Fixed Income	Long-Duration Treasuries

Public Equity Commissions

AS OF JUNE 30, 2020

Broker	Commission	Broker	Commission
Goldman Sachs & Co., New York	\$ 1,732,816.92	Merrill Lynch International London Equities	164,331.24
National Financial Services Corp., New York	1,304,942.74	UBS Securities LLC, Stamford	145,194.10
Credit Suisse, New York (CSUS)	1,183,988.18	UBS Equities, London	115,877.36
Morgan Stanley & Co. Inc., New York	326,367.08	Sanford C. Bernstein & Co. Inc., New York	101,541.86
Merrill Lynch Pierce Fenner Smith Inc., New York	183,570.70	Other Brokers	1,578,118.99
Instinet Europe Limited, London	169,892.87	Total FY 2020	\$ 7,006,642.04

SCHEDULE OF INVESTMENT EXPENSES

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Assets Under Management	Management Fees and Expenses
External Management:		
Public Equity Managers	\$ 11,328,140	\$ 54,587
Fixed Income Managers	4,332,454	2,652
Credit Strategies Managers	11,657,761	64,132
Real Assets Managers	11,866,825	106,545
Alternative Investment Managers	10,234,809	128,799
Hedge Funds Managers	7,170,671	71,501
Risk-Based Investments Managers	2,239,561	16,751
Currency Managers*	—	2,700
Dynamic Strategy	942,814	4,331
Internal Management:	23,594,397	38,184
Miscellaneous Fees and Expenses:		
Custodial Fees	—	4,500
Legal Fees	—	770
Other Fees and Expenses	—	7,493
Total	\$ 83,367,432	\$ 502,945

* The fees related to Active Currency Overlay Program is based on the managers' notional account values. The total notional value at June 30, 2020, was \$1.8 billion.

Investment Summary

In accordance with Section 51.1-124.31 of the *Code of Virginia* (1950), as amended, the Board of Trustees has pooled substantially all defined benefit plan assets of the Virginia Retirement System, the State Police Officers' Retirement System, the Judicial Retirement System, the Group Life

Insurance Fund and the Retiree Health Insurance Credit Fund into a common investment pool. The common investment pool of the pension trust funds, other trust funds and custodial funds held the following composition of investments at June 30, 2020 and 2019:

(EXPRESSED IN THOUSANDS)

	2020 Fair Value	Percent of Total Value	2019 Fair Value	Percent of Total Value
Bonds and Mortgage Securities:				
U.S. Government and Agencies	\$ 2,914,682	3.48%	\$ 4,317,660	5.11%
Mortgage Securities	4,056,194	4.84%	4,889,973	5.79%
Corporate and Other Bonds	13,110,381	15.66%	12,689,298	15.04%
Total Bonds and Mortgage Securities	20,081,257	23.98%	21,896,931	25.94%
Common and Preferred Stocks	22,987,340	27.45%	24,722,983	29.28%
Index and Pooled Funds:				
Equity Index and Pooled Funds	10,230,872	12.22%	11,069,496	13.10%
Fixed-Income Commingled Funds	1,377,164	1.64%	1,342,413	1.59%
Total Index and Pooled Funds	11,608,036	13.86%	12,411,909	14.69%
Real Assets	9,931,630	11.86%	9,877,199	11.70%
Private Equity	18,698,079	22.34%	15,083,638	17.87%
Short-Term Investments:				
Treasurer of Virginia – LGIP Investment Pool	361,958	0.43%	331,823	0.38%
Foreign Currencies	61,091	0.08%	112,545	0.14%
Total Short-Term Investments	423,049	0.51%	444,368	0.52%
Total Investments	\$ 83,729,391	100.00%	\$ 84,437,028	100.00%

Description of Hybrid Defined Contribution Plan

Defined contribution plan assets for Hybrid Retirement Plan members are maintained in two separate accounts. The Hybrid 401(a) Cash Match Plan account contains the hybrid plan member and employer mandatory contributions and the employer match on the voluntary member

contributions. The Hybrid 457 Deferred Compensation Plan account contains the hybrid plan member's voluntary contributions. The schedule below shows the assets in each investment option and the accumulated plan assets in each option.

HYBRID PARTICIPANT ACCOUNT PLAN ASSETS BY FUND OPTION*

AS OF JUNE 30, 2020

Fund Name	Hybrid 401(a)	Hybrid 457	Total
Retirement Portfolio	\$ 20,983,940	\$ 10,920,552	\$ 31,904,492
Target Date 2025 Portfolio	32,156,433	17,232,581	49,389,013
Target Date 2030 Portfolio	43,413,544	23,364,645	66,778,189
Target Date 2035 Portfolio	51,489,727	26,349,763	77,839,490
Target Date 2040 Portfolio	51,542,627	24,686,040	76,228,667
Target Date 2045 Portfolio	58,738,570	26,890,464	85,629,034
Target Date 2050 Portfolio	72,201,822	30,301,426	102,503,248
Target Date 2055 Portfolio	113,086,485	39,835,726	152,922,211
Target Date 2060 Portfolio	45,981,879	15,013,217	60,995,096
Target Date 2065 Portfolio	631,889	188,622	820,511
Money Market Fund	3,715,983	1,131,793	4,847,777
Stable Value Fund	1,282,469	1,737,647	3,020,116
Bond Fund	977,323	1,154,620	2,131,943
Inflation-Protected Bond Fund	337,742	375,622	713,364
High-Yield Bond Fund	706,978	1,025,839	1,732,817
Stock Fund	10,637,079	12,073,713	22,710,791
Small/Mid-Cap Stock Fund	3,414,407	3,904,964	7,319,371
International Stock Fund	1,794,053	2,121,267	3,915,321
Global Real Estate Fund	825,722	1,019,574	1,845,296
VRS Investment Portfolio – PIPVRSIP	10,202	3,399	13,601
VRS Investment Portfolio	99,170	52,206	151,376
Self-Directed Brokerage	411,384	305,253	716,637
Total Plan Assets	\$ 514,439,428	\$ 239,688,933	\$ 754,128,361

* Fund totals have been rounded to the nearest dollar amount.

Description of Defined Contribution Plans Investment Options

Participants in the System's Hybrid Retirement Plan benefit structure have access to a number of core investment options for contributions to their defined contribution plans. These options are intended to provide participants with a variety of investment choices while controlling the associated costs. In addition to the option-specific annual operating expense detailed in the Investment Option Performance Summary, participants pay an annual record-keeping fee of \$30.50 that is deducted from their accounts on a monthly basis (approximately \$2.54 per month).

Participants with more than one account in the Plan pay only one annual fee of \$30.50. At June 30, 2020, the plans provided the following core investment options to participants.

DO-IT-FOR-ME FUNDS

Retirement Portfolio: Seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. In pursuit of that object, the portfolio will be broadly diversified across global asset classes.

U.S. Bonds: 53.9% U.S. Large/Mid-Cap Stocks: 21.9% International Stocks: 11.8%
U.S. Inflation-Index Bonds: 5.8% U.S. Small-Cap Stocks: 3.4%
Commodities: 1.6% Developed Real Estate: 1.6%

Target Date 2025 Portfolio: Seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. In pursuit of that objective, the portfolio will be broadly diversified across global asset classes, with asset allocations becoming more conservative over time.

U.S. Bonds: 42.4% U.S. Large/Mid-Cap Stocks: 28.2% International Stocks: 17.5%
U.S. Inflation-Index Bonds: 5.1% U.S. Small-Cap Stocks: 3.0%
Developed Real Estate: 2.4% Commodities: 1.4%

Target Date 2030 Portfolio: Seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. In pursuit of that objective, the portfolio will be broadly diversified across global asset classes, with asset allocations becoming more conservative over time.

U.S. Large/Mid-Cap Stocks: 34.4% U.S. Bonds: 31.4% International Stocks: 23.2%
U.S. Inflation-Index Bonds: 4.2% Developed Real Estate: 3.0%
U.S. Small-Cap Stocks: 2.7% Commodities: 1.1%

Target Date 2035 Portfolio: Seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. In pursuit of that objective, the portfolio will be broadly diversified across global asset classes, with asset allocations becoming more conservative over time.

U.S. Large/Mid-Cap Stocks: 40.5% International Stocks: 28.6% U.S. Bonds: 21.0%
Developed Real Estate: 3.6% U.S. Inflation-Index Bonds: 3.2%
U.S. Small-Cap Stocks: 2.2% Commodities: 0.9%

Target Date 2040 Portfolio: Seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. In pursuit of that objective, the portfolio will be broadly diversified across global asset classes, with asset allocations becoming more conservative over time.

U.S. Large/Mid-Cap Stocks: 46.1% International Stocks: 33.7%
U.S. Bonds: 11.7% Developed Real Estate: 4.1% U.S. Inflation-Index Bonds: 2.0%
U.S. Small-Cap Stocks: 1.9% Commodities: 0.5%

Target Date 2045 Portfolio: Seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. In pursuit of that objective, the portfolio will be broadly diversified across global asset classes, with asset allocations becoming more conservative over time.

U.S. Large/Mid-Cap Stocks: 50.5% International Stocks: 37.4%
U.S. Bonds: 4.7% Developed Real Estate: 4.5% U.S. Small-Cap Stocks: 1.6%
U.S. Inflation-Index Bonds: 1.0% Commodities: 0.3%

Target Date 2050 Portfolio: Seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. In pursuit of that objective, the portfolio will be broadly diversified across global asset classes, with asset allocations becoming more conservative over time.

U.S. Large/Mid-Cap Stocks: 52.3% International Stocks: 39.9%
Developed Real Estate: 4.7% U.S. Bonds: 1.4% U.S. Small-Cap Stocks: 1.4%
U.S. Inflation-Index Bonds: 0.2% Commodities: 0.1%

Target Date 2055 Portfolio: Seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. In pursuit of that objective, the portfolio will be broadly diversified across global asset classes, with asset allocations becoming more conservative over time.

U.S. Large/Mid-Cap Stocks: 52.4% International Stocks: 40.2% Developed Real Estate: 4.8%
U.S. Small-Cap Stocks: 1.4% U.S. Bonds: 0.9%
U.S. Inflation-Index Bonds: 0.2% Commodities: 0.1%

Target Date 2060 Portfolio: Seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. In pursuit of that objective, the portfolio will be broadly diversified across global asset classes, with asset allocations becoming more conservative over time.

U.S. Large/Mid-Cap Stocks: 52.5% International Stocks: 40.3% Developed Real Estate: 4.8%
U.S. Small-Cap Stocks: 1.4% U.S. Bonds: 0.9% Commodities: 0.1%

Target Date 2065 Portfolio: Seeks to provide for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase based on quantitatively measured risk that investors, on average, may be willing to accept. In pursuit of that objective, the portfolio will be broadly diversified across global asset classes, with asset allocations becoming more conservative over time.

U.S. Large/Mid-Cap Stocks: 52.6% International Stocks: 40.3% Developed Real Estate: 4.7%
U.S. Small-Cap Stocks: 1.4% U.S. Bonds: 1.0%

HELP-ME-DO-IT FUNDS

Money Market Fund: Seeks to provide a high level of current income as is consistent with liquidity and stability of principal.

Other Repurchase Agreement: 46.7% Certificate of Deposit: 18.7%
Financial Company Commercial Paper: 7.6% U.S. Treasury Debt: 7.0% Non-Financial Company Commercial Paper: 6.1%
Non-Negotiable Time Deposit: 5.4% Asset-Backed Commercial Paper: 4.8%
Government Agency Repurchase Agreement: 2.3% Treasury Repurchase Agreement: 1.4%

Stable Value Fund: Seeks to provide safety of principal, while earning a level of interest income consistent with an underlying portfolio of short- to intermediate-duration high-quality fixed income (bond) securities and cash or cash equivalents, and liquidity to accommodate participant transactions.

Corporates: 27.6% Agency MBS: 21.1% Asset-Backed: 16.0% U.S. Treasury/Agency: 10.4%
Cash/Equivalents: 7.9% CMBS: 5.6% Taxable Municipals: 5.3%
Other U.S. Government: 4.8% Non-Agency MBS: 1.3%

Bond Fund: Seeks to track the performance of the Bloomberg Barclays Aggregate Bond Index. The index is an unmanaged index that represents the broad U.S. investment-grade bond market and is comprised of U.S. treasury securities, government agency bonds, corporate bonds, mortgage-backed securities, asset-backed securities and a small amount of foreign bonds traded in the U.S.

Treasury: 35.4% Mortgages: 26.7% Industrials: 16.5% Financials: 8.3%
Non-U.S. Credit: 3.7% Agencies: 2.3% CMBS: 2.2% Utilities: 2.1%
Cash: 1.7% Taxable Municipals: 0.7% Asset-Backed Securities: 0.4%

Inflation-Protected Bond Fund: Seeks to track the performance of the Bloomberg Barclays U.S. Treasury Inflation-Protected Securities Index. The index is an unmanaged index that represents the U.S. Treasury Inflation-Protection Securities (TIPS) market. The index includes investment-grade TIPS with one or more years to final maturity.

U.S. Treasury: 98.0% Cash: 2.0%

High-Yield Bond Fund: Seeks to achieve returns that exceed, over time, its benchmark, the ICE BofA U.S. High-Yield BB-B Constrained Index. The index is an unmanaged index of BB-B rated securities that caps any single issuer exposure to 2.0%. The index is indicative of the higher quality high-yield bond market.

Communications: 22.1% Consumer Non-Cyclical: 18.3% Consumer Cyclical: 16.7%
Other/Cash: 11.2% Energy: 8.5% Capital Goods: 8.2% Technology: 5.5% Basic Industry: 4.5%
Finance: 2.8% Transportation: 1.1% Utilities: 0.9% Other Industrial: 0.2%

Stock Fund: Seeks to track the performance of the Standard & Poor's 500 Index. The index is an unmanaged index that represents the broad large-capitalization U.S. stock market and is comprised of 500 widely held U.S. stocks chosen by Standard & Poor's.

Information Technology: 27.5% Health Care: 14.6% Communication Services: 10.8%
Consumer Discretionary: 10.8% Financials: 10.1% Industrials: 8.0% Consumer Staples: 7.0%
Utilities: 3.1% Energy: 2.8% Real Estate: 2.8% Materials: 2.5%

Small/Mid-Capitalization Stock Fund: Seeks to track the performance of the Russell 2500 Index. The index is an unmanaged index that represents the broad middle- to smaller-capitalization U.S. stock market.

Information Technology: 17.1% Health Care: 15.9% Industrials: 14.8% Financials: 14.5%
Consumer Discretionary: 11.8% Real Estate: 8.8% Materials: 5.2%
Communication Services: 3.3% Utilities: 3.2% Consumer Staples: 3.0% Energy: 2.4%

International Stock Fund: Seeks to track the performance of the MSCI ACWI ex-U.S. IMI Index. The index is an unmanaged index that represents the equity performance of large, mid- and small-cap segments of developed and emerging markets, excluding the U.S.

Financials: 17.0% Consumer Discretionary: 12.5% Industrials: 12.4%
Information Technology: 11.2% Health Care: 10.4% Consumer Staples: 9.5% Materials: 7.9%
Communication Services: 7.2% Energy: 4.5% Real Estate: 3.9% Utilities: 3.5%

Global Real Estate Fund: Seeks to track the performance of the FTSE EPRA/NAREIT Developed Index. The index is an unmanaged index that is designed to reflect the performance of listed real estate companies worldwide, including the U.S.

Office REITs: 13.5% Residential REITs: 13.4% Retail REITs: 12.8%
Industrial REITs: 11.9% Real Estate Operating Companies: 11.0% Specialized REITs: 10.6%
Diversified REITs: 8.3% Diversified Real Estate Activities: 7.5% Health Care REITs: 7.1%
Hotel & Resort REITs: 2.1% Real Estate Development: 1.7%
Hotels, Resorts & Cruise Lines: 0.1%

VRS Investment Portfolio (VRSIP): Seeks to maximize return while managing risk within an acceptable range. Due to the long-term nature of the defined benefit plan's liabilities, the horizon for investment decisions is generally defined as 10 years or longer.

Public Equity: 37.2% Fixed Income: 16.8% Credit Strategies: 13.8% Real Assets: 13.8%
Private Equity: 12.5% MAPS: 3.0%
PIP: 1.5% Cash: 1.4%

DO-IT-MYSELF FUNDS

Self-Directed Brokerage Account (SDBA): Allows investors to select from thousands of publicly traded mutual funds, exchange-traded funds (ETFs) and individual securities in addition to the available core investment options. The SDBA option is offered through TD Ameritrade. The SDBA option is for knowledgeable investors who acknowledge and understand the risks and costs associated with the investments contained in this option.

In addition to the annual record-keeping fee and operating expenses, this option is subject to transaction fees charged by TD Ameritrade and investment management-related fees and expenses for the funds or investments selected.

Investment Option Performance Summary: Defined Contribution Plans

AS OF JUNE 30, 2020

(RETURNS GREATER THAN ONE YEAR ARE ANNUALIZED)

DO-IT-FOR-ME PATH: TARGET DATE PORTFOLIOS

Investment Options	Inception Date	1 Year	3 Years	5 Years	10 Years or Since Inception	Total Annual Operating Expenses	
						As a %	Per \$1,000
Retirement Portfolio	08/01/05	6.15%	5.84%	5.23%	6.19%	0.08%	\$0.80
Custom Benchmark ¹		6.00%	5.78%	5.18%	6.14%		
Target Date 2025 Portfolio	07/05/06	4.88%	6.07%	5.77%	7.72%	0.08%	\$0.80
Custom Benchmark ¹		4.74%	5.99%	5.69%	7.63%		
Target Date 2030 Portfolio	08/01/05	3.88%	6.10%	5.98%	8.20%	0.08%	\$0.80
Custom Benchmark ¹		3.73%	5.99%	5.88%	8.09%		
Target Date 2035 Portfolio	07/05/06	2.93%	6.11%	6.18%	8.63%	0.08%	\$0.80
Custom Benchmark ¹		2.80%	5.99%	6.05%	8.50%		
Target Date 2040 Portfolio	08/01/05	2.03%	6.09%	6.32%	9.00%	0.08%	\$0.80
Custom Benchmark ¹		1.92%	5.96%	6.18%	8.85%		
Target Date 2045 Portfolio	07/05/06	1.49%	6.06%	6.40%	9.31%	0.08%	\$0.80
Custom Benchmark ¹		1.37%	5.91%	6.23%	9.14%		
Target Date 2050 Portfolio	09/30/07	1.22%	6.02%	6.41%	9.56%	0.08%	\$0.80
Custom Benchmark ¹		1.12%	5.88%	6.24%	9.39%		
Target Date 2055 Portfolio	05/19/10	1.24%	6.02%	6.41%	9.70%	0.08%	\$0.80
Custom Benchmark ¹		1.11%	5.87%	6.24%	9.53%		
Target Date 2060 Portfolio	11/17/14	1.23%	6.00%	6.41%	6.06%	0.08%	\$0.80
Custom Benchmark ¹		1.11%	5.87%	6.24%	5.89%		
Target Date 2065 Portfolio	09/23/19	N/A	N/A	N/A	0.08%	0.08%	\$0.80
Custom Benchmark ¹		N/A	N/A	N/A	0.16%		

HELP-ME-DO-IT PATH: INDIVIDUAL OPTIONS

Investment Options	Inception Date					Total Annual Operating Expenses	
		1 Year	3 Years	5 Years	10 Years or Since Inception	As a %	Per \$1,000
Money Market Fund Benchmark: Bloomberg Barclays 3-Month Treasury Bill Index Yield as of June 30, 2020, was 0.46%	11/01/99	1.64%	1.93%	1.36%	0.72%	0.08%	\$0.80
Stable Value Fund Custom Benchmark ² Yield as of June 30, 2020, was 2.23%	02/01/95	2.44%	2.27%	2.03%	2.06%	0.25%	\$2.50
Bond Fund Benchmark: Bloomberg Barclays U.S. Aggregate Bond Index	11/01/99	8.78%	5.36%	4.35%	3.88%	0.03%	\$0.30
Inflation-Protected Bond Fund Benchmark: Bloomberg Barclays U.S. Treasury Inflation-Protected Securities Index	07/30/02	8.42%	5.17%	3.87%	3.61%	0.03%	\$0.30
High-Yield Bond Fund Benchmark: ICE BofA U.S. High-Yield BB-B Constrained Index	05/31/04	(1.48)%	3.16%	4.64%	6.55%	0.40%	\$4.00
Stock Fund Benchmark: S&P 500 Index	11/01/99	7.56%	10.78%	10.76%	14.02%	0.01%	\$0.10
Small/Mid-Cap Stock Fund Benchmark: Russell 2500 Index ³	11/01/99	(4.66)%	4.11%	5.51%	11.48%	0.02%	\$0.20
International Stock Fund Benchmark: MSCI ACWI ex-U.S. IMI Index ⁴	11/01/99	(4.74)%	1.25%	2.51%	5.89%	0.06%	\$0.60
Global Real Estate Fund Benchmark: FTSE EPRA/NAREIT Developed Index ⁵	10/01/02	(15.56)%	(0.86)%	2.19%	8.23%	0.09%	\$0.90
VRS Investment Portfolio (VRSIP) VRS Custom Benchmark ⁶	07/01/08	1.40%	5.17%	5.85%	8.08%	0.59%	\$5.90

¹ Benchmarks are calculated using blended returns of third-party indices that proportionately reflect the respective weightings of the Portfolios' asset classes. Weightings are adjusted quarterly to reflect the Portfolios' asset allocation shifts over time. Indices currently used to calculate the custom benchmarks are Russell 1000 Index, Russell 2000 Index, MSCI ACWI ex-U.S. IMI Index, Bloomberg Barclays U.S. Aggregate Bond Index, Bloomberg Barclays U.S. Treasury Inflation-Protected Securities Index, FTSE EPRA/NAREIT Developed Index and the Bloomberg Commodity Index Total Return.

² Effective August 2016, the benchmark represents a hypothetical return generated by the monthly yields of actively traded U.S. Treasuries based on [50% two-year maturity + 50% three-year maturity] plus an annualized spread of 0.25% and is representative of the Fund's expected return profile, given how the Fund is managed and book value accounting treatment. Prior to August 2016, the custom benchmark was based on the monthly yield of actively traded U.S. Treasuries with a three-year maturity plus an annualized spread of 0.50%. The benchmark returns are linked.

³ Effective July 2012, the performance benchmark is the Russell 2500 Index. Prior to July 2012, the performance benchmark was the Russell Small-Cap Completeness Index. The benchmark returns are linked.

⁴ Effective August 2016, the performance benchmark is the MSCI ACWI ex-U.S. IMI Index. It was the MSCI World ex-U.S. Index from July 2012 through July 2016, and prior to July 2012, it was the MSCI EAFE Index. The benchmark returns are linked.

⁵ Effective July 2012, the performance benchmark is the FTSE EPRA/NAREIT Developed Index. Prior to July 2012, the performance benchmark was the Dow Jones U.S. Select REIT Index. The benchmark returns are linked.

⁶ The VRS Custom Benchmark is a blend of the asset class benchmarks at policy weights.



Virginia
Retirement
System

4 Actuarial Section



HONORING OUR HEROES

VRS MEMBERS SERVING THE COMMONWEALTH

4

Actuarial Section

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Actuary's Certification Letter: Pension Plans



March 23, 2020

Board of Trustees

Virginia Retirement System
1200 E. Main Street
Richmond, VA 23219

Dear Trustees:

We are pleased to submit the results of the annual actuarial valuation for the following divisions of the Virginia Retirement System (VRS), prepared as of June 30, 2019.

- State Employees
- Teachers
- State Police (SPORS)
- Judicial
- Virginia Law Officers (VaLORS)

In addition, this report includes information in aggregate on the actuarial valuations of the Political Subdivisions participating in VRS as of June 30, 2019. We have prepared, and provided separately, actuarial valuation reports for each of the Political Subdivisions. Please refer to the individual reports for the valuation results, summary of actuarial assumptions and methods, and plan provisions for each of the Political Subdivision plans.

The purpose of this report is to provide a summary of the funded status of VRS as of June 30, 2019, and to recommend rates of contribution. While not verifying the data at source, the actuary performed tests for consistency and reasonability. The funded status of the Plan is the ratio of the assets to the actuarial accrued liability. While the market value of assets gives an indication of the funded status of a plan at a particular point in time and is used for financial reporting, it is not used directly in the calculation of the employer contribution rates. A less volatile actuarial value of assets, which smooths the effect of market fluctuations over a five year period, is applied to determine the funded status for rate setting purposes. For informational purposes, we exhibit the funded status based on this smoothed actuarial value of assets basis as well as the market value in this report. The interest rate used for determining liabilities is based on the expected return on assets. Therefore, liability amounts in this report cannot be used to assess a settlement of the obligation. The VRS Board of Trustees adopted a change in the interest rate from 7.00% to 6.75% for the June 30, 2019, valuation.

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The valuation results indicate that the full employer contribution rates shown in the table below are sufficient to fund the normal cost for all members and finance the unfunded accrued liability of the plans. We also present the expected employer contributions to be actually funded based on the percentage of the full rate adopted by the General Assembly. For comparison, in the table below we present the employer contribution rates for fiscal years ending 2021 and 2022 based on the June 30, 2019, actuarial valuation and the employer contribution rates approved by the General Assembly for fiscal years ending 2019 and 2020.

Contribution rates for VRS employers are established every two years. The actuarially calculated employer contribution rates based on the June 30, 2018, valuation presented in this report are for informational purposes only. The total employer rates include the average employer rate for the defined contribution component of the Hybrid Plan.

System	Fiscal Years 2019/2020	Informational Only	Fiscal Years 2021/2022			
			Before Assumption Change		After Assumption Change	
	Board & General Assembly Approved	Total Employer Rate for Retirement Plans	Total Employer Rate for Retirement Plans	Actuarially Determined Rate for Retirement Plans	Employer Rate for Hybrid DC Component	Total Employer Rate for Retirement Plans
	2017 Valuation	2018 Valuation	2019 Valuation			
State	13.52%	13.36%	13.12%	13.67%	0.79%	14.46%
Teachers	15.68%	15.23%	15.00%	16.06%	0.56%	16.62%
SPORS	24.88%	23.87%	23.88%	26.26%	N/A	26.26%
VaLORS	21.61%	20.81%	20.19%	21.88%	N/A	21.88%
Judicial	34.39%	31.41%	27.76%	28.49%	1.35%	29.84%
Political Subdivisions (Average rates)	7.60%	7.29%	6.96%	7.73%	0.60%	8.33%

The promised benefits of VRS are included in the calculated contribution rates which are developed using the entry age normal cost method. The valuation takes into account the differentiation between Plan 1 vested members, Plan 1 non-vested members as of January 1, 2013, resulting from HB 1130 and SB 498, Plan 2 members, and the Hybrid Plan. Five-year smoothed market value of assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded accrued liability. In accordance with the supplemental contribution provision under the 2011 Appropriation Act, Item 469(l)(6), the portion of the unfunded accrued liability with respect to deferred contributions for the 2010-2012 biennium is amortized using a level-dollar, closed, 10-year period beginning June 30, 2011. Amendments to the 2016-2017 Virginia budget accelerated the payback of the full outstanding balance of the deferred contributions to all plans except Teachers. In accordance with the funding policy adopted by the Board of Trustees in 2013, the balance of the unfunded accrued liability as of June 30, 2013, is being amortized by regular annual contributions as a level percentage of payroll over a closed 26-year period and changes in the unfunded accrued liability since June 30, 2013, are amortized over a closed 20-year period. The amortization of the unfunded accrued liability assumes that payroll will increase by 3% annually and the amortization period will decrease by one year until reaching 0 years.



We have prepared several supporting schedules shown in the actuarial section of the Comprehensive Annual Financial Report, including the Schedule of Active Member Data and the Analysis of Financial Experience. For completeness, the table of Changes in Unfunded Actuarial Accrued Liabilities in Section VI and the Retiree and Beneficiary Data in Schedule I include the information with respect to the Political Subdivisions participating in VRS.

Our organization has only a contractual relationship with the Virginia Retirement System to provide actuarial consulting services and we do not provide other services to nor have a financial interest in the Virginia Retirement System. There are no known interests or relationships that our firm has with the Virginia Retirement System that may impair or appear to impair the objectivity of our work.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the System and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'LL'.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in black ink, appearing to be 'Micki R. Taylor'.

Micki R. Taylor, ASA, FCA, MAAA
Senior Actuary

The Actuarial Section presents information about the assumptions adopted by the Board of Trustees and used by the VRS actuary to evaluate the funded status of the pension plans. This information includes trend data about retirements, disabilities, terminations and salary increase rates. The section also provides summaries of the pension plans administered by the System and any changes.

Summary of Actuarial Assumptions and Methods

On April 26, 2017, the VRS Board of Trustees adopted most of the actuarial assumptions and methods on the recommendation of its actuary. They were based on an analysis of plan experience for the four-year period July 1, 2012, through June 30, 2016, and were used for the June 30, 2019, valuation.

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS: PENSION PLANS

	2010	2011-2012	2013	2014-2016	2017	2018	2019
Investment Rate of Return	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	6.75%
Inflation Assumption	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Cost of Living (COLA) Assumption							
Plan 1	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Plan 2	N/A	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
Hybrid	N/A	N/A	N/A	0.0225	2.25%	2.25%	2.25%
Actuarial Cost Method	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal
Change in Decremental Assumptions	No	No	Yes	No	Yes	No	No
Value of Ancillary Benefits Included	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Value of Post-Retirement Adjustments to Date Included	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Assets Valuation Method	5-Year Smoothed Market	5-Year Smoothed Market	5-Year Smoothed Market	5-Year Smoothed Market	5-Year Smoothed Market	5-Year Smoothed Market	5-Year Smoothed Market

SOLVENCY TEST: PENSION PLANS

(EXPRESSED IN THOUSANDS)

Valuation Date (June 30)	Aggregate Accrued Liabilities for			Valuation Assets	Portion of Accrued Liabilities Covered by Assets		
	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Members*		(1)	(2)	(3)
VIRGINIA RETIREMENT SYSTEM (VRS)							
2019	\$ 13,613,905	\$ 58,337,920	\$ 27,182,146	\$ 76,244,148	100.00%	100.00%	15.79%
2018	13,221,525	54,132,392	25,820,901	73,204,795	100.00%	100.00%	22.66%
2017	12,887,047	51,247,606	25,716,631	69,214,246	100.00%	100.00%	19.75%
2016	12,518,183	48,717,939	25,882,870	65,203,736	100.00%	100.00%	15.33%
2015	12,176,530	46,783,519	25,751,093	62,083,601	100.00%	100.00%	12.13%
2014	11,819,771	44,469,489	25,794,124	57,144,567	100.00%	100.00%	3.32%
2013	11,420,836	42,383,697	25,273,058	52,124,581	100.00%	96.00%	—%
2012	9,479,988	39,996,442	28,382,426	51,211,915	100.00%	100.00%	6.11%
2011	9,116,662	37,539,539	28,528,577	52,558,997	100.00%	100.00%	20.69%
2010	9,246,421	35,117,915	28,436,065	52,728,575	100.00%	100.00%	29.41%
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)							
2019	\$ 105,943	\$ 682,809	\$ 392,368	\$ 858,632	100.00%	100.00%	17.81%
2018	103,710	646,580	362,603	830,978	100.00%	100.00%	22.25%
2017	99,643	622,206	318,779	785,677	100.00%	100.00%	20.02%
2016	100,291	585,837	395,852	744,656	100.00%	100.00%	14.79%
2015	95,394	586,984	368,323	710,864	100.00%	100.00%	7.73%
2014	92,637	562,413	374,105	662,244	100.00%	100.00%	1.92%
2013	88,814	548,115	359,761	591,983	100.00%	91.80%	—%
2012	78,465	563,612	371,201	587,160	100.00%	90.30%	—%
2011	74,943	540,097	370,664	616,603	100.00%	100.00%	0.42%
2010	77,759	510,491	360,642	633,415	100.00%	100.00%	12.52%
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)							
2019	\$ 244,233	\$ 1,432,206	\$ 534,799	\$ 1,484,995	100.00%	86.63%	—%
2018	240,390	1,317,732	499,382	1,413,876	100.00%	89.05%	—%
2017	240,517	1,219,673	517,591	1,328,178	100.00%	89.18%	—%
2016	237,416	1,160,507	586,334	1,235,490	100.00%	86.00%	—%
2015	232,824	1,088,742	585,155	1,155,767	100.00%	84.77%	—%
2014	230,522	977,848	611,675	1,058,010	100.00%	84.60%	—%
2013	223,467	916,886	601,757	941,933	100.00%	78.40%	—%
2012	176,172	861,342	715,499	909,399	100.00%	85.10%	—%
2011	174,963	763,631	744,597	926,082	100.00%	98.40%	—%
2010	186,792	682,378	710,151	925,443	100.00%	100.00%	7.92%
JUDICIAL RETIREMENT SYSTEM (JRS)							
2019	\$ 42,660	\$ 427,846	\$ 199,235	\$ 553,136	100.00%	100.00%	41.47%
2018	41,009	413,609	191,044	536,022	100.00%	100.00%	42.61%
2017	39,104	407,862	184,556	505,834	100.00%	100.00%	31.90%
2016	37,648	395,698	174,452	476,321	100.00%	100.00%	24.63%
2015	36,784	390,690	172,914	442,250	100.00%	100.00%	8.55%
2014	38,522	370,265	199,382	406,053	100.00%	99.30%	—%
2013	38,439	360,470	191,717	368,671	100.00%	91.60%	—%
2012	38,578	335,501	208,377	361,097	100.00%	96.10%	—%
2011	37,981	312,423	219,091	371,051	100.00%	100.00%	9.42%
2010	43,217	310,305	206,398	372,096	100.00%	100.00%	9.00%

* Employer-financed portion.

Aggregate Accrued Liabilities are determined under the entry age normal cost method (System-funded method used to determine employer contribution requirements).

The progress of a retirement system in accumulating assets to pay benefits when due can be measured by examining the extent to which assets accumulated for benefits cover 1) active member contributions to the System; 2) liabilities for future benefits to retirees and beneficiaries; and 3) liabilities for the employer-financed portion of service already rendered by active members. In a system receiving actuarially determined employer contributions, the liabilities for member contributions and future benefits to retirees and beneficiaries will generally be fully covered by accumulated assets. In addition, the liabilities for service already rendered will be partially covered by the remainder of the accumulated assets and will increase over time.

SOLVENCY TEST: VRS PENSION PLANS

(EXPRESSED IN THOUSANDS)

Valuation Date (June 30)	Aggregate Accrued Liabilities for			Valuation Assets	Portion of Accrued Liabilities		
	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Members*		(1)	(2)	(3)
VRS – STATE							
2019	\$ 3,459,343	\$ 15,831,694	\$ 6,107,151	\$18,932,104	100.00%	97.73%	—%
2018	3,416,685	14,911,769	5,786,703	18,392,939	100.00%	100.00%	1.11%
2017	3,374,835	14,148,870	5,787,829	17,547,764	100.00%	100.00%	0.42%
2016	3,324,003	13,408,506	6,145,734	16,672,776	100.00%	99.55%	—%
2015	3,267,188	12,960,842	6,063,528	15,881,597	100.00%	97.33%	—%
2014	3,202,604	12,433,349	6,186,983	14,826,208	100.00%	93.50%	—%
2013	3,113,926	11,954,023	6,000,702	13,714,404	100.00%	88.70%	—%
2012	2,559,930	11,363,015	7,021,313	13,740,366	100.00%	98.40%	—%
2011	2,475,123	10,844,164	7,088,671	14,406,275	100.00%	100.00%	15.33%
2010	2,511,650	10,279,653	6,748,150	14,700,854	100.00%	100.00%	28.30%
VRS – TEACHER							
2019	\$ 6,520,986	\$ 28,810,438	\$ 13,972,535	\$36,233,796	100.00%	100.00%	6.46%
2018	6,282,723	26,726,567	13,506,886	34,673,952	100.00%	100.00%	12.32%
2017	6,082,982	25,474,535	13,448,500	32,684,868	100.00%	100.00%	8.38%
2016	5,871,258	24,559,074	13,151,297	30,768,277	100.00%	100.00%	2.57%
2015	5,679,555	23,776,912	13,107,711	29,441,485	100.00%	99.94%	—%
2014	5,494,752	22,720,375	13,082,542	27,026,576	100.00%	94.80%	—%
2013	5,310,701	21,627,490	12,914,143	24,724,679	100.00%	89.80%	—%
2012	4,573,244	20,361,089	14,156,075	24,391,761	100.00%	97.30%	—%
2011	4,394,657	19,066,272	14,310,803	25,166,124	100.00%	100.00%	11.92%
2010	4,376,385	17,935,907	14,776,284	25,447,677	100.00%	100.00%	21.22%
VRS – POLITICAL SUBDIVISIONS							
2019	\$ 3,633,576	\$ 13,695,788	\$ 7,102,460	\$21,078,248	100.00%	100.00%	52.78%
2018	3,522,117	12,494,055	6,527,313	20,137,904	100.00%	100.00%	63.15%
2017	3,429,230	11,624,201	6,480,302	18,981,614	100.00%	100.00%	60.62%
2016	3,322,922	10,750,359	6,585,839	17,762,683	100.00%	100.00%	56.02%
2015	3,229,787	10,045,765	6,579,854	16,760,519	100.00%	100.00%	52.96%
2014	3,122,415	9,315,765	6,524,599	15,291,783	100.00%	100.00%	43.74%
2013	2,996,209	8,802,184	6,358,213	13,685,498	100.00%	100.00%	29.68%
2012	2,346,814	8,272,338	7,205,038	13,079,788	100.00%	100.00%	34.15%
2011	2,246,882	7,629,103	7,129,103	12,986,598	100.00%	100.00%	43.63%
2010	2,358,386	6,902,355	6,911,631	12,580,044	100.00%	100.00%	48.02%
VRS – TOTAL							
2019	\$ 13,613,905	\$ 58,337,920	\$ 27,182,146	\$76,244,148	100.00%	100.00%	15.79%
2018	13,221,525	54,132,391	25,820,902	73,204,795	100.00%	100.00%	22.66%
2017	12,887,047	51,247,606	25,716,631	69,214,246	100.00%	100.00%	19.75%
2016	12,518,183	48,717,939	25,882,870	65,203,736	100.00%	100.00%	15.33%
2015	12,176,530	46,783,519	25,751,093	62,083,601	100.00%	100.00%	12.13%
2014	11,819,771	44,469,489	25,794,124	57,144,567	100.00%	100.00%	3.32%
2013	11,420,836	42,383,697	25,273,058	52,124,581	100.00%	96.00%	—%
2012	9,479,988	39,996,442	28,382,426	51,211,915	100.00%	100.00%	6.11%
2011	9,116,662	37,539,539	28,528,577	52,558,997	100.00%	100.00%	20.69%
2010	9,246,421	35,117,915	28,436,065	52,728,575	100.00%	100.00%	29.41%

* Employer-financed portion.

Aggregate Accrued Liabilities are determined under the entry age normal cost method (System-funded method used to determine employer contribution requirements).

The progress of a retirement system in accumulating assets to pay benefits when due can be measured by examining the extent to which assets accumulated for benefits cover 1) active member contributions to the System; 2) liabilities for future benefits to retirees and beneficiaries; and 3) liabilities for the employer-financed portion of service already rendered by active members. In a system receiving actuarially determined employer contributions, the liabilities for member contributions and future benefits to retirees and beneficiaries will generally be fully covered by accumulated assets. In addition, the liabilities for service already rendered will be partially covered by the remainder of the accumulated assets and will increase over time.

SCHEDULE OF FUNDING (ACTUARIAL VALUE OF ASSETS BASIS): ALL PENSION PLANS

(EXPRESSED IN THOUSANDS)

Actuarial Valuation Date June 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) - Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b-a)/(c)
VIRGINIA RETIREMENT SYSTEM (VRS) **						
2019	\$ 76,244,148	\$ 99,133,971	\$ 22,889,823	76.9%	\$ 18,242,017	125.5%
2018	73,204,795	93,174,818	19,970,023	78.6%	17,614,448	113.4%
2017*	69,214,246	89,851,284	20,637,038	77.0%	16,764,876	123.1%
2016	65,203,736	87,118,992	21,915,256	74.8%	16,325,998	134.2%
2015	62,083,601	84,711,142	22,627,541	73.3%	15,901,380	142.3%
2014	57,144,567	82,083,384	24,938,817	69.6%	15,671,359	159.1%
2013*	52,124,581	79,077,591	26,953,010	65.9%	15,269,079	176.5%
2012	51,211,915	77,858,856	26,646,941	65.8%	14,880,275	179.1%
2011	52,558,997	75,184,760	22,625,763	69.9%	14,708,859	153.8%
2010	52,728,575	72,800,401	20,071,826	72.4%	14,757,790	136.0%
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)						
2019	\$ 858,632	\$ 1,181,120	\$ 322,488	72.7%	\$ 132,230	243.9%
2018	830,978	1,112,893	281,915	74.7%	126,523	222.8%
2017*	785,677	1,040,628	254,951	75.5%	110,265	231.2%
2016	744,656	1,081,980	337,324	68.8%	114,877	293.6%
2015	710,864	1,050,701	339,837	67.7%	110,543	307.4%
2014	662,244	1,029,155	366,911	64.3%	112,303	326.7%
2013*	591,983	996,690	404,707	59.4%	109,006	371.3%
2012	587,160	1,013,278	426,118	57.9%	104,189	409.0%
2011	616,603	985,704	369,101	62.6%	99,669	370.3%
2010	633,415	948,892	315,477	66.8%	97,601	323.2%
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)						
2019	\$ 1,484,995	\$ 2,211,238	\$ 726,243	67.2%	\$ 369,776	196.4%
2018	1,413,876	2,057,504	643,628	68.7%	346,106	186.0%
2017*	1,328,178	1,977,781	649,603	67.2%	339,150	191.5%
2016	1,235,490	1,984,257	748,767	62.3%	352,677	212.3%
2015	1,155,767	1,906,721	750,954	60.6%	330,397	227.3%
2014	1,058,010	1,820,045	762,035	58.1%	352,709	216.1%
2013*	941,933	1,742,110	800,177	54.1%	342,154	233.9%
2012	909,399	1,753,014	843,615	51.9%	344,616	244.8%
2011	926,082	1,683,191	757,109	55.0%	356,240	212.5%
2010	925,443	1,579,321	653,878	58.6%	346,040	189.0%
JUDICIAL RETIREMENT SYSTEM (JRS)						
2019	\$ 553,136	\$ 669,741	\$ 116,605	82.6%	\$ 76,848	151.7%
2018	536,022	645,662	109,640	83.0%	67,424	162.6%
2017*	505,834	631,522	125,688	80.1%	66,288	189.6%
2016	476,321	607,798	131,477	78.4%	65,524	200.7%
2015	442,250	600,388	158,138	73.7%	61,881	255.6%
2014	406,053	608,169	202,116	66.8%	59,373	340.4%
2013*	368,671	590,626	221,955	62.4%	57,110	388.6%
2012	361,097	582,456	221,359	62.0%	56,958	388.6%
2011	371,051	569,494	198,443	65.2%	58,919	336.8%
2010	372,096	559,920	187,824	66.5%	61,021	307.8%

* Revised economic and demographic assumptions due to experience study.

** The breakdown of VRS data into state, teacher and political subdivisions is also presented in the Statistical Section.

SCHEDULE OF FUNDING (ACTUARIAL VALUE OF ASSETS BASIS): VRS PENSION PLANS

(EXPRESSED IN THOUSANDS)

Actuarial Valuation Date June 30	Actuarial Value of Assets (a)	Actuarial Liability (AAL) - Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b-a)/(c)
VIRGINIA RETIREMENT SYSTEM (VRS) – STATE						
2019	\$ 18,932,104	\$ 25,398,188	\$ 6,466,084	74.5%	\$ 4,375,061	147.8%
2018	18,392,939	24,115,157	5,722,218	76.3%	4,161,922	137.5%
2017*	17,547,764	23,311,534	5,763,770	75.3%	4,037,072	142.8%
2016	16,672,776	22,878,243	6,205,467	72.9%	4,002,477	155.0%
2015	15,881,597	22,291,558	6,409,961	71.2%	3,872,724	165.5%
2014	14,826,208	21,822,936	6,966,728	67.9%	3,854,779	181.5%
2013*	13,714,404	21,068,651	7,354,247	65.1%	3,716,548	197.9%
2012	13,740,366	20,944,258	7,203,892	65.6%	3,713,119	194.0%
2011	14,406,275	20,407,958	6,001,683	70.6%	3,686,259	162.8%
2010	14,700,854	19,539,453	4,838,599	75.2%	3,514,396	137.7%
VIRGINIA RETIREMENT SYSTEM (VRS) – TEACHER						
2019	\$ 36,233,796	\$ 49,303,959	\$ 13,070,163	73.5%	\$ 8,608,489	151.8%
2018	34,673,952	46,516,176	11,842,224	74.5%	8,479,023	139.7%
2017*	32,684,868	45,006,017	12,321,149	72.6%	7,919,450	155.6%
2016	30,768,277	43,581,629	12,813,352	70.6%	7,666,824	167.1%
2015	29,441,485	42,564,178	13,122,693	69.2%	7,488,507	175.2%
2014	27,026,576	41,297,669	14,271,093	65.4%	7,362,793	193.8%
2013*	24,724,679	39,852,334	15,127,655	62.0%	7,211,543	209.8%
2012	24,391,761	39,090,408	14,698,647	62.4%	7,004,577	209.8%
2011	25,166,124	37,771,732	12,605,608	66.6%	6,922,130	182.1%
2010	25,447,677	37,088,576	11,640,899	68.6%	7,119,889	163.5%
VIRGINIA RETIREMENT SYSTEM (VRS) – POLITICAL SUBDIVISIONS						
2019	\$ 21,078,248	\$ 24,431,824	\$ 3,353,576	86.3%	\$ 5,258,467	63.8%
2018	20,137,904	22,543,485	2,405,581	89.3%	4,973,503	48.4%
2017*	18,981,614	21,533,733	2,552,119	88.1%	4,808,354	53.1%
2016	17,762,683	20,659,120	2,896,437	86.0%	4,656,697	62.2%
2015	16,760,519	19,855,406	3,094,887	84.4%	4,540,149	68.2%
2014	15,291,783	18,962,779	3,670,996	80.6%	4,453,787	82.4%
2013*	13,685,498	18,156,606	4,471,108	75.4%	4,340,988	103.0%
2012	13,079,788	17,824,190	4,744,402	73.4%	4,162,579	114.0%
2011	12,986,598	17,005,070	4,018,472	76.4%	4,100,470	98.0%
2010	12,580,044	16,172,372	3,592,328	77.8%	4,123,505	87.1%
VIRGINIA RETIREMENT SYSTEM (VRS) – TOTAL						
2019	\$ 76,244,148	\$ 99,133,971	\$ 22,889,823	76.9%	\$ 18,242,017	125.5%
2018	73,204,795	93,174,818	19,970,023	78.6%	17,614,448	113.4%
2017*	69,214,246	89,851,284	20,637,038	77.0%	16,764,876	123.1%
2016	65,203,736	87,118,992	21,915,256	74.8%	16,325,998	134.2%
2015	62,083,601	84,711,142	22,627,541	73.3%	15,901,380	142.3%
2014	57,144,567	82,083,384	24,938,817	69.6%	15,671,359	159.1%
2013*	52,124,581	79,077,591	26,953,010	65.9%	15,269,079	176.5%
2012	51,211,915	77,858,856	26,646,941	65.8%	14,880,275	179.1%
2011	52,558,997	75,184,760	22,625,763	69.9%	14,708,859	153.8%
2010	52,728,575	72,800,401	20,071,826	72.4%	14,757,790	136.0%

* Revised economic and demographic assumptions due to experience study.

SCHEDULE OF ACTIVE MEMBER VALUATION DATA: PENSION PLANS

Valuation Date (June 30)	Active Members				
	Number	Annual Payroll (000s)	Average Annual Pay	Annualized % Change in Average Pay	Number of Employers
VIRGINIA RETIREMENT SYSTEM (VRS)					
2019	334,610	\$ 18,242,017	\$ 54,517	3.6%	608
2018	334,858	17,614,448	52,603	4.3%	604
2017	332,538	16,764,879	50,415	2.0%	606
2016	330,257	16,325,998	49,434	2.2%	606
2015	328,833	15,901,380	48,357	1.4%	602
2014	328,494	15,671,359	47,707	2.6%	601
2013	328,277	15,269,079	46,513	2.6%	599
2012	328,385	14,880,275	45,314	0.5%	599
2011	326,357	14,708,859	45,070	0.6%	594
2010	329,374	14,757,790	44,806	(0.2)%	592
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)					
2019	1,914	\$ 132,230	\$ 69,086	2.9%	1
2018	1,885	126,523	67,121	14.6%	1
2017	1,882	110,265	58,589	(1.1)%	1
2016	1,940	114,877	59,215	6.8%	1
2015	1,994	110,543	55,438	(0.7)%	1
2014	2,011	112,303	55,844	2.6%	1
2013	2,002	109,006	54,449	(1.7)%	1
2012	1,881	104,189	55,390	(3.4)%	1
2011	1,738	99,669	57,347	3.8%	1
2010	1,767	97,601	55,235	—%	1
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)					
2019	8,692	\$ 369,776	\$ 42,542	7.2%	1
2018	8,718	346,106	39,700	2.1%	1
2017	8,718	339,150	38,902	0.4%	1
2016	9,106	352,677	38,730	3.4%	1
2015	8,820	330,397	37,460	0.1%	1
2014	9,429	352,709	37,407	2.5%	1
2013	9,372	342,154	36,508	(0.6)%	1
2012	9,383	344,616	36,728	(0.7)%	1
2011	9,631	356,240	36,989	4.0%	1
2010	9,734	346,040	35,550	(0.1)%	1
JUDICIAL RETIREMENT SYSTEM (JRS)					
2019	462	\$ 76,848	\$ 166,338	2.6%	1
2018	416	67,424	162,077	2.9%	1
2017	421	66,288	157,454	0.0%	1
2016	416	65,524	157,510	2.1%	1
2015	401	61,881	154,317	0.1%	1
2014	385	59,373	154,216	2.9%	1
2013	381	57,110	149,895	—%	1
2012	380	56,958	149,889	0.2%	1
2011	394	58,919	149,541	—%	1
2010	408	61,021	149,561	0.4%	1

SCHEDULE OF ACTIVE MEMBER VALUATION DATA: VRS PENSION PLANS

Valuation Date (June 30)	Active Members					Number of Employers
	Number	Annual Payroll (000s)	Average Annual Pay	Annualized % Change in Average Pay		
VRS – STATE						
2019	74,799	\$ 4,375,061	\$ 58,491	4.8%		1
2018	74,582	4,161,922	55,803	3.4%		1
2017	74,807	4,037,072	53,967	1.1%		1
2016	74,968	4,002,477	53,389	3.7%		1
2015	75,256	3,872,724	51,461	1.1%		1
2014	75,730	3,854,779	50,902	3.9%		1
2013	75,879	3,716,548	48,980	0.6%		1
2012	76,274	3,713,119	48,681	0.1%		1
2011	75,820	3,686,259	48,619	5.2%		1
2010	76,033	3,514,396	46,222	N/A		1
VRS – TEACHER						
2019	149,396	\$ 8,608,489	\$ 57,622	3.0%		144
2018	151,585	8,479,023	55,936	6.2%		144
2017	150,416	7,919,450	52,650	2.3%		145
2016	149,018	7,666,824	51,449	1.4%		145
2015	147,645	7,488,507	50,720	1.2%		145
2014	146,977	7,362,793	50,095	2.3%		145
2013	147,257	7,211,543	48,972	2.9%		145
2012	147,216	7,004,577	47,580	0.5%		144
2011	146,152	6,922,130	47,363	(1.2)%		144
2010	148,462	7,119,889	47,958	N/A		144
VRS – POLITICAL SUBDIVISIONS						
2019	110,415	\$ 5,258,467	\$ 47,625	4.1%		463
2018	108,691	4,973,503	45,758	2.1%		459
2017	107,315	4,808,354	44,806	2.3%		460
2016	106,271	4,656,697	43,819	2.2%		460
2015	105,932	4,540,149	42,859	1.8%		456
2014	105,787	4,453,787	42,101	2.0%		455
2013	105,141	4,340,988	41,287	4.0%		453
2012	104,895	4,162,579	39,683	1.0%		454
2011	104,385	4,100,470	39,282	—%		449
2010	104,879	4,123,505	39,317	N/A		447
VRS – TOTAL						
2019	334,610	\$ 18,242,017	\$ 54,517	3.6%		608
2018	334,858	17,614,448	52,603	4.3%		604
2017	332,538	16,764,876	50,415	2.0%		606
2016	330,257	16,325,998	49,434	2.2%		606
2015	328,833	15,901,380	48,357	1.4%		602
2014	328,494	15,671,359	47,707	2.6%		601
2013	328,277	15,269,079	46,513	2.6%		599
2012	328,385	14,880,275	45,314	0.5%		599
2011	326,357	14,708,859	45,070	0.6%		594
2010	329,374	14,757,790	44,806	N/A		592

SCHEDULE OF RETIREE AND BENEFICIARY VALUATION DATA: PENSION PLANS

Retirees and Beneficiaries								
Valuation Date (June 30)	Added to Rolls		Removed From Rolls		Rolls at End of Year		Annualized % Increase in Annual Allowances	Average Annual Allowance
	Number	Allowances*	Number	Allowances	Number	Allowances		
VIRGINIA RETIREMENT SYSTEM (VRS)								
2019	13,506	\$ 418,151,000	5,684	\$ 128,747,000	208,940	\$ 4,787,253,000	6.4%	\$ 22,912
2018	12,633	369,352,000	5,618	113,124,000	201,118	4,497,849,000	6.0%	22,364
2017	12,067	309,556,000	5,432	101,892,000	194,103	4,241,621,000	5.1%	21,852
2016	12,444	272,010,000	4,944	93,004,000	187,468	4,033,957,000	4.6%	21,518
2015	12,348	313,032,000	5,067	90,733,000	179,968	3,854,951,000	6.1%	21,420
2014	11,912	289,092,000	4,719	89,997,000	172,687	3,632,652,000	5.8%	21,036
2013	11,297	303,240,000	4,574	83,618,000	165,494	3,433,557,000	6.8%	20,747
2012	10,493	305,440,000	4,411	91,446,000	158,771	3,213,935,000	7.1%	20,243
2011	11,630	248,784,000	4,210	31,978,000	152,689	2,999,941,000	7.8%	19,647
2010	10,780	234,416,000	4,011	65,755,000	145,269	2,783,135,000	6.5%	19,158
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)								
2019	78	\$ 4,973,000	21	\$ 1,850,000	1,437	\$ 60,695,000	5.4%	\$ 42,237
2018	63	3,942,000	29	1,618,000	1,380	57,572,000	4.2%	41,719
2017	97	4,994,000	31	1,178,000	1,346	55,248,000	7.4%	41,046
2016	45	1,775,000	36	1,512,000	1,280	51,432,000	0.5%	40,181
2015	66	3,871,000	34	1,555,000	1,271	51,169,000	4.7%	40,259
2014	55	2,972,000	24	1,124,000	1,239	48,853,000	3.9%	39,429
2013	44	2,652,000	36	1,491,000	1,208	47,005,000	2.5%	38,912
2012	54	3,619,000	20	1,543,000	1,200	45,844,000	4.7%	38,203
2011	68	2,954,000	24	412,000	1,166	43,768,000	6.2%	37,537
2010	62	2,450,000	22	1,085,000	1,122	41,226,000	3.4%	36,743
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)								
2019	345	\$ 10,633,000	83	\$ 3,335,000	5,023	\$ 110,886,000	7.0%	\$ 22,076
2018	422	11,565,000	74	3,584,000	4,761	103,588,000	8.3%	21,758
2017	354	9,403,000	65	3,496,000	4,413	95,607,000	6.6%	21,665
2016	365	8,051,000	67	2,737,000	4,124	89,700,000	6.3%	21,751
2015	397	10,242,000	36	2,006,000	3,826	84,386,000	10.8%	22,056
2014	311	7,736,000	59	6,956,000	3,465	76,150,000	1.0%	21,977
2013	336	8,561,000	34	(2,847,000)	3,213	75,370,000	17.8%	23,458
2012	347	9,437,000	37	2,505,000	2,911	63,962,000	12.2%	21,973
2011	316	6,677,000	33	1,145,000	2,601	57,030,000	10.7%	21,926
2010	281	6,667,000	24	932,000	2,318	51,498,000	12.5%	22,216
JUDICIAL RETIREMENT SYSTEM (JRS)								
2019	29	\$ 3,069,000	12	\$ 1,225,000	543	\$ 43,406,000	4.4%	\$ 79,937
2018	22	2,442,000	16	1,537,000	526	41,562,000	2.2%	79,015
2017	28	2,408,000	25	1,539,000	520	40,657,000	2.2%	78,187
2016	26	2,332,000	20	1,317,000	517	39,788,000	2.6%	76,959
2015	40	3,844,000	34	2,147,000	511	38,773,000	4.6%	75,877
2014	32	2,952,000	16	2,045,000	505	37,076,000	2.5%	73,418
2013	40	3,483,000	14	205,000	489	36,169,000	10.0%	73,966
2012	34	3,354,000	17	1,022,000	463	32,891,000	7.6%	71,039
2011	25	1,717,000	30	1,514,000	446	30,559,000	0.7%	68,518
2010	29	2,116,000	17	1,022,000	451	30,356,000	3.7%	67,308

* Additions to allowances include added retirees and the annual COLA provided to existing retirees and beneficiaries.

SCHEDULE OF RETIREE AND BENEFICIARY VALUATION DATA: VRS PENSION PLANS

Valuation Date (June 30)	Retirees and Beneficiaries						Annualized % Increase in Annual Allowances	Average Annual Allowance
	Added to Rolls		Removed From Rolls		Rolls at End of Year			
	Number	Allowances*	Number	Allowances	Number	Allowances		
VRS – STATE								
2019	3,490	\$ 115,623,000	1,956	\$ 44,964,000	58,707	\$1,362,160,000	5.5%	\$ 23,203
2018	3,448	107,317,000	1,943	39,665,000	57,173	1,291,501,000	5.5%	22,589
2017	3,323	90,543,000	1,961	38,698,000	55,668	1,223,849,000	4.4%	21,985
2016	3,338	78,366,000	1,734	32,636,000	54,306	1,172,004,000	4.1%	21,581
2015	3,263	89,596,000	1,824	31,662,000	52,702	1,126,274,000	5.4%	21,371
2014	3,152	80,896,000	1,718	34,128,000	51,263	1,068,340,000	4.6%	20,840
2013	2,864	81,985,000	1,650	28,163,000	49,829	1,021,572,000	5.6%	20,502
2012	2,739	85,005,000	1,618	30,250,000	48,615	967,750,000	6.0%	19,906
2011	2,994	66,569,000	1,564	14,936,000	47,494	912,995,000	6.0%	19,223
2010	1,432	88,557,000	1,432	22,536,000	46,064	861,362,000	N/A**	189,699
VRS – TEACHER								
2019	6,064	\$ 195,493,000	2,060	\$ 53,519,000	94,034	\$2,344,606,000	6.4%	\$ 24,934
2018	5,030	157,985,000	1,997	45,558,000	90,030	2,202,632,000	5.4%	24,466
2017	4,850	132,452,000	1,922	43,246,000	86,997	2,090,205,000	4.5%	24,026
2016	5,085	115,790,000	1,733	38,675,000	84,069	2,000,999,000	4.0%	23,802
2015	5,135	140,493,000	1,816	38,434,000	80,717	1,923,884,000	5.6%	23,835
2014	5,086	135,345,000	1,596	32,303,000	77,398	1,821,825,000	6.0%	23,538
2013	4,929	142,836,000	1,607	35,947,000	73,908	1,718,783,000	6.6%	23,256
2012	4,520	147,153,000	1,550	36,908,000	70,586	1,611,894,000	7.3%	22,836
2011	5,291	123,035,000	1,433	14,549,000	67,616	1,501,649,000	7.8%	22,208
2010	4,045	95,290,000	1,432	28,977,000	63,758	1,393,163,000	N/A**	21,851
VRS – POLITICAL SUBDIVISIONS								
2019	3,952	\$ 107,035,000	1,668	\$ 30,264,000	56,199	\$1,080,487,000	7.6%	\$ 19,226
2018	4,155	104,050,000	1,678	27,901,000	53,915	1,003,716,000	8.2%	18,617
2017	3,894	86,561,000	1,549	19,948,000	51,438	927,567,000	7.7%	18,033
2016	4,021	77,854,000	1,477	21,693,000	49,093	860,954,000	7.0%	17,537
2015	3,950	82,943,000	1,427	20,637,000	46,549	804,793,000	8.4%	17,289
2014	3,674	72,851,000	1,405	23,566,000	44,026	742,487,000	7.1%	16,865
2013	3,504	78,419,000	1,317	19,508,000	41,757	693,202,000	9.3%	16,601
2012	3,234	73,282,000	1,243	24,288,000	39,570	634,291,000	8.4%	16,030
2011	3,345	59,180,000	1,213	2,493,000	37,579	585,297,000	10.7%	15,575
2010	3,007	50,569,000	1,147	14,242,000	35,447	528,610,000	N/A**	14,913
VRS – TOTAL								
2019	13,506	\$ 418,151,000	5,684	\$ 128,747,000	208,940	\$4,787,253,000	6.4%	\$ 22,912
2018	12,633	369,352,000	5,618	113,124,000	201,118	4,497,849,000	6.0%	22,364
2017	12,067	309,556,000	5,432	101,892,000	194,103	4,241,621,000	5.1%	21,852
2016	12,444	272,010,000	4,944	93,004,000	187,468	4,033,957,000	4.6%	21,518
2015	12,348	313,032,000	5,067	90,733,000	179,968	3,854,951,000	6.1%	21,420
2014	11,912	289,092,000	4,719	89,997,000	172,687	3,632,652,000	5.8%	21,036
2013	11,297	303,240,000	4,574	83,618,000	165,494	3,433,557,000	6.8%	20,747
2012	10,493	305,440,000	4,411	91,446,000	158,771	3,213,935,000	7.1%	20,243
2011	11,630	234,416,000	4,011	65,755,000	152,689	2,999,941,000	7.8%	19,647
2010	10,780	234,416,000	4,011	65,755,000	145,269	2,783,135,000	N/A**	19,158

* Additions to Allowances include added retirees and the annual COLA provided to existing retirees and beneficiaries.

** Plan-level statistics for this presentation are not available for years prior to 2010.

FIGURE 4.1: ANALYSIS OF ACTUARIAL GAINS AND LOSSES – PENSION PLANS

FOR THE YEAR ENDED JUNE 30, 2019

(EXPRESSED IN THOUSANDS)

	VRS	SPORS	VaLORS	JRS	Total
A. Calculation of Expected Unfunded Actuarial Accrued Liability (UAAL)					
1. UAAL as of June 30, 2018	\$ 19,970,023	\$ 281,915	\$ 109,640	\$ 643,628	\$ 21,005,206
2. Normal Cost for Previous Year	1,705,151	18,765	17,539	41,613	1,783,068
3. Actual Contributions During the Year	(3,127,352)	(37,267)	(25,744)	(92,264)	(3,282,627)
4. Interest at Previous Year's Rate of 7.00%					
a. On UAAL	1,397,902	19,734	7,675	45,054	1,470,365
b. On Normal Cost	119,361	1,314	1,228	2,913	124,816
c. On contributions	(109,458)	(1,304)	(901)	(3,229)	(114,892)
d. Total	1,407,805	19,744	8,002	44,738	1,480,289
5. Expected UAAL as of June 30, 2019 (A1+A2+A3+A4)	19,955,627	283,157	109,437	637,715	20,985,936
6. Actual UAAL as of June 30, 2019	22,889,823	322,488	116,605	726,243	24,055,159
7. Total Gain/(Loss) (A5-A6)	(2,934,196)	(39,331)	(7,168)	(88,528)	(3,069,223)
B. Calculation of Asset Gain/(Loss)					
1. Actuarial Value of Assets (AVA) as of June 30, 2018	73,204,795	830,978	536,022	1,413,876	75,985,671
2. Contributions During the Year	3,127,352	37,267	25,744	92,264	3,282,627
3. Benefit Payments During the Year	(4,878,523)	(63,488)	(43,584)	(114,126)	(5,099,721)
4. Interest at Previous Year's Rate of 7.00%					
a. On AVA at Beginning of Year	5,124,336	58,168	37,522	98,971	5,318,997
b. On Contributions	109,458	1,304	901	3,229	114,892
c. On Benefit Payments	(170,748)	(2,222)	(1,525)	(3,994)	(178,489)
d. Total	5,063,046	57,250	36,898	98,206	5,255,400
5. Expected AVA as of June 30, 2019 (B1+B2+B3+B4)	76,516,670	862,007	555,080	1,490,220	79,423,977
6. Actual AVA as of June 30, 2019	76,244,148	858,632	553,136	1,484,995	79,140,911
7. Total Gain/(Loss) on Assets (B6-B5)	(272,522)	(3,375)	(1,944)	(5,225)	(283,066)
C. Calculation of Liability Gain/(Loss)					
1. Gain/(Loss) Due to Changes in Actuarial Assumptions	(2,844,385)	(32,016)	(13,983)	(62,982)	(2,953,366)
2. Gain/(Loss) Due to Plan Amendments	(17,729)	—	—	—	(17,729)
3. Gain/(Loss) Due to Change in Asset Method	—	—	—	—	—
4. Liability Experience Gain/(Loss) (A7-B7-C1-C2-C3)	\$ 200,440	\$ (3,940)	\$ 8,759	\$ (20,321)	\$ 184,938

FIGURE 4.2: ANALYSIS OF ACTUARIAL GAINS AND LOSSES – VRS PENSION PLANS

FOR THE YEAR ENDED JUNE 30, 2019

(EXPRESSED IN THOUSANDS)

	State	Teacher	Political Subdivisions	Total
A. Calculation of Expected Unfunded Actuarial Accrued Liability (UAAL)				
1. UAAL as of June 30, 2018	\$ 5,722,218	\$ 11,842,224	\$ 2,405,581	\$ 19,970,023
2. Normal Cost for Previous Year	354,541	830,844	519,766	1,705,151
3. Actual Contributions During the Year	(733,929)	(1,659,931)	(733,492)	(3,127,352)
4. Interest at Previous Year's Rate of 7.00%				
a. On UAAL	400,555	828,956	168,391	1,397,902
b. On Normal Cost	24,818	58,159	36,384	119,361
c. On Contributions	(25,688)	(58,098)	(25,672)	(109,458)
d. Total	399,685	829,017	179,103	1,407,805
5. Expected UAAL as of June 30, 2019 (A1+A2+A3+A4)	5,742,515	11,842,154	2,370,958	19,955,627
6. Actual UAAL as of June 30, 2019	6,466,084	13,070,163	3,353,576	22,889,823
7. Total Gain/(Loss) (A5-A6)	(723,569)	(1,228,009)	(982,618)	(2,934,196)
B. Calculation of Asset Gain/(Loss)				
1. Actuarial Value of Assets (AVA) as of June 30, 2018	18,392,939	34,673,952	20,137,904	73,204,795
2. Contributions During the Year	733,929	1,659,931	733,492	3,127,352
3. Benefit Payments During the Year	(1,387,730)	(2,367,753)	(1,123,040)	(4,878,523)
4. Interest at Previous Year's Rate of 7.00%				
a. On AVA at Beginning of Year	1,287,506	2,427,177	1,409,653	5,124,336
b. On Contributions	25,688	58,098	25,672	109,458
c. On Benefit Payments	(48,571)	(82,871)	(39,306)	(170,748)
d. Total	1,264,623	2,402,404	1,396,019	5,063,046
5. Expected AVA as of June 30, 2019 (B1+B2+B3+B4)	19,003,761	36,368,534	21,144,375	76,516,670
6. Actual AVA as of June 30, 2019	18,932,104	36,233,796	21,078,248	76,244,148
7. Total Gain/(Loss) on Assets (B6-B5)	(71,657)	(134,738)	(66,127)	(272,522)
C. Calculation of Liability Gain/(Loss)				
1. Gain/(Loss) Due to Changes in Actuarial Assumptions	(671,336)	(1,469,768)	(703,281)	(2,844,385)
2. Gain/(Loss) Due to Plan Amendments	—	—	(17,729)	(17,729)
3. Gain/(Loss) Due to Change in Asset Method	—	—	—	—
4. Liability Experience Gain/(Loss) (A7-B7-C1-C2-C3)	\$ 19,424	\$ 376,497	\$ (195,481)	\$ 200,440

Actuarial Assumptions and Methods

On April 26, 2017, the VRS Board of Trustees adopted most of the actuarial assumptions and methods on the recommendation of its actuary. The assumptions for the pension plans include the Virginia Retirement System (VRS), the State Police Officers' Retirement System (SPORS), the Virginia Law Officers' Retirement System (VaLORS) and the Judicial Retirement System (JRS). They were based on an analysis of plan experience for the four-year period July 1, 2012, through June 30, 2016, and were used for the June 30, 2019, valuation.

ACTUARIAL ASSUMPTIONS AND METHODS: PENSION PLANS

FOR THE JUNE 30, 2019, VALUATION

Investment Return Rate: 6.75% per annum, compounded annually, composed of an assumed 2.50% inflation rate and a 4.50% real rate of return. Benefits are assumed to increase annually by 2.50% for Plan 1 members receiving benefits or vested as of January 1, 2013, and by 2.25% for all other members.

Mortality Rates

Pre-Retirement: RP-2014 Employee Rates to age 80, Healthy Annuitant Rates at age 81 and Older Projected With Scale BB to 2020:

- State – Males set back 1 year, 85% of rates and females set back 1 year
- State Police – Males 90% of rates, females set forward 1 year
- VaLORS – Males 90% of rates, females set forward 1 year
- Judicial – Males set back 1 year, 85% of rates, females set back 1 year
- Political subdivisions, non-hazardous duty – Males 95% of rates, females 105% of rates
- Political subdivisions, hazardous duty – Males 90% of rates, females set forward 1 year

Post-Retirement: RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at age 50 and Older Projected With Scale BB to 2020

- State – Males set forward 1 year, females set back 1 year with 1.5% increase compounded from age 70 to 85
- Teachers – Males 1% increase compounded from age 70 to 90, females set back 3 years with 1.5% increase compounded from age 65 to 70 and 2% increase compounded from age 75 to 90
- State Police – Males set forward 1 year with 1% increase compounded from ages 70 to 90, females set forward 3 years
- VaLORS – Males set forward 1 year with 1% increase compounded from ages 70 to 90, females set forward 3 years
- Judicial – Males set forward 1 year, females set back 1 year with 1.5% compounding increase from age 70 to 85
- Political subdivisions, non-hazardous duty – Males set forward 3 years, females 1% increase compounded from ages 70 to 90
- Political subdivisions, hazardous duty – Males set forward 1 year, females 1% increase compounded from ages 70 to 90, females set forward 3 years

Post-Disablement: RP-2014 Disabled Mortality Rates Projected With Scale BB to 2020:

- State – Males 115% of rates, females 130% of rates
- Teachers – Males and females 115% of rates
- State Police – Males set forward 2 years, unisex using 100% males
- VaLORS – Males set forward 2 years, unisex using 100% males
- Judicial – Males 115% of rates, females 130% of rates
- Political subdivisions, non-hazardous duty – Males set forward 2 years, 110% of rates, females 125% of rates
- Political subdivisions, hazardous duty – Males set forward 2 years, unisex using 100% males

FIGURE 4.3: RETIREMENT RATES – PENSION PLANS

Sample rates of retirement for members eligible to retire are shown below.

State Employees

Plan 1 – Male
Years of Service

Age	5	6-9	10	11-29	30	≥31
50	0.00%	0.00%	3.30%	3.30%	12.50%	12.50%
55	4.50%	4.50%	4.50%	3.50%	5.00%	9.00%
59	4.50%	4.00%	4.00%	4.00%	10.00%	9.00%
60	4.50%	5.00%	5.00%	5.00%	11.50%	9.00%
61	15.00%	7.50%	7.50%	7.50%	16.50%	15.00%
62	15.00%	10.00%	10.00%	10.00%	20.00%	20.00%
64	15.00%	13.50%	13.50%	13.50%	20.00%	17.50%
65	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
67	27.50%	22.00%	22.00%	22.00%	22.00%	22.00%
70	20.00%	22.00%	22.00%	22.00%	22.00%	22.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Plan 1 – Female
Years of Service

Age	5	6-9	10	11-29	30	≥31
50	0.00%	0.00%	3.00%	3.00%	7.50%	7.50%
55	5.00%	5.00%	5.00%	4.00%	10.00%	9.00%
59	5.00%	5.00%	5.00%	5.00%	10.00%	9.00%
60	5.00%	5.00%	5.00%	5.00%	12.00%	12.50%
61	7.50%	8.00%	8.00%	8.00%	16.50%	17.50%
62	10.00%	12.00%	12.00%	12.00%	22.50%	25.00%
64	17.50%	15.00%	15.00%	15.00%	22.50%	17.50%
65	27.50%	27.50%	27.50%	27.50%	27.50%	30.00%
67	30.00%	25.00%	25.00%	25.00%	25.00%	25.00%
70	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 4.3: RETIREMENT RATES – PENSION PLANS, cont.

Sample rates of retirement for members eligible to retire are shown below.

State Employees

Plan 2 and Hybrid – Male

Years of Service

Age	30	31	33	35	37	39	≥40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.50%
55	0.00%	0.00%	0.00%	5.00%	9.00%	9.00%	9.00%
59	0.00%	10.00%	9.00%	9.00%	9.00%	9.00%	9.00%
60	11.50%	11.50%	9.00%	9.00%	9.00%	9.00%	9.00%
61	16.50%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
62	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
64	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%
65	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
67	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%
70	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Rate is 11.50% when age plus service equals 90.

Plan 2 and Hybrid – Female

Years of Service

Age	30	31	33	35	37	39	≥40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.50%
55	0.00%	0.00%	0.00%	10.00%	9.00%	9.00%	9.00%
59	0.00%	10.00%	9.00%	9.00%	9.00%	9.00%	9.00%
60	12.00%	12.00%	12.50%	12.50%	12.50%	12.50%	12.50%
61	16.50%	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%
62	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
64	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%
65	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
67	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
70	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Rate is 12.00% when age plus service equals 90.

FIGURE 4.3: RETIREMENT RATES – PENSION PLANS, cont.

Sample rates of retirement for members eligible to retire are shown below.

Teachers

Plan 1 – Male						
Years of Service						
Age	5	6-9	10	11-29	30	≥31
50	0.00%	0.00%	2.00%	2.00%	17.50%	17.50%
55	7.00%	7.00%	7.00%	4.50%	22.50%	15.00%
59	10.00%	6.00%	6.00%	6.00%	22.50%	15.00%
60	10.00%	7.00%	7.00%	7.00%	22.50%	15.00%
61	11.00%	8.50%	8.50%	8.50%	30.00%	25.00%
62	17.00%	15.00%	15.00%	15.00%	35.00%	35.00%
64	18.00%	15.00%	15.00%	15.00%	35.00%	25.00%
65	30.00%	30.00%	30.00%	30.00%	30.00%	35.00%
67	30.00%	35.00%	35.00%	35.00%	35.00%	35.00%
70	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Plan 1 – Female						
Years of Service						
Age	5	6-9	10	11-29	30	≥31
50	0.00%	0.00%	2.40%	2.40%	15.00%	15.00%
55	6.00%	6.00%	6.00%	5.00%	22.50%	16.00%
59	8.00%	6.00%	6.00%	6.00%	22.50%	20.00%
60	9.00%	8.00%	8.00%	8.00%	22.50%	20.00%
61	15.00%	10.00%	10.00%	10.00%	30.00%	25.00%
62	15.00%	15.00%	15.00%	15.00%	35.00%	30.00%
64	25.00%	15.00%	15.00%	15.00%	35.00%	30.00%
65	30.00%	30.00%	30.00%	30.00%	30.00%	35.00%
67	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
70	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 4.3: RETIREMENT RATES – PENSION PLANS, cont.

Sample rates of retirement for members eligible to retire are shown below.

Teachers

Plan 2 and Hybrid – Male
Years of Service

Age	30	31	33	35	37	39	≥40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	17.50%
55	0.00%	0.00%	0.00%	22.50%	15.00%	15.00%	15.00%
59	0.00%	22.50%	15.00%	15.00%	15.00%	15.00%	15.00%
60	22.50%	22.50%	15.00%	15.00%	15.00%	15.00%	15.00%
61	30.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
62	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
64	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
65	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
67	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
70	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Rate is 22.50% when age plus service equals 90.

Plan 2 and Hybrid – Female
Years of Service

Age	30	31	33	35	37	39	≥40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.00%
55	0.00%	0.00%	0.00%	22.50%	16.00%	16.00%	16.00%
59	0.00%	22.50%	20.00%	20.00%	20.00%	20.00%	20.00%
60	22.50%	22.50%	20.00%	20.00%	20.00%	20.00%	20.00%
61	30.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
62	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
64	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
65	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
67	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
70	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Rate is 22.50% when age plus service equals 90.

FIGURE 4.3: RETIREMENT RATES – PENSION PLANS, cont.

Sample rates of retirement for members eligible to retire are shown below.

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers Plan 1

Age	Male Years of Service					Female Years of Service				
	5	10	11-29	30	≥31	5	10	11-29	30	≥31
50	0.00%	2.75%	2.75%	10.00%	10.00%	0.00%	3.50%	3.50%	16.00%	16.00%
55	6.00%	6.00%	5.00%	10.00%	10.00%	4.50%	4.50%	5.00%	22.00%	16.00%
59	10.00%	4.50%	4.50%	10.00%	14.00%	10.50%	6.00%	6.00%	20.00%	16.00%
60	10.00%	6.00%	6.00%	10.00%	14.00%	10.50%	7.50%	7.50%	14.00%	16.00%
61	10.00%	10.00%	10.00%	10.00%	14.00%	10.50%	10.00%	10.00%	14.00%	16.00%
62	10.00%	14.00%	14.00%	25.00%	30.00%	10.50%	14.00%	14.00%	34.50%	27.50%
64	10.00%	15.00%	15.00%	25.00%	25.00%	10.50%	17.00%	17.00%	10.00%	18.00%
65	25.00%	25.00%	25.00%	25.00%	37.00%	25.00%	25.00%	25.00%	25.00%	27.50%
67	15.00%	25.00%	25.00%	25.00%	25.00%	15.00%	27.50%	27.50%	27.50%	27.50%
70	27.50%	25.00%	25.00%	25.00%	25.00%	15.00%	27.50%	27.50%	27.50%	27.50%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers Plan 2 and Hybrid

Age	Male Years of Service								
	5	6-25	30	31	33	35	37	39	≥40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%
55	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	10.00%	10.00%	10.00%
59	0.00%	0.00%	0.00%	10.00%	14.00%	14.00%	14.00%	14.00%	14.00%
60	10.00%	10.00%	10.00%	10.00%	14.00%	14.00%	14.00%	14.00%	14.00%
61	10.00%	10.00%	10.00%	14.00%	14.00%	14.00%	14.00%	14.00%	14.00%
62	10.00%	14.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
64	10.00%	15.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
65	25.00%	25.00%	37.50%	37.00%	37.00%	37.00%	37.00%	37.00%	37.00%
67	15.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
70	27.50%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 4.3: RETIREMENT RATES – PENSION PLANS, cont.

Sample rates of retirement for members eligible to retire are shown below.

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers Plan 2 and Hybrid, cont.

Age	Female								
	Years of Service								
	5	6-25	30	31	33	35	37	39	≥40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.00%
55	0.00%	0.00%	0.00%	0.00%	0.00%	22.00%	16.00%	16.00%	16.00%
59	0.00%	0.00%	0.00%	20.00%	16.00%	16.00%	16.00%	16.00%	16.00%
60	10.50%	10.50%	14.00%	14.00%	16.00%	16.00%	16.00%	16.00%	16.00%
61	10.50%	10.00%	14.00%	16.00%	16.00%	16.00%	16.00%	16.00%	16.00%
62	10.50%	14.00%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%
64	10.50%	17.00%	18.00%	18.00%	18.00%	18.00%	18.00%	18.00%	18.00%
65	25.00%	25.00%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%
67	15.00%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%
70	15.00%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – All Other Employers Plan 1

Age	Male					Female				
	Years of Service					Years of Service				
	5	10	11-29	30	≥31	5	10	11-29	30	≥31
50	0.00%	5.00%	5.00%	10.00%	10.00%	0.00%	5.50%	5.50%	6.00%	6.00%
55	5.50%	5.50%	5.00%	14.00%	10.00%	7.00%	7.00%	5.50%	12.00%	10.00%
59	10.00%	5.50%	5.50%	12.00%	10.00%	6.00%	5.50%	5.50%	15.00%	10.00%
60	10.00%	6.00%	6.00%	12.00%	10.00%	8.50%	7.50%	7.50%	15.00%	10.00%
61	15.00%	10.00%	10.00%	25.00%	22.00%	8.50%	7.50%	7.50%	20.00%	17.50%
62	13.00%	17.00%	17.00%	35.00%	30.00%	19.00%	17.00%	17.00%	20.00%	25.00%
64	20.00%	15.00%	15.00%	27.00%	25.00%	11.00%	15.00%	15.00%	25.00%	15.00%
65	27.00%	27.00%	27.00%	27.00%	30.00%	28.00%	28.00%	28.00%	28.00%	35.00%
67	27.00%	25.00%	25.00%	25.00%	25.00%	17.50%	22.00%	22.00%	22.00%	22.00%
70	27.00%	25.00%	25.00%	25.00%	25.00%	30.00%	22.00%	22.00%	22.00%	22.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 4.3: RETIREMENT RATES – PENSION PLANS, cont.

Sample rates of retirement for members eligible to retire are shown below.

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – All Other Employers Plan 2 and Hybrid

Male									
Years of Service									
Age	5	6-25	30	31	33	35	37	39	≥40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%
55	0.00%	0.00%	0.00%	0.00%	0.00%	14.00%	10.00%	10.00%	10.00%
59	0.00%	0.00%	0.00%	12.00%	10.00%	10.00%	10.00%	10.00%	10.00%
60	10.00%	10.00%	12.00%	12.00%	10.00%	10.00%	10.00%	10.00%	10.00%
61	15.00%	10.00%	25.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%
62	13.00%	17.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
64	20.00%	15.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
65	27.00%	27.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
67	27.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
70	27.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Female									
Years of Service									
Age	5	6-25	30	31	33	35	37	39	≥40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.00%
55	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	10.00%	10.00%	10.00%
59	0.00%	0.00%	0.00%	15.00%	10.00%	10.00%	10.00%	10.00%	10.00%
60	8.50%	8.50%	15.00%	15.00%	10.00%	10.00%	10.00%	10.00%	10.00%
61	8.50%	7.50%	20.00%	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%
62	19.00%	17.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
64	11.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
65	28.00%	28.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
67	17.50%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%
70	30.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%
≥75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 4.3: RETIREMENT RATES – PENSION PLANS, cont.

Sample rates of retirement for members eligible to retire are shown below.

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers – All Plans

Age	Male				Female			
	Years of Service				Years of Service			
	5	6-24	25	≥26	5	6-24	25	≥26
50	7.00%	7.00%	26.00%	26.00%	5.00%	5.00%	32.00%	32.00%
55	7.00%	6.00%	15.00%	20.50%	5.00%	7.50%	25.00%	21.00%
59	7.00%	12.50%	32.00%	27.50%	5.00%	14.00%	25.00%	40.00%
60	21.00%	21.00%	21.00%	27.50%	20.00%	20.00%	20.00%	40.00%
61	37.50%	27.50%	27.50%	27.50%	20.00%	20.00%	20.00%	20.00%
62	50.00%	32.00%	32.00%	32.00%	20.00%	35.00%	35.00%	35.00%
63	50.00%	32.00%	32.00%	32.00%	20.00%	30.00%	30.00%	30.00%
64	50.00%	40.00%	40.00%	40.00%	20.00%	30.00%	30.00%	30.00%
≥65	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – All Other Employers – All Plans

Age	Male				Female			
	Years of Service				Years of Service			
	5	6-24	25	≥26	5	6-24	25	≥26
50	9.00%	9.00%	27.50%	27.50%	9.25%	9.25%	50.00%	50.00%
55	9.00%	7.50%	20.00%	18.00%	12.50%	9.00%	20.00%	18.00%
59	9.00%	12.00%	20.00%	24.00%	12.50%	9.00%	20.00%	24.00%
60	15.00%	15.00%	15.00%	27.50%	20.00%	20.00%	20.00%	27.50%
61	15.00%	27.50%	27.50%	27.50%	20.00%	27.50%	27.50%	27.50%
62	15.00%	27.50%	27.50%	27.50%	20.00%	27.50%	27.50%	27.50%
63	25.00%	30.00%	30.00%	30.00%	20.00%	30.00%	30.00%	30.00%
64	20.00%	30.00%	30.00%	30.00%	20.00%	30.00%	30.00%	30.00%
≥65	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

State Police Officers – All Plans

Age	Years of Service	
	5-24	≥25
50	10.00%	10.00%
55	6.00%	10.00%
59	10.00%	10.00%
60	10.00%	10.00%
≥65	100.00%	100.00%

FIGURE 4.3: RETIREMENT RATES – PENSION PLANS, cont.

Sample rates of retirement for members eligible to retire are shown below.

Virginia Law Officers – All Plans

Age	Years of Service – Male			
	5	6-24	25	≥26
50	11.00%	11.00%	35.00%	35.00%
55	10.00%	8.00%	18.00%	25.00%
59	10.00%	12.00%	18.00%	20.00%
60	18.00%	18.00%	18.00%	20.00%
≥65	100.00%	100.00%	100.00%	100.00%

Age	Years of Service – Female			
	5	6-24	25	≥26
50	10.00%	10.00%	37.50%	37.50%
55	10.00%	8.00%	25.00%	27.50%
59	10.00%	13.00%	30.00%	22.50%
60	20.00%	20.00%	20.00%	22.50%
≥65	100.00%	100.00%	100.00%	100.00%

Judges – All Plans

Age	Rate
60	15.00%
65	15.00%
70	50.00%
≥73	100.00%

FIGURE 4.4: DISABILITY RATES – PENSION PLANS

As shown below for selected ages.

State Employees

25% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0390%	0.0330%
30	0.0910%	0.2110%
40	0.2120%	0.3540%
50	0.4970%	0.6290%
60	0.6900%	0.7350%

Teachers

5% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0005%	0.0003%
30	0.0064%	0.0081%
40	0.0325%	0.0481%
50	0.1444%	0.1609%
60	0.3395%	0.3321%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers

20% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0050%	0.0010%
30	0.0070%	0.0230%
40	0.1390%	0.1340%
50	0.3840%	0.3300%
60	0.8080%	0.5300%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – All Other Employers

15% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0050%	0.0010%
30	0.0220%	0.0010%
40	0.1300%	0.0580%
50	0.4290%	0.2740%
60	0.6560%	0.6400%

FIGURE 4.4: DISABILITY RATES – PENSION PLANS, cont.

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers

70% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0190%	0.0120%
30	0.0520%	0.5580%
40	0.2670%	0.7940%
50	0.5000%	1.0900%
60	1.0550%	1.7880%

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – All Other Employers

45% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0010%	0.0050%
30	0.0580%	0.1570%
40	0.2180%	0.2010%
50	0.4160%	0.4130%
60	0.5750%	1.6050%

State Police Officers

85% of disability cases are assumed to be service-related.

Age	Rate
≤44	0.1940%
50	0.4810%
55	0.7700%
60	0.8970%
70	1.3680%

Virginia Law Officers

35% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.1430%	0.5430%
30	0.5840%	0.6590%
40	0.7930%	1.0010%
50	1.1650%	1.8210%
60	1.7820%	2.9010%
70	1.9200%	5.4990%

Judges

There are no assumed rates of disability prior to service retirement (for causes other than death or retirement).

FIGURE 4.5: TERMINATION RATES – PENSION PLANS

Withdrawal rates are based on age and years of service credit. Sample rates for selected ages and years of service are shown below for causes other than death, disability or retirement.

State Employees – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Males											
Age	0	1	2	3	4	5	6	7	8	9	≥10
25	22.297%	22.297%	22.056%	20.171%	16.921%	13.670%	10.954%	9.132%	8.251%	7.732%	7.214%
35	15.120%	14.553%	13.631%	12.195%	10.694%	9.577%	8.902%	8.387%	7.574%	5.878%	4.183%
45	14.223%	11.470%	9.617%	8.321%	7.345%	6.888%	6.600%	6.412%	5.934%	4.282%	2.630%
55	13.242%	10.032%	8.050%	7.094%	6.491%	6.348%	5.950%	5.391%	4.470%	3.550%	2.630%
65	13.038%	9.477%	7.859%	7.094%	6.491%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Females											
Age	0	1	2	3	4	5	6	7	8	9	≥10
25	26.747%	26.747%	25.594%	23.170%	20.061%	16.601%	13.663%	11.705%	11.136%	11.136%	11.136%
35	19.257%	17.078%	15.532%	14.101%	12.758%	11.658%	10.633%	9.380%	8.241%	7.177%	6.019%
45	17.029%	13.335%	11.247%	9.984%	8.920%	8.275%	7.531%	6.872%	6.277%	5.214%	3.025%
55	16.695%	11.694%	9.149%	8.236%	7.660%	7.039%	6.175%	5.711%	5.138%	5.088%	3.025%
65	16.695%	11.656%	9.060%	8.236%	7.660%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Teachers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Males											
Age	0	1	2	3	4	5	6	7	8	9	≥10
25	18.729%	14.293%	12.175%	11.084%	9.453%	8.071%	7.568%	6.716%	5.060%	4.286%	4.286%
35	16.964%	13.888%	12.459%	10.907%	9.347%	7.931%	6.709%	5.881%	5.210%	4.361%	3.314%
45	16.964%	13.888%	11.573%	10.116%	7.864%	6.940%	6.230%	5.733%	5.243%	4.239%	2.407%
55	16.964%	13.888%	11.217%	10.116%	7.038%	5.844%	5.813%	5.733%	5.234%	4.238%	2.407%
65	16.964%	13.888%	11.217%	10.116%	7.038%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Females											
Age	0	1	2	3	4	5	6	7	8	9	≥10
25	18.037%	12.332%	10.860%	10.637%	9.381%	7.728%	6.567%	6.507%	5.448%	4.933%	4.933%
35	16.500%	14.138%	12.602%	11.307%	10.178%	9.519%	8.653%	7.385%	6.386%	5.292%	3.931%
45	15.055%	12.047%	9.933%	8.544%	7.686%	7.181%	6.623%	5.912%	5.390%	4.417%	2.287%
55	14.909%	11.617%	9.449%	8.038%	7.093%	6.249%	5.450%	5.326%	4.771%	4.357%	2.287%
65	14.909%	11.617%	9.449%	8.038%	7.093%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

FIGURE 4.5: TERMINATION RATES – PENSION PLANS, cont.

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION												
Years of Service – Males												
Age	0	1	2	3	4	5	6	7	8	9	≥10	
25	23.300%	20.505%	18.626%	17.319%	16.251%	14.426%	11.711%	9.285%	8.232%	6.883%	6.883%	
35	19.131%	16.822%	15.078%	13.689%	12.397%	11.188%	10.157%	9.215%	8.232%	6.883%	5.224%	
45	16.933%	14.546%	12.562%	10.920%	9.444%	8.921%	8.524%	8.181%	7.546%	6.301%	3.941%	
55	15.609%	12.538%	10.330%	8.976%	8.448%	7.339%	6.690%	5.864%	4.833%	4.320%	3.941%	
65	15.343%	9.244%	6.477%	6.477%	6.477%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION												
Years of Service – Females												
Age	0	1	2	3	4	5	6	7	8	9	≥10	
25	22.847%	20.860%	19.802%	19.425%	19.257%	18.886%	17.958%	15.784%	13.041%	13.041%	13.041%	
35	21.392%	18.767%	17.208%	16.238%	15.439%	14.424%	13.001%	11.315%	9.792%	8.502%	7.338%	
45	19.067%	15.747%	13.540%	12.135%	11.040%	10.262%	9.177%	8.099%	7.250%	6.008%	3.671%	
55	17.295%	12.753%	9.920%	8.541%	8.214%	7.159%	6.952%	6.590%	5.564%	5.536%	3.671%	
65	17.275%	11.784%	8.108%	6.923%	6.923%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – All Other Employers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION												
Years of Service – Males												
Age	0	1	2	3	4	5	6	7	8	9	≥10	
25	25.057%	23.024%	20.925%	18.373%	15.688%	13.361%	11.957%	10.835%	9.992%	9.992%	9.992%	
35	20.650%	18.223%	16.214%	14.313%	12.751%	11.426%	10.347%	9.571%	8.813%	7.795%	6.549%	
45	18.397%	14.896%	12.718%	11.399%	10.572%	9.878%	9.085%	8.205%	7.363%	6.227%	4.626%	
55	16.068%	12.967%	12.001%	10.500%	10.447%	9.747%	8.930%	8.111%	6.486%	6.227%	4.626%	
65	15.356%	12.875%	12.001%	10.500%	10.447%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION												
Years of Service – Females												
Age	0	1	2	3	4	5	6	7	8	9	≥10	
25	27.370%	25.711%	23.395%	20.379%	17.488%	15.451%	13.809%	12.034%	10.656%	10.642%	10.642%	
35	22.330%	20.208%	18.736%	17.235%	15.849%	14.347%	12.837%	11.557%	10.447%	9.116%	7.607%	
45	19.506%	16.555%	14.581%	13.206%	12.281%	11.551%	10.655%	9.714%	8.999%	7.643%	5.323%	
55	16.934%	14.490%	12.400%	10.933%	10.007%	9.284%	9.284%	9.284%	8.445%	7.560%	5.323%	
65	15.628%	14.008%	12.292%	10.875%	10.007%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	

FIGURE 4.5: TERMINATION RATES – PENSION PLANS, cont.

**Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits –
All Other Employers – All Plans**

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION

Age	Years of Service – Males			Years of Service – Females		
	0-2	3-9	10+	0-2	3-9	10+
25	23.500%	14.000%	0.000%	25.500%	16.500%	0.000%
35	18.500%	10.500%	5.500%	19.000%	11.500%	6.000%
45	15.500%	8.000%	3.000%	15.000%	8.000%	3.500%
55	12.000%	6.500%	1.000%	12.500%	6.500%	0.000%
65	12.000%	8.000%	0.000%	13.000%	9.000%	0.000%

**Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits –
Ten Largest Employers – All Plans**

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION

Years of Service	Terminations Per 100 Members	
	Males	Females
0	10.000%	15.000%
1	8.500%	9.000%
2	8.000%	9.000%
3	7.500%	9.000%
4	5.500%	9.000%
5	5.000%	9.000%
6	4.750%	9.000%
7	4.500%	6.000%
8	4.000%	3.500%
9	3.000%	2.000%
≥10	1.800%	2.000%

FIGURE 4.5: TERMINATION RATES – PENSION PLANS, cont.

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits –
All Other Employers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Males											
Age	0	1	2	3	4	5	6	7	8	9	≥10
25	16.006%	14.519%	13.807%	13.247%	12.169%	10.519%	8.845%	7.768%	6.899%	6.899%	6.899%
35	15.310%	12.574%	10.924%	9.896%	9.156%	8.897%	8.437%	7.640%	6.609%	5.433%	4.189%
45	15.275%	11.790%	9.478%	8.223%	7.802%	7.022%	6.634%	6.269%	5.626%	4.561%	3.022%
55	14.065%	10.547%	8.414%	7.694%	7.694%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
65	11.088%	8.665%	7.763%	7.694%	7.694%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Females											
Age	0	1	2	3	4	5	6	7	8	9	≥10
25	18.762%	15.474%	13.049%	11.598%	11.001%	10.648%	10.224%	8.766%	6.591%	5.831%	5.831%
35	20.886%	16.395%	13.402%	11.544%	10.335%	9.327%	8.334%	7.404%	6.591%	5.831%	5.043%
45	18.253%	14.688%	12.276%	10.843%	9.904%	8.818%	7.992%	7.253%	6.587%	5.314%	3.443%
55	11.234%	10.212%	9.680%	9.680%	9.599%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
65	1.269%	3.040%	3.040%	3.040%	3.040%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

State Police Officers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION	
Service	Rate
0	9.750%
1	4.750%
2	4.750%
3	4.750%
4	4.750%
5	4.750%
6	4.750%
7	3.000%
8	3.000%
9	3.000%
≥10	1.750%

FIGURE 4.5: TERMINATION RATES – PENSION PLANS, cont.

Virginia Law Officers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION									
Years of Service – Males									
Age	0	1	2	3	4	5	6	7	8
25	30.264%	26.915%	23.838%	20.793%	17.797%	14.758%	12.544%	11.510%	11.510%
35	25.749%	21.974%	18.823%	16.020%	13.400%	11.603%	10.242%	9.350%	8.615%
45	22.182%	17.034%	13.792%	12.032%	11.173%	9.580%	8.484%	7.391%	6.240%
55	21.689%	14.708%	10.525%	9.930%	9.930%	0.000%	0.000%	0.000%	0.000%
65	21.689%	14.673%	9.796%	9.787%	9.787%	0.000%	0.000%	0.000%	0.000%

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION									
Years of Service – Females									
Age	0	1	2	3	4	5	6	7	8
25	33.633%	30.645%	27.155%	23.161%	19.212%	15.381%	13.567%	10.072%	9.919%
35	32.025%	25.204%	20.727%	17.948%	15.980%	14.868%	13.534%	10.072%	9.909%
45	30.589%	21.487%	15.693%	12.720%	11.803%	10.976%	10.134%	9.113%	7.804%
55	28.000%	17.544%	10.155%	6.516%	6.490%	0.000%	0.000%	0.000%	0.000%
65	23.879%	12.934%	3.574%	0.004%	0.182%	0.000%	0.000%	0.000%	0.000%

Judges – All Plans

There are no assumed rates of withdrawal prior to service retirement for causes other than death, disability or retirement.

FIGURE 4.6: SALARY INCREASE RATES – PENSION PLANS

Sample salary increase rates are shown below.

State Employees

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown. It is assumed state employees who are covered under the Virginia Sickness and Disability Program (VSDP) receive a 3.50% annual increase in pay while disabled. This adjusted pay is used to determine deferred retirement benefits payable from the System.

Years of Service	Annual Step-Rate/Promotional Rates of Increase	Total Annual Rate of Increase
1	1.85%	5.35%
3	1.25%	4.75%
6	0.95%	4.45%
9	0.50%	4.00%
11-19	0.15%	3.65%
20 or more	0.00%	3.50%

FIGURE 4.6: SALARY INCREASE RATES – PENSION PLANS, cont.

Teachers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown.

Years of Service	Annual Step-Rate/Promotional Rates of Increase	Total Annual Rate of Increase
1	2.45%	5.95%
3	2.35%	5.85%
6	1.95%	5.45%
9	1.85%	5.35%
11	1.35%	4.85%
15	1.15%	4.65%
19	0.95%	4.45%
20 or more	0.00%	3.50%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown.

Years of Service	Annual Step-Rate/Promotional Rates of Increase	Total Annual Rate of Increase
1	1.85%	5.35%
3	1.25%	4.75%
6	0.95%	4.45%
9	0.50%	4.00%
11-19	0.15%	3.65%
20 or more	0.00%	3.50%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – All Other Employers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown.

Years of Service	Annual Step-Rate/Promotional Rates of Increase	Total Annual Rate of Increase
1	1.85%	5.35%
3	1.25%	4.75%
6	0.95%	4.45%
9	0.50%	4.00%
11-19	0.15%	3.65%
20 or more	0.00%	3.50%

FIGURE 4.6: SALARY INCREASE RATES – PENSION PLANS, cont.

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown.

Years of Service	Annual Step-Rate/Promotional Rates of Increase	Total Annual Rate of Increase
1	1.25%	4.75%
3	1.25%	4.75%
6	0.90%	4.40%
9	0.90%	4.40%
11-19	0.50%	4.00%
20 or more	0.00%	3.50%

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – All Other Employers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown.

Years of Service	Annual Step-Rate/Promotional Rates of Increase	Total Annual Rate of Increase
1	1.25%	4.75%
3	1.25%	4.75%
6	0.90%	4.40%
9	0.90%	4.40%
11-19	0.50%	4.00%
20 or more	0.00%	3.50%

State Police Officers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown. It is assumed state police officers who are covered under the Virginia Sickness and Disability Program (VSDP) receive a 3.50% annual increase in pay while disabled. This adjusted pay is used to determine deferred retirement benefits payable from the System.

Years of Service	Annual Step-Rate/Promotional Rates of Increase	Total Annual Rate of Increase
1	1.25%	4.75%
3	1.25%	4.75%
6	0.90%	4.40%
9	0.90%	4.40%
11-19	0.50%	4.00%
20 or more	0.00%	3.50%

FIGURE 4.6: SALARY INCREASE RATES – PENSION PLANS, cont.

Virginia Law Officers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown. It is assumed Virginia law officers who are covered under the Virginia Sickness and Disability Program (VSDP) receive a 3.50% annual increase in pay while disabled. This adjusted pay is used to determine deferred retirement benefits payable from the System.

Years of Service	Annual Step-Rate/Promotional Rates of Increase	Total Annual Rate of Increase
1	1.25%	4.75%
3	1.25%	4.75%
6	0.90%	4.40%
9	0.90%	4.40%
11-19	0.50%	4.00%
20 or more	0.00%	3.50%

Judges

Salary increase rates are 4.50%.

ADDITIONAL INFORMATION ABOUT ACTUARIAL ASSUMPTIONS AND METHODS: PENSION PLANS

Percent Electing a Refund or Deferred Annuity (excluding JRS Members). Terminating members are assumed to elect a refund of their member contributions and accrued interest or a deferred annuity based on the option any given member would consider most valuable at the time of termination. The deferred annuity, if elected, is assumed to commence at the age at which the member first becomes eligible for an unreduced benefit.

Provision for Expense. The assumed investment return represents the anticipated net rate of return after payment of all administrative expenses.

Asset Valuation Method. The method of valuing assets is intended to recognize a “smoothed” market value of assets. Under this method, the difference between actual return on market value from investment experience and the expected return on market value is recognized over a five-year period. The resulting actuarial value of assets cannot be less than 80% or more than 120% of the market value of assets.

Actuarial Cost Method. The valuation was prepared using the entry age normal actuarial cost method. Under this method, a calculation is made for pension benefits to determine the uniform and constant percentage rate of employer contributions that – if applied to the compensation of the average new member during the entire period of his or her anticipated covered service – would be required in addition to the contributions of the member to meet the cost of all benefits payable on the member’s behalf.

The unfunded actuarial accrued liability is determined by subtracting the current assets and the present value of prospective employer normal contributions and member contributions from the present value of expected benefits to be paid from VRS. The accrued liability contribution amortizes

the balance of the unfunded accrued liability over a period of years from the valuation date.

Actuarial Gains and Losses. Actuarial gains and losses are reflected in the unfunded actuarial accrued liability and are amortized as part of that balance.

Payroll Growth Rates. For state employees, teachers and members of SPORS, VaLORS and JRS, the payroll growth rate is assumed to be 3.00% based on a zero population growth assumption. For political subdivision employees, the payroll growth rate also is assumed to be 3.00% based on a zero population growth assumption.

Funding Period. The legacy unfunded actuarial accrued liability, less the deferred contribution as of June 30, 2013, is amortized over a closed 30-year period from June 30, 2013. The amortization period of the unfunded, less the deferred contribution, will decrease by one each year until reaching 0 years. The deferred contribution, as defined under the 2011 Appropriations Act, Item 469(I)(6), is to be amortized using a level-dollar, closed 10-year period beginning June 30, 2011. The actuarial gains and losses and other changes in the unfunded liability due to benefits and actuarial assumption and method changes for each valuation subsequent to the June 30, 2013, valuation will be amortized over a closed 20-year period.

Cost-of-Living Adjustment (COLA). For Plan 1 employees receiving benefits or vested as of January 1, 2013, the COLA is assumed to be 2.50% per year compounded annually for the Basic Benefit option. The hazardous duty supplement for Plan 1 SPORS members, VaLORS members and political subdivision employees receiving enhanced hazardous duty benefits is assumed to increase at an inflation rate of 2.50% per year compounded annually. For Plan 1 employees who were not vested as of January 1, 2013, Plan 2 employees and hybrid plan employees, the COLA is assumed to be 2.25% per year compounded annually.

Summary of Pension Plan Provisions

Retirement Plans

ADMINISTRATION

The Virginia Retirement System (the System) pension Plan 1, Plan 2 and Hybrid Retirement Plan are administered by the Board of Trustees of the System. Plan 2 was established during the 2010 session of the General Assembly, and its provisions were effective for members hired between July 1, 2010, and December 31, 2013. In addition, Plan 1 members who were not vested as of January 1, 2013, are also in Plan 2. The hybrid plan was established for all non-hazardous duty employees hired on or after January 1, 2014.

TYPES OF PLANS

1. Virginia Retirement System (VRS), effective March 1, 1952. VRS is a qualified governmental pension system that administers two defined benefit structures, Plan 1 and Plan 2, and a Hybrid Retirement Plan with a benefit structure that combines both defined benefit and defined contribution features. The Governmental Accounting Standards Board (GASB) defines VRS as an agent multiple-employer public employee retirement system. Covered employees include full-time permanent, salaried state employees; faculty members of the state's public colleges and universities who do not elect to participate in an optional retirement plan (ORP); teachers and administrative employees of the state's local public school divisions; and employees of Virginia cities, towns, counties and other political subdivisions that have elected to participate in VRS. Some part-time permanent, salaried state employees also are covered under VRS. VRS has separate cost-sharing pools for state and school employers.

Members are covered under Plan 1, Plan 2 or the Hybrid Retirement Plan according to their membership date:

- **Plan 1:** Membership date is July 1, 2010, with at least five years of service on January 1, 2013, and have not taken a refund. Members are covered under Optional Retirement Plan (ORP) 1 if they have an ORP membership date before July 1, 2010, and maintain an account balance. If the member had a pre-July 1, 2010, ORP account balance and moved to a defined benefit plan, the member must have any combination of VRS service credit and/or ORP participation that totals five years as of January 1, 2013, to be considered a Plan 1 member.
- **Plan 2:** Membership date is from July 1, 2010, to December 31, 2013, and have not taken a refund. Additionally, members are covered under Plan 2 if they have a membership date prior to July 1, 2010, but were not vested before January 1, 2013. Members are covered under ORP 2 if they have an ORP membership date on or after July 1, 2010, and maintain an account balance. If a member of VaLORS, SPORS, VRS with enhanced hazardous duty benefits or the hazardous duty alternate option was hired on or after July 1, 2010, the member is in Plan 2, even if the membership date is after December 31, 2013.
- **Hybrid Retirement Plan:** Membership date is on or after January 1, 2014, or is a Plan 1 or Plan 2 member who elected, during a one-time opt-in period, to be covered under the hybrid plan. Employees in positions with hazardous duty benefits are not eligible to participate in the hybrid plan and become members of Plan 2. If the member was hired on or after January 1, 2014, and was eligible for an ORP, the member must elect the ORP or the hybrid plan. If the member has prior service under Plan 1 or Plan 2, the member is not eligible to elect the hybrid plan and will choose between the ORP or the applicable VRS defined benefit plan.

2. Single-Employer Public Employee Retirement Systems as Defined by GASB. The provisions for the Plan 1 and Plan 2 benefit structures for the following systems are the same as those for VRS:

- State Police Officers' Retirement System (SPORS) established July 1, 1950, for full-time permanent, salaried state police officers.
- Virginia Law Officers' Retirement System (VaLORS) established October 1, 1999, for full-time permanent, salaried Virginia law officers other than state police.
- Judicial Retirement System (JRS) established July 1, 1970, for full-time permanent, salaried state judges and other qualifying employees. Members hired on or after January 1, 2014, are covered under the hybrid plan.

MEMBER CONTRIBUTIONS

Member contributions vary by plan.

Defined Benefit: Active members in Plan 1 and Plan 2 contribute 5% of their creditable compensation per year. Active members in the hybrid plan contribute 4% of their creditable compensation per year. Members' contribution accounts accrue 4% interest each year, calculated on the balance as of the previous June 30. Contributions paid by employers on behalf of employees are governed by Section 414(h) of the Internal Revenue Code.

Defined Contribution: Active members in the hybrid plan are required to contribute 1% of their creditable compensation per year to the defined contribution component of the hybrid plan. Active members can make additional voluntary contributions of up to 4% of their creditable compensation.

CREDITABLE COMPENSATION

Creditable compensation is the member's current annual base salary excluding overtime; extraordinary pay; bonus pay; housing and moving expenses; mobile device and internet costs; vehicle allowances; termination pay for leave; non-permanent shift differentials; payments of a temporary nature including but not limited to acting pay (if not

permanently confirmed for the position); or payments for extra duties, such as pay for teachers who serve as coaches. A member's election to defer salary to a deferred compensation plan, such as a 403(b), a 457(b) or a 125 plan, may only be included in creditable compensation if the member voluntarily elects the deferral, the deferral is not conditional or performance based, and the deferral would otherwise be included in the member's gross income. Other exclusions apply.

AVERAGE FINAL COMPENSATION

Average final compensation is one of the factors used to calculate the member's retirement benefit.

Plan 1. Average of the member's 36 consecutive months of highest creditable compensation as a covered employee.

Plan 2 and Hybrid Retirement Plan. Average of the member's 60 consecutive months of highest creditable compensation as a covered employee.

VESTING

VRS members become vested after accumulating five years of service credit.

SERVICE CREDIT

1. VRS; SPORS and VaLORS Members in Plan 1 and Plan 2; and Hybrid Retirement Plan. These members receive one month of service credit for each month they are employed in a covered position and the employer is contributing to the System.

2. JRS Members in Plan 1. Judges appointed or elected to an original term before January 1, 1995, receive one month of service credit multiplied by a weighting factor of 3.5 for each month they are employed in a JRS-covered position and the employer is contributing to the System. The weighting factor for judges appointed or elected on or after January 1, 1995, but before July 1, 2010, is 2.5. Judges appointed or elected to an original term between July 1, 2010, and December 31, 2013, receive one month of service credit multiplied by a weighting factor of 2.5 if appointed or elected to an original term and were at least 55 years old; 2.0 if

appointed or elected to an original term and were at least 45 years old but less than 55 years old; or 1.5, if appointed or elected to an original term and were less than 45 years old.

3. JRS Members in Plan 2 and Hybrid Retirement Plan.

Judges appointed or elected to an original term between July 1, 2010, and December 31, 2013, receive one month of service credit multiplied by a weighting factor of 2.5 if appointed or elected to an original term and were at least 55 years old; 2.0 if appointed or elected to an original term and were at least 45 years old but less than 55 years old; or 1.5, if appointed or elected to an original term and were less than 45 years old.

PRIOR SERVICE CREDIT

Members may purchase prior service as credit in their plan. Eligible prior service includes active duty military service; full-time salaried federal service; full-time salaried public service with an employer or school system of another state or United States territory, or with a Virginia public employer that does not participate in VRS; non-covered service with a VRS-participating employer; approved leave from a VRS-covered position for the birth, adoption or death of a child; Family and Medical Leave Act (FMLA) leave for a serious health condition (as defined under FMLA) of the member or an immediate family member, also as defined under FMLA; approved educational leave; unused sick leave at retirement, if the member is eligible; and VRS-refunded service. Members also can apply for no-cost military leave, provided they are not dishonorably discharged, return to covered employment within one year of discharge and do not take a refund of their member contributions and interest.

Prior service credit counts toward vesting, eligibility for retirement and eligibility for the health insurance credit, if offered by the employer. Prior service credit for refunded VRS hazardous duty service or for an eligible period of leave while covered under

VRS in a hazardous duty position also counts toward the hazardous duty supplement for eligible members, provided they purchase or, in the case of no-cost military leave, are granted this service. Other types of prior service credit, such as active duty military service or hazardous duty service with a non-VRS participating employer, do not count toward the supplement.

Members may arrange to purchase prior service through a lump-sum payment using a personal check; a trustee-to-trustee transfer of funds or a pretax rollover of funds; an after-tax payroll deduction agreement or a pretax salary reduction agreement (if the employer offers the pretax salary reduction option); or a combination of these methods. Other special rules and limits govern the purchase of prior service.

The cost basis and eligibility periods for members are as follows:

VRS Refunded Service. The purchase cost is based on the refund amount, plus interest compounded annually from the date of the refund to the date the member buys back the service. The interest rate is the assumed rate of return of the VRS fund. The member may purchase all refunded service or a portion at any time while an active VRS member.

Other Types of Eligible Service. The two-year cost window to purchase most types of service at approximate normal cost begins upon employment in a VRS-covered position or following an eligible period of leave. If the member does not purchase prior service within the two-year window and leaves employment or takes a leave of absence without pay, the window temporarily closes until the member returns to active VRS-covered employment. If the member does not purchase the service within the two-year window, the cost shifts to an actuarial equivalent cost.

NORMAL (UNREDUCED) AND REDUCED RETIREMENT ELIGIBILITY AND BENEFIT CALCULATIONS

EARLIEST UNREDUCED RETIREMENT ELIGIBILITY

PLAN 1	PLAN 2 & HYBRID PLAN	BENEFIT CALCULATIONS
<p>VRS: Age 65 with at least five years of service credit, or age 50 with at least 30 years of service credit.</p> <p>NOTE: Some political subdivisions require employees to reach age 55 with at least 30 years of service credit.</p>	<p>Normal Social Security retirement age with at least five years of service credit or when age and service equal 90.</p> <p><i>Example:</i> Age 60 with 30 years of service credit.</p>	<ul style="list-style-type: none"> • Plan 1: 1.70% of average final compensation X years of service. • Plan 2: 1.65% of average final compensation X years of service. • Hybrid Retirement Plan: 1.00% of average final compensation X years of service for the defined benefit component. <p>NOTE: Plan 2 and Hybrid Retirement Plan members could have a bifurcated multiplier. For example, Plan 2 members with a membership date prior to July 1, 2010, have a 1.70% multiplier on any service earned, purchased or granted prior to January 1, 2013, and a 1.65% multiplier on any service earned, purchased or granted on or after January 1, 2013.</p>
<p>SPORS, VaLORS and political subdivision hazardous duty covered employees: Age 60 with at least five years of service credit or age 50 with at least 25 years of service credit.</p>	<p>SPORS, VaLORS and political subdivision hazardous duty covered employees: Age 60 with at least five years of service credit or age 50 with at least 25 years of service credit. (Hybrid plan not applicable.)</p>	<ul style="list-style-type: none"> • SPORS, sheriffs and regional jail superintendents: 1.85% of average final compensation for each year of service credit. • VaLORS: 1.70% (if membership date in VaLORS was before July 1, 2001, and member has at least 20 years of service credit) or 2.00% of average final compensation for each year of service credit as elected by the member. <i>Note:</i> VaLORS members retiring under the 2.00% multiplier are not eligible for the hazardous duty supplement. • All other VaLORS members receive 2.00% of average final service X years of hazardous duty service plus 1.70% of average final compensation X years of non-hazardous service. <i>Note:</i> VaLORS members retiring under the 2.00% multiplier are not eligible for the hazardous duty supplement. • Political subdivision hazardous duty employees: 1.70% or 1.85% of average final compensation for each year of service credit, as elected by the employer.

NORMAL (UNREDUCED) AND REDUCED RETIREMENT ELIGIBILITY AND BENEFIT CALCULATIONS, cont.

EARLIEST UNREDUCED RETIREMENT ELIGIBILITY

PLAN 1	PLAN 2 & HYBRID PLAN	BENEFIT CALCULATIONS
JRS: Age 65 with at least five years of weighted service credit or age 60 with at least 30 years of weighted service credit	Same as Plan 1.	<p>Plan 1 and Plan 2:</p> <ul style="list-style-type: none"> If appointed or elected to an original term prior to January 1, 2013: 1.70% of average final compensation for each year of service credit. If appointed or elected to an original term between January 1, 2013, and December 31, 2013: 1.70% on non-JRS service earned, purchased or granted before the date of appointment or election to an original term and 1.65% on JRS service earned, purchased or granted on or after the date of appointment or election to an original term. <p>Hybrid Retirement Plan:</p> <ul style="list-style-type: none"> 1.00% of average final compensation for each year of service credit beginning on the date of appointment or election to an original term.

EARLIEST REDUCED RETIREMENT ELIGIBILITY

PLAN 1	PLAN 2 & HYBRID PLAN	BENEFIT CALCULATIONS
VRS: Age 55 with at least five years of service credit or age 50 with at least 10 years of service credit.	Age 60 with at least five years of service credit.	<ul style="list-style-type: none"> VRS Plan 1, JRS Plan 1, JRS Plan 2 and JRS Hybrid, SPORS, VaLORS and political subdivision hazardous duty covered Plan 1 and Plan 2 members who are at least age 55 (age 50 for SPORS, VaLORS and political subdivision hazardous duty covered members): A reduction is applied of 0.50% per month for the first 60 months and 0.40% for the next 60 months the member is away from meeting unreduced retirement eligibility.
SPORS, VaLORS and political subdivision hazardous duty covered employees: Age 50 with at least five years of service credit.	Same as Plan 1.	<p>For VRS Plan 1 members, an additional reduction of 0.60% is applied for each month the member's age precedes age 55.</p>
JRS: Age 55 with at least five years of weighted service credit.	Same as Plan 1.	<ul style="list-style-type: none"> Plan 2 and Hybrid Retirement Plan: Calculated the same as a normal retirement benefit, using actual service at retirement and multiplied by an actuarially equivalent reduction factor. No reduction applies if the sum of the member's age and service equals 90 or the member is eligible for normal retirement.

BENEFIT PAYOUT OPTIONS

VRS members eligible for retirement must elect one of the following benefit payout options when they apply for retirement. This election is irrevocable, except for the Survivor Option under certain circumstances. These options are available on an actuarially equivalent basis:

1. Basic Benefit. Members may choose the Basic Benefit, which is the unreduced benefit amount. An early retirement reduction factor is applied for the reduced benefit. The Basic Benefit does not provide a continuation of a lifetime monthly benefit to a survivor.

2. Survivor Option. Members may choose a whole percentage of their benefit, between 10% and 100%, to continue as a lifetime benefit to a survivor upon their death. The member's benefit is actuarially reduced accordingly.

3. Basic Benefit With the Partial Lump-Sum Option Payment (PLOP) or Survivor Option With the PLOP.

This option is available with the Basic Benefit and the Survivor Option. Members who are in active service for one or more years beyond the date they become eligible for an unreduced retirement benefit may elect the Basic Benefit with the PLOP or Survivor Option with the PLOP and accrued interest equal to one, two or three times their annual retirement benefit, depending on how long they work beyond their unreduced retirement eligibility date. The monthly benefit is actuarially reduced accordingly.

4. Advance Pension Option. With this option, members elect to receive a temporary higher benefit until an age selected by the member, between age 62 and the normal retirement age under Social Security. At that point, the monthly benefit is permanently reduced on an actuarially equivalent basis. The benefit can never be reduced by more than 50%. The Advance Pension Option does not provide a continuation of a benefit to a survivor.

PAYMENT FORM

The retirement benefit is paid as a lifetime monthly annuity. Upon the member's death in retirement,

the member's beneficiary receives a lump-sum payment of any remaining member contributions and accrued interest in the member's account. If the member has elected the Survivor Option, a lifetime monthly benefit is paid to his or her survivor instead of a lump-sum payment.

HAZARDOUS DUTY SUPPLEMENT

An annual supplement is payable to members of SPORS and VRS political subdivision members eligible for enhanced hazardous duty coverage who retire with at least 20 years of eligible hazardous duty service credit. The supplement begins when they retire and continues until they reach their normal retirement age under Social Security.

VaLORS members retiring under the 1.70% multiplier who have at least 20 years of eligible hazardous duty service credit receive the supplement beginning when they retire and continuing until age 65; VaLORS members retiring under the 2.00% multiplier are not eligible for the supplement. Vested members hired in eligible hazardous duty positions before July 1, 1974, are not required to have 20 years of hazardous duty service credit to qualify for the supplement, provided they take an immediate annuity.

The supplement is a dollar amount added to the member's monthly retirement benefit payment. It is adjusted biennially based on increases in Social Security benefits during interim periods, as determined by the VRS actuary.

COST-OF-LIVING ADJUSTMENT (COLA)

The cost-of-living adjustment (COLA) is an annual increase in your retirement benefit that allows it to keep pace with inflation. If a member retires with an unreduced benefit or with a reduced benefit with at least 20 years of service credit, the COLA will go into effect on July 1 after one full calendar year from the retirement date.

If a member retires with a reduced benefit with fewer than 20 years of service credit, the COLA will go into effect on July 1 after one full calendar year from the date the member would have become

eligible for an unreduced benefit. Exceptions to the COLA effective dates are listed in Figure 2.10 in the Financial Section.

The COLA is effective each July 1 thereafter, when provided. During periods of no inflation or deflation, the COLA is zero (0.00%).

The COLA is calculated based on changes in the Consumer Price Index for all Urban Consumers (CPI-U) as follows:

1. The CPI-U for the most recent calendar year used to determine the VRS COLA is subtracted from the most recent average annual CPI-U to arrive at the index point change.
2. The index point change is divided by the CPI-U for the most recent calendar year in which a COLA was paid.
3. The result is multiplied by 100 to convert it to a percentage. Under Plan 1, automatic cost-of-living increases are calculated as the first 3.00% of the increase of the CPI-U, plus half of each percentage increase from 3.00% to 7.00%.

Under Plan 2 and the Hybrid Retirement Plan, automatic cost-of-living increases are calculated as the first 2.00% of the increase of the CPI-U, plus half of each percentage increase from 2.00% to 4.00%, with a maximum COLA increase of 3.00%.

Refunds and Deferred Membership

1. Refunds. Vested members in Plan 1, Plan 2 and the Hybrid Retirement Plan who leave or are involuntarily separated from employment for causes other than job performance or misconduct are eligible for a full refund of their member contribution account balance, including accrued interest. Non-vested members are eligible for a refund of the balance, excluding any employer-paid member contributions made to their accounts after July 1, 2010, and the accrued interest on these contributions.

Hybrid plan members are also immediately vested to any funds they contribute to the defined contribution component of their plan. They become vested over a four-year period to the funds their employer contributes on their behalf. Members with fewer than two years of service credit forfeit the employer contributions.

Taking a refund cancels membership and eligibility for any future benefits under the retirement plans. Members who take a refund and return to covered employment will be rehired under the currently applicable plan. They are then eligible to purchase their VRS refunded service as credit in their plan.

2. Deferred membership. Members separating from employment have the option to leave their funds with VRS and become deferred members. If they are vested or involuntarily separated from employment, they may be eligible for a future retirement benefit if they meet the age and service requirements for their plan. The benefit is calculated based on the member's service credit and average final compensation at the time of separation. Upon the member's death, the member's beneficiary receives a lump-sum payment of any remaining member contributions and accrued interest. If the member retires and elects the Survivor Option, a lifetime monthly benefit is paid to the survivor upon the member's death.

Deferred members remain eligible to receive a full or partial refund of their member contribution account balance, depending on whether or not they are vested. If a deferred member returns to covered employment, member contributions and the service credit the member earns upon reemployment are added to the member's record.

Death-in-Service Benefit

If a member dies while in active service, his or her named beneficiary or spouse, natural or legally adopted minor child or parent may be eligible for a death-in-service benefit in addition to VRS life insurance benefits, if applicable.

NON-WORK-RELATED CAUSE OF DEATH

If the member dies from a non-work-related cause, the member's named beneficiary will be eligible for a refund of any funds remaining in the member's contribution account. If the member is vested at the time of death and his or her spouse, minor child or parent is one of the member's named beneficiaries or is the beneficiary based on order of precedence, he or she will be eligible for a refund or a monthly benefit to the exclusion of all other primary beneficiaries. Any benefits minor children receive will end when they reach age 18. If the member is vested and his or her spouse, minor child or parent is not one of the member's named beneficiaries, or is not the beneficiary based on order of precedence, that beneficiary will be eligible for a lump-sum payment only. If the member is not vested at the time of death, his or her spouse, minor child or parent will be eligible for a lump-sum payment only, which will be shared with any other primary beneficiaries the member has designated, if applicable.

The monthly non-work-related benefit is a lifetime monthly annuity based on the 100% Survivor Option. Members covered under Plan 1 who die before age 55 are assumed to be age 55 at the time of death for the purpose of calculating the benefit. The calculation for members covered under Plan 2 and the Hybrid Retirement Plan uses age 60. The calculation for Plan 1 and Plan 2 members of SPORS and VaLORS, and for VRS members eligible for enhanced hazardous duty coverage, uses age 50.

WORK-RELATED CAUSE OF DEATH

If the member dies from a work-related cause, the member's named beneficiary will be eligible for a lump-sum payment of any funds remaining in the member's contribution account. In addition, the member's spouse, minor child or parent will be eligible for a monthly benefit, whether or not this individual is a named beneficiary.

The monthly work-related benefit is a lifetime monthly annuity based on 33 $\frac{1}{3}$ % of the member's average final compensation if the spouse, minor

child or parent qualifies for Social Security survivor benefits, or 50% of the member's average final compensation if the spouse, minor child or parent does not qualify for Social Security survivor benefits. The benefit is then adjusted by any workers' compensation survivor benefits.

Disability Benefits

DISABILITY RETIREMENT

Plan 1 and Plan 2 members who are not covered under the Virginia Sickness and Disability Program (VSDP) are eligible to apply for disability retirement from the first day of covered employment if they have a physical or cognitive disability that prevents them from performing their job and is likely to be permanent. Members covered under Plan 1 and Plan 2 who retire on disability before age 60 are credited with the lesser of (1) twice their total service credit at disability retirement; or (2) their total service credit plus the number of years remaining between their age at disability retirement and age 60.

The disability benefit for non-vested members is the minimum guaranteed benefit, which is either (1) 50% of the member's average final compensation (66 $\frac{2}{3}$ % if the disability is work-related) if the member does not qualify for Social Security disability benefits; or (2) 33 $\frac{1}{3}$ % of average final compensation (50% if the disability is work-related) if the member qualifies for Social Security disability benefits.

If a member is vested and has a non-work-related disability, the amount of the disability retirement benefit will be the VRS formula amount, as described below, or the guaranteed benefit, whichever is higher.

For vested members under age 60, the benefit will be equal to 1.70% for Plan 1 members or 1.65% for Plan 2 members of average final compensation multiplied by (a) twice the amount of total service credit or (b) actual service credit plus the number of years remaining between the member's age at disability retirement and age 60, whichever is less.

For vested members age 60 or older, the benefit will be equal to 1.70% for Plan 1 members or 1.65% for Plan 2 members of average final compensation multiplied by total service credit.

The benefit for members retiring on work-related disability is reduced by any workers' compensation benefits. The payout options available to members retiring on disability are the Basic Benefit and Survivor Option.

VIRGINIA SICKNESS AND DISABILITY PROGRAM

The Virginia Sickness and Disability Program (VSDP) was established on January 1, 1999, to provide income protection to state employees covered under VRS, SPORS and VaLORS if they suffer a non-work-related or work-related illness or injury. Enrollment in VSDP is automatic upon employment. State employees hired before January 1, 1999, had the option to elect VSDP or retain their eligibility to be considered for disability retirement. Employees enrolled in VSDP are not eligible to retire on disability. Additional information about VSDP is provided in the "Summary of Other Post-Employment Benefit (OPEB) Plan Provisions" in the next discussion on OPEBs. Additional information also is provided in the Financial Section.

VIRGINIA LOCAL DISABILITY PROGRAM

The Virginia Local Disability Program (VLDP) was implemented January 1, 2014, to provide Hybrid Retirement Plan members short-term and long-term disability benefits for non-work-related and work-related disabilities. Eligible employees are enrolled automatically upon employment, unless their employer has elected to provide comparable coverage.

Eligible employees include:

- Teachers or other professional employees of a local public school division.
- General employees of a VRS-participating political subdivision, such as a city, county, town, authority or commission.
- Local law enforcement officers, firefighters or emergency medical technicians if the employer does not provide enhanced hazardous duty benefits.

Additional information about VLDP is provided in the "Summary of Other Post-Employment Benefit (OPEB) Plan Provisions" in the next discussion on OPEBs. Additional information also is provided in the Financial Section.

Summary of Pension Plan Changes

The following actuarially material changes have occurred to the pension plan provisions in recent years.

2006 VALUATION: No actuarially material changes are made to the plan provisions.

2007 VALUATION: The retirement multiplier for VRS-covered sheriffs and SPORS members changes from 1.70% to 1.85% of average final compensation, effective July 1, 2008.

2008 VALUATION: No actuarially material changes are made to the plan provisions.

2009 VALUATION: No actuarially material changes are made to the plan provisions. There are three changes of note:

1. On April 16, 2009, the Board adopts the recommended economic and demographic assumptions proposed by the actuary as a result of the June 2008 experience study.
2. The temporary retirement supplement for SPORS members, VaLORS members and political subdivision employees eligible for enhanced hazardous duty coverage changes from \$11,508 to \$12,456 annually.
3. For the June 30, 2009, valuation, the Board suspends application of the 80% to 120% market value-of-assets corridor on the actuarial value of assets.

2010 VALUATION: No actuarially material changes are made to the plan provisions. There are two changes of note:

1. For the June 30, 2010, valuation, the application of the 80% to 120% market value-of-assets corridor on the actuarial value of assets is reinstated.
2. The Board reduces the investment rate-of-return assumption from 7.50% to 7.00%.

2011 VALUATION: In 2010, VRS adopts a second retirement plan, Plan 2. All employees hired on or after July 1, 2010, are automatically enrolled in this plan. The differences between Plan 1 and Plan 2 are listed below:

1. Under Plan 2, average final compensation is based on the highest 60 consecutive months of service.

2. The Plan 2 cost-of-living adjustment (COLA) is based on the first 2.00% increase in the Consumer Price Index for all Urban Consumers (CPI-U) plus half of each percent from 2.00% to 10.00%, with a maximum COLA of 6.00%.

3. Under Plan 2, normal retirement age is Social Security normal retirement age with at least five years of service credit. A Plan 2 member is eligible for unreduced early retirement when the sum of his or her age plus service credit is 90 (Rule of 90). Eligibility for reduced early retirement is at age 60 with five years of service credit.

4. Weighted service factors for first-term Plan 2 judges are 1.5 for judges less than age 45; 2.0 for judges age 45-54; and 2.5 for judges age 55 or older.

New general state employees, teachers and general political subdivision employees under VRS are subject to changes 1, 2 and 3 above. New state police officers (SPORS), Virginia law officers (VaLORS) and political subdivision employees eligible for enhanced hazardous duty coverage (VRS) are subject to changes 1 and 2 above. New employees covered under JRS are subject to changes 1, 2 and 4 above.

2012 VALUATION: In 2012 House Bill 1130/Senate Bill 498 was enacted and was effective on January 1, 2013. The changes resulting from this legislation are as listed below:

1. Active non-vested members of Plan 1 have their Average Final Compensation based on the highest 60 consecutive months of service instead of the highest 36 consecutive months of service. This provision applies to all plans.
2. Active non-vested members of Plan 1 and all Plan 2 members accrue benefits at 1.65% as of the effective date.

This provision applies to the state and teacher plans and to members in political subdivision plans who are not covered by hazardous duty benefits.

3. Active members in the judicial plan hired after January 1, 2013, accrue benefits at 1.65%. *(continued)*

2012 VALUATION (continued):

4. Active non-vested members of Plan 1 have to satisfy the Rule of 90 (sum of age and service is at least 90) or reach their Social Security normal retirement age to be eligible for unreduced retirement. These same members must attain age 60 with five years of service to be eligible for early retirement. This provision applies to the state and teacher plans and to members of political subdivision plans who are not covered by hazardous duty benefits.

5. Non-vested members of Plan 1 and all members of Plan 2 have a maximum cost-of-living adjustment (COLA) of 3.00%. This provision applies to all plans.

6. All active employees not within five years of eligibility for an unreduced retirement as of January 1, 2013, and retiring with fewer than 20 years of service have their cost-of-living adjustment (COLA) deferred to one year following their unreduced retirement date after beginning to receive benefits. All active employees within five years of eligibility for unreduced retirement as of January 1, 2013, are grandfathered into the old provisions with no deferral of the COLA.

2013 VALUATION: No actuarially material changes are made to the plan provisions. There are two changes of note:

1. On June 20, 2013, the Board adopts the recommended economic and demographic assumptions proposed by the actuary as a result of the June 2012 experience study.
2. Changes noted in the 2012 valuation information, with effective dates in fiscal year 2013, were implemented.

2014 VALUATION: No actuarially material changes are made to the plan provisions. The 2014 valuation includes Hybrid Retirement Plan members for the first time. The hybrid plan covers eligible employees hired on or after January 1, 2014, in the state, teacher and judicial plans or Plan 1 and Plan 2 members who elected, during a one-time opt-in period, to be covered under the hybrid plan. The hybrid plan does not apply to members in the SPORS and VaLORS plans. The hybrid plan consists of defined benefit plan and defined contribution plan components.

2015 VALUATION: No actuarially material changes are made to the plan provisions. There are two changes of note:

1. An administrative expense charge was added to the employer contribution rates to cover administrative expenses.
2. The retirement rates for the judicial plan were extended to age 73 to reflect the change in the mandatory retirement age to 73.

2016 VALUATION: No actuarially material changes are made to the plan provisions.

2017 VALUATION: No actuarially material changes are made to the plan provisions. There is one change of note: On April 26, 2017, the Board adopts the recommended economic and demographic assumptions proposed by the actuary as a result of the June 2016 experience study.

2018 VALUATION: No actuarially material changes are made to the plan provisions.

2019 VALUATION: The investment rate was decreased from 7.00% per annum to 6.75% per annum.

2020 VALUATION: No actuarially material changes are made to the plan provisions.

Actuary's Certification Letter: Other Post-Employment Benefit (OPEB) Plans



January 3, 2020

Board of Trustees

Virginia Retirement System
1200 E. Main Street
Richmond, VA 23219

Dear Trustees:

We are pleased to submit the results of the annual actuarial valuation for the following other post-employment benefits plans (OPEB Plans) of the Virginia Retirement System (VRS), prepared as of June 30, 2019:

- Group Life Insurance Program (GLI)
- Health Insurance Credit Program (HIC)
 - State Employees (HIC – State Employees)
 - Teachers (HIC – Teachers)
 - Participating Political Subdivisions in Aggregate (HIC – Political Subdivisions)
 - Special Coverage Groups (HIC – Special Coverage Groups)
 - Constitutional Officers (HIC – Constitutional Officers)
 - Social Service Employees (HIC – Social Service Employees)
 - Registrars (HIC – Registrars)
- Virginia Sickness and Disability Program (VSDP)
- Virginia Local Disability Program (VLDP)
 - Teachers (VLDP – Teachers)
 - Political Subdivisions (VLDP – Political Subdivisions)

As described above, this report includes information, in aggregate, on the actuarial valuations of the Health Insurance Credit Program for participating Political Subdivisions as of June 30, 2019. We have prepared, and provided separately, actuarial valuation reports for each of the participating Political Subdivisions. Please refer to the individual reports for the valuation results, summary of actuarial assumptions and methods, and plan provisions for each of the participating Political Subdivision plans.

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The purpose of this report is to provide a summary of the funded status of VRS as of June 30, 2019, and to recommend rates of contribution. While not verifying the data at source, the actuary performed tests for consistency and reasonability. The funded status of the Plan is the ratio of the assets to the actuarial accrued liability. While the market value of assets gives an indication of the funded status of a plan at a particular point in time and is used for financial reporting, for GLI, HIC – State Employees, HIC – Teachers, VSDP, and VLDP, it is not used directly in the calculation of the employer contribution rates. A less volatile actuarial value of assets, which smooths the effect of market fluctuations over a five-year period, is applied to determine the funded status for rate-setting purposes. For informational purposes, we exhibit the funded status based on this smoothed actuarial value of assets basis as well as the market value in this report. The interest rate used for determining liabilities is based on the expected return on assets. Therefore, liability amounts in this report cannot be used to assess a settlement of the obligation. The VRS Board of Trustees adopted a change in the interest rate from 7.00% to 6.75% for the June 30, 2019, valuation.

The valuation results indicate that the full employer contribution rates shown in the following table are sufficient to fund the normal cost for all members and finance the unfunded accrued liability of the indicated OPEB Plans. We also present the expected employer contributions to be actually funded based on the percentage of the full rate adopted by the General Assembly. For comparison, in the table below we present the employer contribution rates for fiscal years ending 2021 and 2022 based on the June 30, 2019, actuarial valuation and the employer contribution rates approved by the General Assembly for fiscal years ending 2019 and 2020. Contribution rates for VRS employers are established every two years. The actuarially calculated employer contribution rates based on the June 30, 2018, valuation presented in this report are for informational purposes only.

OPEB Plan	Fiscal Years 2019 & 2020		Informational Only	Fiscal Years 2021 & 2022	
	Board Approved	General Assembly Approved		Board Approved	General Assembly Approved
	2017 Valuation		2018 Valuation	2019 Valuation	
GLI*	1.31%	1.31%	1.29%	1.34%	1.34%
HIC State Employees	1.17%	1.17%	1.15%	1.12%	1.12%
HIC Teachers	1.20%	1.20%	1.19%	1.21%	1.21%
HIC Participating Political Subdivisions**	0.32%	0.32%	0.46%	0.59%	0.59%
HIC Constitutional Officers	0.38%	0.38%	0.37%	0.36%	0.36%
HIC Social Service Employees	0.43%	0.43%	0.42%	0.38%	0.38%
HIC Registrars	0.39%	0.39%	0.42%	0.39%	0.39%
VSDP	0.62%	0.62%	0.67%	0.61%	0.61%
VLDP Teachers	0.41%	0.41%	0.43%	0.47%	0.47%
VLDP Political Subdivisions	0.72%	0.72%	0.88%	0.83%	0.83%

* The contribution rate for GLI includes an adjustment of 0.34% for active group life insurance, see Section I for additional detail.

** Average of individual employer rates, initial. For fiscal years 2021 & 2022, the contribution rate includes the impact of HB 1513.

The promised post-employment benefits of the OPEB Plans are included in the actuarially calculated contribution rates that are developed using the entry age normal actuarial cost method with projected benefits. The valuation takes into account the differentiation between Plan 1 vested members, Plan 1 non-vested members as of January 1, 2013, resulting from HB 1130 and SB 498, Plan 2 members and Hybrid members. Five-year smoothed market value



of assets is used for actuarial valuation purposes (with the exception of HIC – Participating Political Subdivisions and HIC – Special Coverage Groups). The discount rate used to value a plan should be based on the likely return of the assets used to pay benefits. As of June 30, 2019, the plan has assets in trust solely to provide benefits to eligible recipients. In accordance with the funding policy adopted by the Board of Trustees, the unfunded liability is being amortized by regular annual contributions as a level percentage of payroll within a closed 30-year period for the unfunded liability as of July 1, 2013, and gains and losses in subsequent years are amortized within a closed 20-year period, on the assumption that payroll will increase by 3% annually and the amortization period will decrease by one each year until reaching 0 years. The assumptions recommended by the actuary and adopted by the Board are in the aggregate reasonably related to the experience under the OPEB Plans and to reasonable expectations of anticipated experience under the OPEB Plans.

Our organization has only a contractual relationship with the Virginia Retirement System to provide actuarial consulting services and we do not provide other services to nor have a financial interest in the Virginia Retirement System. There are no known interests or relationships that our firm has with the Virginia Retirement System that may impair or appear to impair the objectivity of our work.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the System and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,

Handwritten signature of Alisa Bennett in black ink.

Alisa Bennett, FSA, EA, FCA, MAAA
President

Handwritten signature of Larry Langer in black ink.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

Handwritten signature of Bradley R. Wild in black ink.

Bradley R. Wild, ASA, FCA, MAAA
Senior Actuary

Actuary's Certification Letter: OPEB Plans – Line of Duty Act (LODA) Fund



April 14, 2020

Board of Trustees
Virginia Retirement System
1200 E. Main Street
Richmond, VA 23219

Dear Trustees:

We are pleased to submit the results of the annual actuarial valuation of the Virginia Retirement System (VRS) Line of Duty Act Fund (Plan) prepared as of June 30, 2019.

The purpose of this report is to recommend rates of contribution on a Pay-As-You-Go funding basis and also to calculate an Actuarially Determined Employer Contribution Rate (ADEC) to be used for GASB 74 purposes.

Cavanaugh Macdonald Consulting, LLC (CMC) has relied on the plan provisions and eligibility provisions of the Commonwealth of Virginia's Line of Duty Program (LODA Program) provided by § 9.1-400 et seq. of the Virginia Code (Code), including changes resulting from the passage of House Bill 1345 (HB 1345) from the 2016 legislative session, Item 269 of the 2016 Appropriations Act (the Act) and House Bill 2243 (HB 2243) from the 2017 legislative session. Additionally, CMC has received participant data from the Virginia Retirement System (VRS). CMC has reviewed the data for reasonableness only and has not performed a formal audit of the data used for this valuation. While the inactive census data is complete, because the active census data was collected from a wide range of sources with varying and, at times, limited content, the data is incomplete. Adjustments have been made to account for this incompleteness by filling in missing information using averages from other active groups where the information is known. Along with the valuation results, commentary is provided regarding the various aspects of developing the cost structure for LODA Program benefits to be financed through the Plan.

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The valuation results are provided on a blended, single group cost basis. Health care benefits are uniform amongst Plan beneficiaries due to the passage of HB 1345 (2016) and HB 2243 (2017). The legislation revised the Line of Duty Act by transferring overall administration of eligibility determinations to VRS and administration of health insurance benefits to the Department of Human Resource Management (DHRM) and creates statewide health insurance plans for all LODA beneficiaries, with separate plans based on Medicare eligibility. The legislation became effective July 1, 2017, and is included in this valuation. The assumed health care costs are based upon the premium amounts provided by the DHRM actuaries which used experience of those State Employees currently receiving health care benefits from the Plan.

Contribution rates for participating employer groups are established every two years. Based upon the June 30, 2017, valuation results, the Board approved rate for fiscal years 2019 and 2020 is \$705.77. The Board approved rate of \$695.18 for fiscal years 2021 and 2022 is based upon the most recent valuation June 30, 2019. The results of the June 30, 2018 valuation are for informational purposes only. The June 30, 2019, contribution rates assume Plan participation of 11,561.10 State Employee FTEs and 7,682.25 Political Subdivision Employee FTEs, for a total of 19,243.35 FTEs.

The results provided do not account for the potential long-term incurred but not reported claims resulting from a lack of employer or beneficiary education about the Plan's benefits. The potential cost and liability for these claims may be considerable. A margin for these costs may need to be considered as experience develops.

The promised death benefits and post-employment health care benefits provided through the Plan are included in all of the actuarially estimated contribution rates. The Plan is a cost-sharing, multiple-employer plan. The actuarially determined employer contribution rates were developed using the entry age normal cost method with projected benefits. As the Act requires contributions to be determined on a current disbursement basis, the Plan has minimal assets in trust solely to provide benefits. Therefore, the valuation results provided in this report reflect a discount rate of 4.75%. The assumed annual rate of return of 4.75% represents a blend between the long term rate of 6.75% to the extent the fund has assets and a short term bond rate once the assets have been depleted. As the discount rate used for determining liabilities is based on the expected return on assets, the liability amounts in this report cannot be used to assess a settlement of the obligation. The unfunded accrued liability is being amortized by regular annual contributions as a level percentage of payroll within a 30-year period, on the assumption that payroll will increase by 3.00% annually. The assumptions recommended by the actuary are reasonably related to the experience under the Plan and to reasonable expectations of anticipated experience under the Plan.

Since the prior valuation, this valuation reflects revisions to the assumed per capita health care costs.

Our organization has only a contractual relationship with the Virginia Retirement System to provide actuarial consulting services, and we do not provide other services to nor have a financial interest in the Virginia Retirement System. There are no known interests or relationships that our firm has with the Virginia Retirement System that may impair or appear to impair the objectivity of our work.



This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures based on the current provisions of the Plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of VRS.

Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: potential variance in the number and/or type of covered lives; Plan experience differing from that anticipated by the economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in Plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The Table of Contents, which immediately follows, outlines the material contained in the report.

Respectfully submitted,

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Principal and Consulting Actuary

Handwritten signature of Bradley R. Wild in black ink.

Bradley R. Wild, ASA, FCA, MAAA
Senior Actuary

The Actuarial Section for VRS-administered Other Post-Employment Benefit (OPEB) Plans presents information about the assumptions adopted by the Board of Trustees and used by the VRS actuaries to evaluate the funded status of these plans. This information includes assumptions about retirements, disabilities, terminations and salary increase rates. The section also provides a summary of OPEB plan provisions and changes.

Summary of Actuarial Assumptions and Methods

On April 26, 2017, the VRS Board of Trustees adopted most of the actuarial assumptions and methods on the recommendation of its actuary. The following assumptions include the Group Life Insurance Program, the Retiree Health Insurance Credit Program, the Virginia Sickness and Disability

Program, the Virginia Local Disability Program and the Line of Duty Act Program. They were based on an analysis of plan experience for the four-year period July 1, 2012, through June 30, 2016, and were used for the June 30, 2019, valuation.

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS: OTHER POST-EMPLOYMENT BENEFIT (OPEB) PLANS

FOR THE JUNE 30, 2019, ACTUARIAL VALUATION

Actuarial Assumptions and Methods	Group Life Insurance Program	Retiree Health Insurance Credit Program	Virginia Sickness and Disability Program	Line of Duty Act Program	Virginia Local Disability Program
Valuation Interest Rate	6.75%	6.75%	6.75%	4.75%	6.75%
Salary Scale Inflation Factor	2.5%	2.5%	2.5%	2.5%	2.5%
Actuarial Cost Method	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal	Entry Age Normal
Amortization Method	Level Percent of Pay Closed	Level Percent of Pay Closed	Level Percent of Pay Closed	Level Percent of Pay Open	Level Percent of Pay Closed
Payroll Growth Rate	3%	3%	3%	3%	3%
Assets Valuation Method – State and Teacher	5-Year Smoothed Market	5-Year Smoothed Market	5-Year Smoothed Market	Market Value	5-Year Smoothed Market
Assets Valuation Method – Political Subdivisions	5-Year Smoothed Market	Market Value*	N/A	Market Value	5-Year Smoothed Market

* Includes state-funded retiree health insurance for certain local government employees.

SOLVENCY TEST: OPEB PLANS

(EXPRESSED IN THOUSANDS)

Valuation Date (June 30)	Aggregate Accrued Liabilities for				Valuation Assets	Portion of Accrued Liabilities Covered by Assets		
	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Members*	(1)		(2)	(3)	
GROUP LIFE INSURANCE								
2019	N/A	\$ 2,071,215	\$ 1,343,107	\$ 1,741,406	N/A	84.08%	0.00%	
2018	N/A	1,901,090	1,265,443	1,574,017	N/A	82.80%	0.00%	
2017	N/A	1,786,401	1,238,317	1,410,087	N/A	78.93%	0.00%	
2016	N/A	1,749,825	1,224,643	1,247,564	N/A	71.30%	0.00%	
2015	N/A	1,633,937	1,195,167	1,128,876	N/A	69.09%	0.00%	
2014	N/A	1,522,758	1,178,751	992,221	N/A	65.16%	0.00%	
2013	N/A	1,422,423	1,149,268	836,547	N/A	58.81%	0.00%	
2012	N/A	1,308,096	1,150,214	755,889	N/A	57.79%	0.00%	
2011	N/A	1,228,335	1,130,642	852,424	N/A	69.40%	0.00%	
2010	N/A	1,140,158	1,105,157	928,920	N/A	81.47%	0.00%	
RETIREE HEALTH INSURANCE CREDIT – STATE EMPLOYEES**								
2019	N/A	\$ 683,387	\$ 343,365	\$ 109,417	N/A	16.01%	0.00%	
2018	N/A	651,476	344,183	96,294	N/A	14.78%	0.00%	
2017	N/A	638,266	352,458	79,451	N/A	12.45%	0.00%	
2016	N/A	610,570	377,071	70,798	N/A	11.60%	0.00%	
2015	N/A	594,098	382,428	67,164	N/A	11.31%	0.00%	
2014	N/A	577,291	384,851	60,645	N/A	10.51%	0.00%	
2013	N/A	562,448	382,134	54,773	N/A	9.74%	0.00%	
2012	N/A	542,874	374,294	55,510	N/A	10.23%	0.00%	
2011	N/A	530,461	366,099	110,791	N/A	20.89%	0.00%	
2010	N/A	521,153	373,888	159,163	N/A	30.54%	0.00%	
RETIREE HEALTH INSURANCE CREDIT – TEACHERS								
2019	N/A	\$ 896,306	\$ 529,577	\$ 130,043	N/A	14.51%	0.00%	
2018	N/A	851,963	527,110	113,136	N/A	13.28%	0.00%	
2017	N/A	832,771	525,150	96,987	N/A	11.65%	0.00%	
2016	N/A	811,164	540,039	86,701	N/A	10.69%	0.00%	
2015	N/A	786,781	538,634	85,379	N/A	10.85%	0.00%	
2014	N/A	761,301	536,420	79,177	N/A	10.40%	0.00%	
2013	N/A	728,612	529,180	67,012	N/A	9.20%	0.00%	
2012	N/A	732,146	536,924	58,286	N/A	7.96%	0.00%	
2011	N/A	707,436	522,769	85,933	N/A	12.15%	0.00%	
2010	N/A	666,263	536,175	108,187	N/A	16.24%	0.00%	
RETIREE HEALTH INSURANCE CREDIT – STATE-FUNDED LOCALITY BENEFITS								
2019	N/A	\$ 28,937	\$ 17,811	\$ 6,840	N/A	23.64%	0.00%	
2018	N/A	27,195	17,259	4,655	N/A	17.12%	0.00%	
2017	N/A	25,791	17,444	3,552	N/A	13.77%	0.00%	
2016	N/A	24,167	17,836	2,351	N/A	9.73%	0.00%	
2015	N/A	22,440	18,172	2,042	N/A	9.10%	0.00%	
2014	N/A	21,179	18,120	4,145	N/A	19.57%	0.00%	
2013	N/A	20,001	17,794	1,510	N/A	7.55%	0.00%	
2012	N/A	19,817	18,456	1,807	N/A	9.12%	0.00%	
2011	N/A	18,271	18,406	2,338	N/A	12.80%	0.00%	
2010	N/A	17,045	17,724	2,743	N/A	16.09%	0.00%	

SOLVENCY TEST: OPEB PLANS, cont.

(EXPRESSED IN THOUSANDS)

RETIREE HEALTH INSURANCE CREDIT – POLITICAL SUBDIVISIONS										
2019	N/A	\$	41,097	\$	31,758	\$	24,468	N/A	59.54%	4.06%
2018	N/A		22,409		18,534		23,161	N/A	100.00%	4.06%
2017	N/A		21,326		17,974		22,167	N/A	100.00%	4.68%
2016	N/A		20,216		18,026		19,337	N/A	95.65%	0.00%
2015	N/A		19,286		17,626		19,348	N/A	100.00%	0.35%
2014	N/A		17,371		17,826		18,605	N/A	100.00%	6.92%
2013	N/A		16,268		17,036		16,137	N/A	99.19%	0.00%
2012	N/A		15,054		16,369		14,275	N/A	94.83%	0.00%
2011	N/A		14,503		15,688		13,918	N/A	95.97%	0.00%
2010	N/A		13,223		16,861		11,218	N/A	84.84%	0.00%
VIRGINIA SICKNESS AND DISABILITY PROGRAM – LONG-TERM DISABILITY (LTD) BENEFITS										
2019****	N/A	\$	170,146	\$	78,366	\$	484,986	N/A	100.00%	401.76%
2018****	N/A		187,514		77,778		460,466	N/A	100.00%	350.94%
2017****	N/A		160,283		66,229		437,372	N/A	100.00%	418.38%
2016****	N/A		156,449		84,437		416,248	N/A	100.00%	307.68%
2015****	N/A		156,796		78,451		398,609	N/A	100.00%	308.23%
2014	N/A		138,511		50,027		325,354	N/A	100.00%	373.48%
2013	N/A		132,842		50,104		313,480	N/A	100.00%	360.53%
2012	N/A		125,578		136,151		305,170	N/A	100.00%	131.91%
2011	N/A		123,339		139,505		330,079	N/A	100.00%	148.20%
2010	N/A		133,728		148,251		302,683	N/A	100.00%	113.97%
VIRGINIA LOCAL DISABILITY PROGRAM – TEACHERS										
2019****	N/A	\$	806	\$	1,816	\$	1,662	N/A	100.00%	47.14%
2018****	N/A		271		1,112		674	N/A	100.00%	36.24%
2017****	N/A		103		709		324	N/A	100.00%	31.17%
2016****	N/A		132		307		57	N/A	43.18%	0.00%
2015****	N/A		15		162		48	N/A	100.00%	20.37%
2014***	N/A		N/A		N/A		N/A	N/A	0.00%	0.00%
VIRGINIA LOCAL DISABILITY PROGRAM – POLITICAL SUBDIVISIONS										
2019****	N/A	\$	1,511	\$	1,306	\$	2,817	N/A	100.00%	35.22%
2018****	N/A		1,571		1,161		853	N/A	54.30%	0.00%
2017****	N/A		361		464		413	N/A	100.00%	11.21%
2016****	N/A		135		243		52	N/A	38.52%	0.00%
2015****	N/A		30		106		30	N/A	0.00%	0.00%
2014***	N/A		N/A		N/A		N/A	N/A	0.00%	0.00%
LINE OF DUTY ACT PROGRAM										
2019	N/A	\$	248,195	\$	36,990	\$	2,839	N/A	1.14%	0.00%
2018	N/A		257,076		36,766		1,889	N/A	0.73%	0.00%
2017	N/A		233,193		37,186		3,461	N/A	1.48%	0.00%
2016	N/A		192,578		32,105		2,708	N/A	1.41%	0.00%
2015	N/A		169,288		76,520		728	N/A	0.43%	0.00%
2014	N/A		152,120		73,696		—	N/A	0.00%	0.00%
2013	N/A		139,835		64,249		—	N/A	0.00%	0.00%
2012	N/A		131,501		94,673		—	N/A	0.00%	0.00%
2011	N/A		207,186		191,770		—	N/A	0.00%	0.00%
2010	N/A		200,908		375,134		—	N/A	0.00%	0.00%

* Employer-financed portion.

** State employees includes state, SPORS, JRS, VaLORS, ORP and University of Virginia (UVA).

*** Data for prior fiscal years is unavailable.

**** Includes Long-Term Care. Values prior to 6/30/2015 reflect Long-Term Disability only.

The progress of a plan in accumulating assets to pay benefits when due can be measured by examining the extent to which assets accumulated for benefits cover 1) any active member contributions to the plan; 2) liabilities for future benefits to retirees and beneficiaries; and 3) liabilities for the employer-financed portion of service already rendered by active members. In a plan receiving actuarially determined employer contributions, the liabilities for future benefits to retirees and beneficiaries will generally be fully covered by accumulated assets. In addition, the liabilities for service already rendered will be partially covered by the remainder of the accumulated assets and will increase over time.

SCHEDULE OF ACTIVE MEMBER VALUATION DATA: OPEB PLANS

Valuation Date (June 30)	Active Members			
	Number	Annual Payroll (000s)	Average Annual Pay	Annualized % Change in Average Pay
GROUP LIFE INSURANCE				
2019	367,627	\$ 20,498,084	\$ 55,758	3.69%
2018	367,903	19,783,323	53,773	2.14%
2017	365,149	19,222,759	52,644	4.21%
2016	362,678	18,321,880	50,518	2.34%
2015	360,873	17,813,570	49,362	1.44%
2014	360,855	17,559,285	48,660	2.56%
2013	361,080	17,132,176	47,447	2.47%
2012	360,602	16,696,961	46,303	0.35%
2011	358,536	16,542,753	46,140	0.97%
2010	361,644	16,526,260	45,698	(0.10)%
RETIREE HEALTH INSURANCE CREDIT – STATE EMPLOYEES*				
2019	106,948	\$ 6,907,506	\$ 64,588	4.37%
2018	107,234	6,635,983	61,883	3.15%
2017	108,027	6,480,712	59,992	2.37%
2016	107,840	6,319,509	58,601	3.74%
2015	107,200	6,055,429	56,487	1.73%
2014	106,815	5,930,862	55,525	3.57%
2013	106,780	5,724,611	53,611	1.22%
2012	106,517	5,641,862	52,967	(0.91)%
2011	105,186	5,622,425	53,452	5.21%
2010	105,106	5,340,134	50,807	0.45%
RETIREE HEALTH INSURANCE CREDIT – TEACHERS				
2019	149,396	\$ 8,608,489	\$ 57,622	3.01%
2018	151,585	8,479,023	55,936	1.33%
2017	150,416	8,303,502	55,204	7.30%
2016	149,018	7,666,824	51,449	1.44%
2015	147,645	7,488,507	50,720	1.25%
2014	146,977	7,362,793	50,095	2.61%
2013	147,257	7,188,884	48,819	2.60%
2012	147,216	7,004,577	47,580	0.46%
2011	146,152	6,922,130	47,363	(1.24)%
2010	148,462	7,119,889	47,958	(0.37)%

SCHEDULE OF ACTIVE MEMBER VALUATION DATA: OPEB PLANS, cont.

RETIREE HEALTH INSURANCE CREDIT – STATE-FUNDED LOCALITY BENEFITS						
2019	19,582	\$	995,936	\$	50,860	3.59%
2018	18,836		924,785		49,097	1.85%
2017	18,532		893,334		48,205	1.30%
2016	18,006		856,824		47,585	1.37%
2015	17,535		823,153		46,943	0.79%
2014	16,894		786,875		46,577	1.00%
2013	16,093		742,121		46,115	4.07%
2012	16,175		716,748		44,312	1.13%
2011	16,894		740,253		43,818	(0.02)%
2010	17,021		745,952		43,825	(0.34)%
RETIREE HEALTH INSURANCE CREDIT – POLITICAL SUBDIVISIONS						
2019	37,248	\$	1,440,731	\$	38,679	(14.99)%
2018	23,034		1,048,068		45,501	3.52%
2017	22,478		987,951		43,952	1.80%
2016	21,846		943,186		43,174	2.32%
2015	21,339		900,390		42,195	0.83%
2014	20,921		875,485		41,847	1.51%
2013	20,534		846,523		41,225	3.92%
2012	20,416		809,905		39,670	0.43%
2011	19,861		784,481		39,499	2.44%
2010	21,528		830,090		38,559	N/A
VIRGINIA SICKNESS AND DISABILITY PROGRAM						
2019	79,105	\$	4,456,996	\$	56,343	6.06%
2018	75,164		3,993,073		53,125	3.82%
2017	73,620		3,767,055		51,169	1.13%
2016	75,410		3,815,678		50,599	3.74%
2015	74,367		3,627,297		48,776	1.21%
2014	74,399		3,585,486		48,193	2.94%
2013	74,178		3,472,669		46,815	0.50%
2012	73,707		3,433,322		46,581	0.08%
2011	72,440		3,371,773		46,546	5.10%
2010	71,529		3,167,849		44,288	0.04%
VIRGINIA LOCAL DISABILITY PROGRAM – TEACHERS						
2019	11,047	\$	463,174	\$	41,928	3.57%
2018	9,332		377,798		40,484	(4.05)%
2017	7,239		305,446		42,195	9.31%
2016	5,001		193,042		38,601	3.69%
2015	2,796		104,087		37,227	13.53%
2014**	282		9,247		32,791	N/A
VIRGINIA LOCAL DISABILITY PROGRAM – POLITICAL SUBDIVISIONS						
2019	9,447	\$	337,363	\$	35,711	5.42%
2018	7,915		268,121		33,875	3.66%
2017	6,331		206,895		32,680	3.42%
2016	4,675		147,729		31,600	4.33%
2015	2,917		88,350		30,288	3.67%
2014**	845		24,688		29,217	N/A

* State employees includes state, SPORS, JRS, VaLORS, ORP and UVA.

** Data for prior fiscal years is unavailable.

SCHEDULE OF RETIREE AND BENEFICIARY VALUATION DATA: OPEB PLANS

GROUP LIFE INSURANCE								
Valuation Date (June 30)	Retirees					Insurance Amount	Annualized % Increase in Life Insurance Amount	Average Life Insurance Amount
	Added to Rolls		Removed from Rolls		Total			
	Number	Amount	Number	Amount				
2019	12,091	\$ 1,480,985,000	5,675	\$ 1,074,045,000	192,021	\$ 7,761,298,000	5.53%	\$ 40,419
2018	11,464	1,357,284,000	5,269	1,071,515,000	185,605	7,354,358,000	4.04%	39,624
2017	11,212	1,281,014,000	4,936	2,445,277,000	179,410	7,068,589,000	(14.14)%	39,399
2016	11,550	1,324,900,000	4,564	895,728,000	173,134	8,232,852,000	5.50%	47,552
2015	11,429	1,275,150,000	4,519	840,576,000	166,148	7,803,680,000	5.90%	46,968
2014	10,922	1,206,647,000	4,306	843,669,000	159,238	7,369,106,000	5.18%	46,277
2013	10,511	1,148,100,000	4,203	800,829,000	152,622	7,006,128,000	5.22%	45,905
2012	9,828	1,064,957,000	3,905	773,058,000	146,314	6,658,865,000	4.58%	45,511
2011	11,216	1,205,369,000	4,325	714,803,000	140,391	6,366,958,000	8.35%	45,352
2010	10,048	1,074,004,000	2,577	614,199,000	133,500	5,876,393,000	8.49%	44,018

RETIREE HEALTH INSURANCE CREDIT – STATE EMPLOYEES*								
Valuation Date (June 30)	Retirees					Current Total Annual Health Insurance Credit	Annualized % Increase in Health Insurance Credit	Average Annual Health Insurance Credit
	Added to Rolls		Removed from Rolls		Total			
	Number	Amount	Number	Amount				
2019	7,854	\$ 11,734,000	1,517	\$ 2,176,000	51,078	\$ 76,112,000	14.36%	\$ 1,490
2018	2,558	3,779,000	4,105	5,981,000	44,741	66,554,000	(3.20)%	1,488
2017	3,364	4,928,000	1,734	2,671,000	46,288	68,756,000	3.39%	1,485
2016	2,881	4,332,000	1,663	2,369,000	44,658	66,499,000	3.06%	1,489
2015	2,869	4,226,000	1,618	2,357,000	43,440	64,524,000	2.98%	1,485
2014	2,652	4,044,000	1,548	2,212,000	42,189	62,655,000	3.01%	1,485
2013	2,542	3,765,000	1,503	2,112,000	41,085	60,823,000	2.79%	1,480
2012	2,539	3,784,000	1,453	2,065,000	40,046	59,170,000	2.99%	1,478
2011	2,684	4,009,000	1,986	2,841,000	38,960	57,451,000	2.08%	1,475
2010	3,521	5,685,000	1,279	1,784,000	38,262	56,283,000	7.45%	1,471

RETIREE HEALTH INSURANCE CREDIT – TEACHERS								
Valuation Date (June 30)	Retirees					Current Total Annual Health Insurance Credit	Annualized % Increase in Health Insurance Credit	Average Annual Health Insurance Credit
	Added to Rolls		Removed from Rolls		Total			
	Number	Amount	Number	Amount				
2019	4,044	\$ 5,270,000	1,670	\$ 2,286,000	68,706	\$ 94,290,000	3.27%	\$ 1,372
2018	3,511	4,719,000	1,534	2,067,000	66,332	91,306,000	2.99%	1,377
2017	3,412	4,565,000	1,470	1,984,000	64,355	88,654,000	3.00%	1,378
2016	3,649	4,913,000	1,329	1,795,000	62,413	86,073,000	3.76%	1,379
2015	3,465	4,714,000	1,493	2,016,000	60,093	82,955,000	3.36%	1,380
2014	3,729	5,075,000	1,291	1,752,000	58,121	80,257,000	4.32%	1,381
2013	3,557	5,016,000	1,389	1,918,000	55,683	76,934,000	4.20%	1,382
2012	3,240	4,426,000	1,214	1,649,000	53,515	73,836,000	3.91%	1,380
2011	4,073	5,776,000	1,163	1,568,000	51,489	71,059,000	6.29%	1,380
2010	3,216	4,545,000	1,101	1,483,000	48,579	66,851,000	4.80%	1,376

* State employees include state, SPORS, JRS, VaLORS, ORP and UVA.

SCHEDULE OF RETIREE AND BENEFICIARY VALUATION DATA: OPEB PLANS, cont.

RETIREE HEALTH INSURANCE CREDIT – STATE-FUNDED LOCALITY BENEFITS									
Valuation Date (June 30)	Retirees					Current Total Annual Health Insurance Credit	Annualized % Increase in Health Insurance Credit	Average Annual Health Insurance Credit	
	Added to Rolls		Removed from Rolls		Total				
	Number	Amount	Number	Amount					
2019	432	\$ 237,000	189	\$ 94,000	6,075	\$ 3,101,000	4.83%	\$ 510	
2018	439	218,000	115	58,000	5,832	2,958,000	5.72%	507	
2017	440	217,000	133	63,000	5,508	2,798,000	5.82%	508	
2016	518	270,000	152	78,000	5,201	2,644,000	7.83%	508	
2015	410	206,000	123	60,000	4,835	2,452,000	6.33%	507	
2014**	N/A	N/A	N/A	N/A	4,548	2,306,000	N/A	507	

RETIREE HEALTH INSURANCE CREDIT – POLITICAL SUBDIVISIONS									
Valuation Date (June 30)	Retirees					Current Total Annual Health Insurance Credit	Annualized % Increase in Health Insurance Credit	Average Annual Health Insurance Credit	
	Added to Rolls		Removed from Rolls		Total				
	Number	Amount	Number	Amount					
2019	5,937	\$ 2,665,000	151	\$ 191,000	10,899	\$ 4,989,000	98.37%	\$ 458	
2018	439	216,000	156	84,000	5,113	2,515,000	5.54%	492	
2017	394	188,000	166	80,000	4,830	2,383,000	4.75%	493	
2016	400	198,000	140	70,000	4,602	2,275,000	5.96%	494	
2015	448	219,000	130	63,000	4,342	2,147,000	7.84%	494	
2014**	N/A	N/A	N/A	N/A	4,024	1,991,000	N/A	495	

VIRGINIA SICKNESS AND DISABILITY PROGRAM									
Valuation Date (June 30)	Retirees					Current Total Annual LTD Payments	Annualized % Increase in LTD Payments	Average Annual LTD Payment	
	Added to Rolls		Removed from Rolls		Total				
	Number	Amount	Number	Amount					
2019	305	\$ 5,978,000	418	\$ 7,456,000	2,540	\$ 30,723,000	(4.59%)	\$ 12,096	
2018	339	5,994,000	407	4,424,000	2,653	32,201,000	5.13%	12,138	
2017	366	6,428,000	441	6,696,000	2,721	30,631,000	(0.87%)	11,257	
2016	377	6,507,000	423	6,734,000	2,796	30,899,000	(0.73%)	11,051	
2015	466	7,293,000	325	4,112,000	2,842	31,126,000	13.95%	10,952	
2014	369	6,103,000	305	4,567,000	2,701	27,315,000	5.96%	10,113	
2013	401	6,256,000	434	4,707,000	2,637	25,779,000	6.39%	9,776	
2012	424	6,438,000	374	5,635,000	2,670	24,230,000	3.43%	9,075	
2011	411	6,262,000	365	6,252,000	2,620	23,427,000	0.04%	8,942	
2010	445	6,902,000	265	4,972,000	2,574	23,417,000	8.98%	9,098	

VIRGINIA LOCAL DISABILITY PROGRAM – TEACHERS									
Valuation Date (June 30)	Retirees					Current Total Annual LTD Payments	Annualized % Increase in LTD Payments	Average Annual LTD Payment	
	Added to Rolls		Removed from Rolls		Total				
	Number	Amount	Number	Amount					
2019	4	\$ 33,000	3	36,000	7	\$ 72,000	(4.00)%	\$ 10,286	
2018	6	75,000	—	—	6	75,000	N/A	12,500	
2017	—	—	1	11,000	—	—	N/A	N/A	
2016	1	11,000	—	—	1	11,000	N/A	11,000	
2015	—	—	—	—	—	—	N/A	N/A	
2014**	—	—	—	—	—	—	N/A	N/A	

VIRGINIA LOCAL DISABILITY PROGRAM – POLITICAL SUBDIVISIONS									
Valuation Date (June 30)	Retirees					Current Total Annual LTD Payments	Annualized % Increase in LTD Payments	Average Annual LTD Payment	
	Added to Rolls		Removed from Rolls		Total				
	Number	Amount	Number	Amount					
2019	11	\$ 178,000	8	184,000	28	\$ 307,000	(1.92)%	\$ 10,964	
2018	20	244,000	—	—	25	313,000	353.62 %	12,520	
2017	5	69,000	—	—	5	69,000	N/A	13,800	
2016	—	—	—	—	—	—	N/A	N/A	
2015	—	—	—	—	—	—	N/A	N/A	
2014**	—	—	—	—	—	—	N/A	N/A	

** Data for prior fiscal years is unavailable.

FIGURE 4.7: RETIREMENT RATES – OPEB PLANS

Sample retirement rates for eligible members are shown below. For the Retiree Health Insurance Credit, 95% of the state employees, teachers, state police officers, Virginia law officers and judges who retire with 15 or more years of service will utilize the benefit. For all political subdivision employees, 85% of the employees with 15 or more years of service will utilize the benefit.

State Employees

Plan 1 – Male						
Years of Service						
Age	5	6-9	10	11-29	30	>31
50	0.00%	0.00%	3.30%	3.30%	12.50%	12.50%
55	4.50%	4.50%	4.50%	3.50%	5.00%	9.00%
59	4.50%	4.00%	4.00%	4.00%	10.00%	9.00%
60	4.50%	5.00%	5.00%	5.00%	11.50%	9.00%
61	15.00%	7.50%	7.50%	7.50%	16.50%	15.00%
62	15.00%	10.00%	10.00%	10.00%	20.00%	20.00%
64	15.00%	13.50%	13.50%	13.50%	20.00%	17.50%
65	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
67	27.50%	22.00%	22.00%	22.00%	22.00%	22.00%
70	20.00%	22.00%	22.00%	22.00%	22.00%	22.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Plan 1 – Female						
Years of Service						
Age	5	6-9	10	11-29	30	>31
50	0.00%	0.00%	3.00%	3.00%	7.50%	7.50%
55	5.00%	5.00%	5.00%	4.00%	10.00%	9.00%
59	5.00%	5.00%	5.00%	5.00%	10.00%	9.00%
60	5.00%	5.00%	5.00%	5.00%	12.00%	12.50%
61	7.50%	8.00%	8.00%	8.00%	16.50%	17.50%
62	10.00%	12.00%	12.00%	12.00%	22.50%	25.00%
64	17.50%	15.00%	15.00%	15.00%	22.50%	17.50%
65	27.50%	27.50%	27.50%	27.50%	27.50%	30.00%
67	30.00%	25.00%	25.00%	25.00%	25.00%	25.00%
70	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 4.7: RETIREMENT RATES – OPEB PLANS, cont.

State Employees

Plan 2 and Hybrid – Male

Years of Service

Age	30	31	33	35	37	39	>40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	12.50%
55	0.00%	0.00%	0.00%	5.00%	9.00%	9.00%	9.00%
59	0.00%	10.00%	9.00%	9.00%	9.00%	9.00%	9.00%
60	11.50%	11.50%	9.00%	9.00%	9.00%	9.00%	9.00%
61	16.50%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
62	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%	20.00%
64	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%
65	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
67	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%
70	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Rate is 11.50% when age plus service equals 90.

Plan 2 and Hybrid – Female

Years of Service

Age	30	31	33	35	37	39	>40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.50%
55	0.00%	0.00%	0.00%	10.00%	9.00%	9.00%	9.00%
59	0.00%	10.00%	9.00%	9.00%	9.00%	9.00%	9.00%
60	12.00%	12.00%	12.50%	12.50%	12.50%	12.50%	12.50%
61	16.50%	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%
62	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
64	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%
65	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
67	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
70	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Rate is 12.00% when age plus service equals 90.

FIGURE 4.7: RETIREMENT RATES – OPEB PLANS, cont.

Teachers

Plan 1 – Male						
Years of Service						
Age	5	6-9	10	11-29	30	>31
50	0.00%	0.00%	2.00%	2.00%	17.50%	17.50%
55	7.00%	7.00%	7.00%	4.50%	22.50%	15.00%
59	10.00%	6.00%	6.00%	6.00%	22.50%	15.00%
60	10.00%	7.00%	7.00%	7.00%	22.50%	15.00%
61	11.00%	8.50%	8.50%	8.50%	30.00%	25.00%
62	17.00%	15.00%	15.00%	15.00%	35.00%	35.00%
64	18.00%	15.00%	15.00%	15.00%	35.00%	25.00%
65	30.00%	30.00%	30.00%	30.00%	30.00%	35.00%
67	30.00%	35.00%	35.00%	35.00%	35.00%	35.00%
70	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Plan 1 – Female						
Years of Service						
Age	5	6-9	10	11-29	30	>31
50	0.00%	0.00%	2.40%	2.40%	15.00%	15.00%
55	6.00%	6.00%	6.00%	5.00%	22.50%	16.00%
59	8.00%	6.00%	6.00%	6.00%	22.50%	20.00%
60	9.00%	8.00%	8.00%	8.00%	22.50%	20.00%
61	15.00%	10.00%	10.00%	10.00%	30.00%	25.00%
62	15.00%	15.00%	15.00%	15.00%	35.00%	30.00%
64	25.00%	15.00%	15.00%	15.00%	35.00%	30.00%
65	30.00%	30.00%	30.00%	30.00%	30.00%	35.00%
67	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
70	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 4.7: RETIREMENT RATES – OPEB PLANS, cont.

Teachers

Plan 2 and Hybrid – Male

Years of Service

Age	30	31	33	35	37	39	>40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	17.50%
55	0.00%	0.00%	0.00%	22.50%	15.00%	15.00%	15.00%
59	0.00%	22.50%	15.00%	15.00%	15.00%	15.00%	15.00%
60	22.50%	22.50%	15.00%	15.00%	15.00%	15.00%	15.00%
61	30.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
62	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
64	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
65	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
67	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
70	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Rate is 22.50% when age plus service equals 90.

Plan 2 and Hybrid – Female

Years of Service

Age	30	31	33	35	37	39	>40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.00%
55	0.00%	0.00%	0.00%	22.50%	16.00%	16.00%	16.00%
59	0.00%	22.50%	20.00%	20.00%	20.00%	20.00%	20.00%
60	22.50%	22.50%	20.00%	20.00%	20.00%	20.00%	20.00%
61	30.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
62	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
64	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
65	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
67	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
70	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Rate is 22.50% when age plus service equals 90.

FIGURE 4.7: RETIREMENT RATES – OPEB PLANS, cont.

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers – Plan 1

Age	Male Years of Service					Female Years of Service				
	5	10	11-29	30	>31	5	10	11-29	30	>31
50	0.00%	2.80%	2.80%	10.00%	10.00%	0.00%	3.50%	3.50%	16.00%	16.00%
55	6.00%	6.00%	5.00%	10.00%	10.00%	4.50%	4.50%	5.00%	22.00%	16.00%
59	10.00%	4.50%	4.50%	10.00%	14.00%	10.50%	6.00%	6.00%	20.00%	16.00%
60	10.00%	6.00%	6.00%	10.00%	14.00%	10.50%	7.50%	7.50%	14.00%	16.00%
61	10.00%	10.00%	10.00%	10.00%	14.00%	10.50%	10.00%	10.00%	14.00%	16.00%
62	10.00%	14.00%	14.00%	25.00%	30.00%	10.50%	14.00%	14.00%	34.50%	27.50%
64	10.00%	15.00%	15.00%	25.00%	25.00%	10.50%	17.00%	17.00%	10.00%	18.00%
65	25.00%	25.00%	25.00%	25.00%	37.00%	25.00%	25.00%	25.00%	25.00%	27.50%
67	15.00%	25.00%	25.00%	25.00%	25.00%	15.00%	27.50%	27.50%	27.50%	27.50%
70	27.50%	25.00%	25.00%	25.00%	25.00%	15.00%	27.50%	27.50%	27.50%	27.50%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers – Plan 2 and Hybrid

Age	Male Years of Service								
	5	6-25	30	31	33	35	37	39	>40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%
55	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%	10.00%	10.00%	10.00%
59	0.00%	0.00%	0.00%	10.00%	14.00%	14.00%	14.00%	14.00%	14.00%
60	10.00%	10.00%	10.00%	10.00%	14.00%	14.00%	14.00%	14.00%	14.00%
61	10.00%	10.00%	10.00%	14.00%	14.00%	14.00%	14.00%	14.00%	14.00%
62	10.00%	14.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
64	10.00%	15.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
65	25.00%	25.00%	37.00%	37.00%	37.00%	37.00%	37.00%	37.00%	37.00%
67	15.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
70	27.50%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 4.7: RETIREMENT RATES – OPEB PLANS, cont.

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers – Plan 2 and Hybrid, cont.

Age	Female								
	Years of Service								
	5	6-25	30	31	33	35	37	39	>40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.00%
55	0.00%	0.00%	0.00%	0.00%	0.00%	22.00%	16.00%	16.00%	16.00%
59	0.00%	0.00%	0.00%	20.00%	16.00%	16.00%	16.00%	16.00%	16.00%
60	10.50%	10.50%	14.00%	14.00%	16.00%	16.00%	16.00%	16.00%	16.00%
61	10.50%	10.00%	14.00%	16.00%	16.00%	16.00%	16.00%	16.00%	16.00%
62	10.50%	14.00%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%
64	10.50%	17.00%	18.00%	18.00%	18.00%	18.00%	18.00%	18.00%	18.00%
65	25.00%	25.00%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%
67	15.00%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%
70	15.00%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%	27.50%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – All Other Employers – Plan 1

Age	Male					Female				
	Years of Service					Years of Service				
	5	10	11-29	30	>31	5	10	11-29	30	>31
50	0.00%	5.00%	5.00%	10.00%	10.00%	0.00%	5.50%	5.50%	6.00%	6.00%
55	5.50%	5.50%	5.00%	14.00%	10.00%	7.00%	7.00%	5.50%	12.00%	10.00%
59	10.00%	5.50%	5.50%	12.00%	10.00%	6.00%	5.50%	5.50%	15.00%	10.00%
60	10.00%	6.00%	6.00%	12.00%	10.00%	8.50%	7.50%	7.50%	15.00%	10.00%
61	15.00%	10.00%	10.00%	25.00%	22.00%	8.50%	7.50%	7.50%	20.00%	17.50%
62	13.00%	17.00%	17.00%	35.00%	30.00%	19.00%	17.00%	17.00%	20.00%	25.00%
64	20.00%	15.00%	15.00%	27.00%	25.00%	11.00%	15.00%	15.00%	25.00%	15.00%
65	27.00%	27.00%	27.00%	27.00%	30.00%	28.00%	28.00%	28.00%	28.00%	35.00%
67	27.00%	25.00%	25.00%	25.00%	25.00%	17.50%	22.00%	22.00%	22.00%	22.00%
70	27.00%	25.00%	25.00%	25.00%	25.00%	30.00%	22.00%	22.00%	22.00%	22.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 4.7: RETIREMENT RATES – OPEB PLANS, cont.

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – All Other Employers – Plan 2 and Hybrid

Male									
Years of Service									
Age	5	6-25	30	31	33	35	37	39	>40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.00%
55	0.00%	0.00%	0.00%	0.00%	0.00%	14.00%	10.00%	10.00%	10.00%
59	0.00%	0.00%	0.00%	12.00%	10.00%	10.00%	10.00%	10.00%	10.00%
60	10.00%	10.00%	12.00%	12.00%	10.00%	10.00%	10.00%	10.00%	10.00%
61	15.00%	10.00%	25.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%
62	13.00%	17.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
64	20.00%	15.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
65	27.00%	27.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%	30.00%
67	27.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
70	27.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Female									
Years of Service									
Age	5	6-25	30	31	33	35	37	39	>40
50	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.00%
55	0.00%	0.00%	0.00%	0.00%	0.00%	12.00%	10.00%	10.00%	10.00%
59	0.00%	0.00%	0.00%	15.00%	10.00%	10.00%	10.00%	10.00%	10.00%
60	8.50%	8.50%	15.00%	15.00%	10.00%	10.00%	10.00%	10.00%	10.00%
61	8.50%	7.50%	20.00%	17.50%	17.50%	17.50%	17.50%	17.50%	17.50%
62	19.00%	17.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
64	11.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
65	28.00%	28.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%	35.00%
67	17.50%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%
70	30.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%	22.00%
>75	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 4.7: RETIREMENT RATES – OPEB PLANS, cont.

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers – All Plans

Age	Male Years of Service				Female Years of Service			
	5	6-24	25	>26	5	6-24	25	>26
50	7.00%	7.00%	26.00%	26.00%	5.00%	5.00%	32.00%	32.00%
55	7.00%	6.00%	15.00%	20.50%	5.00%	7.50%	25.00%	21.00%
59	7.00%	12.50%	32.00%	27.50%	5.00%	14.00%	25.00%	40.00%
60	21.00%	21.00%	21.00%	27.50%	20.00%	20.00%	20.00%	40.00%
61	37.50%	27.50%	27.50%	27.50%	20.00%	20.00%	20.00%	20.00%
62	50.00%	32.00%	32.00%	32.00%	20.00%	35.00%	35.00%	35.00%
63	50.00%	32.00%	32.00%	32.00%	20.00%	30.00%	30.00%	30.00%
64	50.00%	40.00%	40.00%	40.00%	20.00%	30.00%	30.00%	30.00%
>65	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – All Other Employers – All Plans

Age	Male Years of Service				Female Years of Service			
	5	6-24	25	>26	5	6-24	25	>26
50	9.00%	9.00%	27.50%	27.50%	9.30%	9.30%	50.00%	50.00%
55	9.00%	7.50%	20.00%	18.00%	12.50%	9.00%	20.00%	18.00%
59	9.00%	12.00%	20.00%	24.00%	12.50%	9.00%	20.00%	24.00%
60	15.00%	15.00%	15.00%	27.50%	20.00%	20.00%	20.00%	27.50%
61	15.00%	27.50%	27.50%	27.50%	20.00%	27.50%	27.50%	27.50%
62	15.00%	27.50%	27.50%	27.50%	20.00%	27.50%	27.50%	27.50%
63	25.00%	30.00%	30.00%	30.00%	20.00%	30.00%	30.00%	30.00%
64	20.00%	30.00%	30.00%	30.00%	20.00%	30.00%	30.00%	30.00%
>65	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

State Police Officers – All Plans

Age	Years of Service	
	5-24	>25
50	10.00%	10.00%
55	6.00%	10.00%
59	10.00%	10.00%
60	10.00%	10.00%
>65	100.00%	100.00%

FIGURE 4.7: RETIREMENT RATES – OPEB PLANS, cont.

Virginia Law Officers – All Plans

Age	Years of Service – Male			
	5	6-24	25	>26
50	11.00%	11.00%	35.00%	35.00%
55	10.00%	8.00%	18.00%	25.00%
59	10.00%	12.00%	18.00%	20.00%
60	18.00%	18.00%	18.00%	20.00%
>65	100.00%	100.00%	100.00%	100.00%

Age	Years of Service – Female			
	5	6-24	25	> 26
50	10.00%	10.00%	37.50%	37.50%
55	10.00%	8.00%	25.00%	27.50%
59	10.00%	13.00%	30.00%	22.50%
60	20.00%	20.00%	20.00%	22.50%
>65	100.00%	100.00%	100.00%	100.00%

Judges – All Plans

Age	Rate
60	15.00%
65	15.00%
70	50.00%
>73	100.00%

FIGURE 4.8: DISABILITY RATES – OPEB PLANS

As shown below for selected ages.

State Employees

25% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0390%	0.0330%
30	0.0910%	0.2110%
40	0.2120%	0.3540%
50	0.4970%	0.6290%
60	0.6900%	0.7350%

FIGURE 4.8: DISABILITY RATES – OPEB PLANS, cont.

Teachers

5% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0005%	0.0003%
30	0.0064%	0.0081%
40	0.0325%	0.0481%
50	0.1444%	0.1609%
60	0.3395%	0.3321%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers

25% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0050%	0.0010%
30	0.0070%	0.0230%
40	0.1390%	0.1340%
50	0.3840%	0.3300%
60	0.8080%	0.5300%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – All Other Employers

25% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0050%	0.0010%
30	0.0220%	0.0010%
40	0.1300%	0.0580%
50	0.4290%	0.2740%
60	0.6560%	0.6400%

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers

50% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0190%	0.0120%
30	0.0520%	0.5580%
40	0.2670%	0.7940%
50	0.5000%	1.0900%
60	1.0550%	1.7880%

FIGURE 4.8: DISABILITY RATES – OPEB PLANS, cont.

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – All Other Employers

50% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.0010%	0.0050%
30	0.0580%	0.1570%
40	0.2180%	0.2010%
50	0.4160%	0.4130%
60	0.5750%	1.6050%

State Police Officers

60% of disability cases are assumed to be service-related.

Age	Rate
≤44	0.1940%
50	0.4810%
55	0.7700%
60	0.8970%
70	1.3680%

Virginia Law Officers

50% of disability cases are assumed to be service-related.

Age	Male	Female
20	0.1430%	0.5430%
30	0.5840%	0.6590%
40	0.7930%	1.0010%
50	1.1650%	1.8210%
60	1.7820%	2.9010%
70	1.9200%	5.4990%

Judges

There are no assumed rates of disability prior to service retirement (for causes other than death or retirement).

FIGURE 4.9: TERMINATION RATES – OPEB PLANS

Withdrawal rates are based on age and years of service credit. Sample rates for selected ages and years of service are shown below for causes other than death, disability or retirement.

State Employees – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Males											
Age	0	1	2	3	4	5	6	7	8	9	>10
25	22.300%	22.300%	22.060%	20.170%	16.920%	13.670%	10.950%	9.130%	8.250%	7.730%	7.210%
35	15.120%	14.550%	13.630%	12.200%	10.690%	9.580%	8.900%	8.390%	7.570%	5.880%	4.180%
45	14.220%	11.470%	9.620%	8.320%	7.350%	6.890%	6.600%	6.410%	5.930%	4.280%	2.630%
55	13.240%	10.030%	8.050%	7.090%	6.490%	6.350%	5.950%	5.390%	4.470%	3.550%	2.630%
65	13.040%	9.480%	7.860%	7.090%	6.490%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Females											
Age	0	1	2	3	4	5	6	7	8	9	>10
25	26.750%	26.750%	25.590%	23.170%	20.060%	16.600%	13.660%	11.710%	11.140%	11.140%	11.140%
35	19.260%	17.080%	15.530%	14.100%	12.760%	11.660%	10.630%	9.380%	8.240%	7.180%	6.020%
45	17.030%	13.340%	11.250%	9.980%	8.920%	8.280%	7.530%	6.870%	6.280%	5.210%	3.030%
55	16.700%	11.690%	9.150%	8.240%	7.660%	7.040%	6.180%	5.710%	5.140%	5.090%	3.030%
65	16.700%	11.660%	9.060%	8.240%	7.660%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Teachers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Males											
Age	0	1	2	3	4	5	6	7	8	9	>10
25	18.730%	14.290%	12.180%	11.080%	9.450%	8.070%	7.570%	6.720%	5.060%	4.290%	4.290%
35	16.960%	13.890%	12.460%	10.910%	9.350%	7.930%	6.710%	5.880%	5.210%	4.360%	3.310%
45	16.960%	13.890%	11.570%	10.120%	7.860%	6.940%	6.230%	5.730%	5.240%	4.240%	2.410%
55	16.960%	13.890%	11.220%	10.120%	7.040%	5.840%	5.810%	5.730%	5.230%	4.240%	2.410%
65	16.960%	13.890%	11.220%	10.120%	7.040%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Females											
Age	0	1	2	3	4	5	6	7	8	9	>10
25	18.040%	12.330%	10.860%	10.640%	9.380%	7.730%	6.570%	6.510%	5.450%	4.930%	4.930%
35	16.500%	14.140%	12.600%	11.310%	10.180%	9.520%	8.650%	7.390%	6.390%	5.290%	3.930%
45	15.060%	12.050%	9.930%	8.540%	7.690%	7.180%	6.620%	5.910%	5.390%	4.420%	2.290%
55	14.910%	11.620%	9.450%	8.040%	7.090%	6.250%	5.450%	5.330%	4.770%	4.360%	2.290%
65	14.910%	11.620%	9.450%	8.040%	7.090%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

FIGURE 4.9: TERMINATION RATES – OPEB PLANS, cont.

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Males											
Age	0	1	2	3	4	5	6	7	8	9	>10
25	23.300%	20.510%	18.630%	17.320%	16.250%	14.430%	11.710%	9.290%	8.230%	6.880%	6.880%
35	19.130%	16.820%	15.080%	13.690%	12.400%	11.190%	10.160%	9.220%	8.230%	6.880%	5.220%
45	16.930%	14.550%	12.560%	10.920%	9.440%	8.920%	8.520%	8.180%	7.550%	6.300%	3.940%
55	15.610%	12.540%	10.330%	8.980%	8.450%	7.340%	6.690%	5.860%	4.830%	4.320%	3.940%
65	15.340%	9.240%	6.480%	6.480%	6.480%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Females											
Age	0	1	2	3	4	5	6	7	8	9	>10
25	22.850%	20.860%	19.800%	19.430%	19.260%	18.890%	17.960%	15.780%	13.040%	13.040%	13.040%
35	21.390%	18.770%	17.210%	16.240%	15.440%	14.420%	13.000%	11.320%	9.790%	8.500%	7.340%
45	19.070%	15.750%	13.540%	12.140%	11.040%	10.260%	9.180%	8.100%	7.250%	6.010%	3.670%
55	17.300%	12.750%	9.920%	8.540%	8.210%	7.160%	6.950%	6.590%	5.560%	5.540%	3.670%
65	17.280%	11.780%	8.110%	6.920%	6.920%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – All Other Employers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Males											
Age	0	1	2	3	4	5	6	7	8	9	>10
25	25.060%	23.020%	20.930%	18.370%	15.690%	13.360%	11.960%	10.840%	9.990%	9.990%	9.990%
35	20.650%	18.220%	16.210%	14.310%	12.750%	11.430%	10.350%	9.570%	8.810%	7.800%	6.550%
45	18.400%	14.900%	12.720%	11.400%	10.570%	9.880%	9.090%	8.210%	7.360%	6.230%	4.630%
55	16.070%	12.970%	12.000%	10.500%	10.450%	9.750%	8.930%	8.110%	6.490%	6.230%	4.630%
65	15.360%	12.880%	12.000%	10.500%	10.450%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Females											
Age	0	1	2	3	4	5	6	7	8	9	>10
25	27.370%	25.710%	23.400%	20.380%	17.490%	15.450%	13.810%	12.030%	10.660%	10.640%	10.640%
35	22.330%	20.210%	18.740%	17.240%	15.850%	14.350%	12.840%	11.560%	10.450%	9.120%	7.610%
45	19.510%	16.560%	14.580%	13.210%	12.280%	11.550%	10.660%	9.710%	9.000%	7.640%	5.320%
55	16.930%	14.490%	12.400%	10.930%	10.010%	9.280%	9.280%	9.280%	8.450%	7.560%	5.320%
65	15.630%	14.010%	12.290%	10.880%	10.010%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

FIGURE 4.9: TERMINATION RATES – OPEB PLANS, cont.

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits –
Ten Largest Employers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION

Terminations Per 100 Members

Years of Service	Males	Females
0	10.000%	15.000%
1	8.500%	9.000%
2	8.000%	9.000%
3	7.500%	9.000%
4	5.500%	9.000%
5	5.000%	9.000%
6	4.750%	9.000%
7	4.500%	6.000%
8	4.000%	3.500%
9	3.000%	2.000%
10 or more	1.800%	2.000%

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits –
All Other Employers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION

Years of Service – Males

Age	0	1	2	3	4	5	6	7	8	9	>10
25	16.010%	14.520%	13.810%	13.250%	12.170%	10.520%	8.850%	7.770%	6.900%	6.900%	6.900%
35	15.310%	12.570%	10.920%	9.900%	9.160%	8.900%	8.440%	7.640%	6.610%	5.430%	4.190%
45	15.280%	11.790%	9.480%	8.220%	7.800%	7.020%	6.630%	6.270%	5.630%	4.560%	3.020%
55	14.070%	10.550%	8.410%	7.690%	7.690%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
65	11.090%	8.670%	7.760%	7.690%	7.690%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION

Years of Service – Females

Age	0	1	2	3	4	5	6	7	8	9	>10
25	18.760%	15.470%	13.050%	11.600%	11.000%	10.650%	10.220%	8.770%	6.590%	5.830%	5.830%
35	20.890%	16.400%	13.400%	11.540%	10.340%	9.330%	8.330%	7.400%	6.590%	5.830%	5.040%
45	18.250%	14.690%	12.280%	10.840%	9.900%	8.820%	7.990%	7.250%	6.590%	5.310%	3.440%
55	11.230%	10.210%	9.680%	9.680%	9.600%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
65	1.270%	3.040%	3.040%	3.040%	3.040%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

FIGURE 4.9: TERMINATION RATES – OPEB PLANS, cont.

State Police Officers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION	
Service	Rate
0	9.750%
1	4.750%
2	4.750%
3	4.750%
4	4.750%
5	4.750%
6	4.750%
7	3.000%
8	3.000%
9	3.000%
>10	1.750%

Virginia Law Officers – All Plans

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Males											
Age	0	1	2	3	4	5	6	7	8	9	>10
25	30.260%	26.920%	23.840%	20.790%	17.800%	14.760%	12.540%	11.510%	11.510%	11.510%	11.510%
35	25.750%	21.970%	18.820%	16.020%	13.400%	11.600%	10.240%	9.350%	8.620%	7.590%	6.050%
45	22.180%	17.030%	13.790%	12.030%	11.170%	9.580%	8.480%	7.390%	6.240%	5.160%	4.280%
55	21.690%	14.710%	10.530%	9.930%	9.930%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
65	21.690%	14.670%	9.800%	9.790%	9.790%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

SEPARATIONS FROM ACTIVE SERVICE DUE TO TERMINATION											
Years of Service – Females											
Age	0	1	2	3	4	5	6	7	8	9	>10
25	33.630%	30.650%	27.160%	23.160%	19.210%	15.380%	13.570%	10.070%	9.920%	9.920%	9.920%
35	32.030%	25.200%	20.730%	17.950%	15.980%	14.870%	13.530%	10.070%	9.910%	8.070%	6.060%
45	30.590%	21.490%	15.690%	12.720%	11.800%	10.980%	10.130%	9.110%	7.800%	6.040%	3.690%
55	28.000%	17.540%	10.160%	6.520%	6.490%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
65	23.880%	12.930%	3.570%	0.000%	0.180%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

Judges

There are no assumed rates of withdrawal prior to service retirement (for causes other than death or retirement).

FIGURE 4.10: SALARY INCREASE RATES – OPEB PLANS

The sample salary increase rates are shown below. These factors are not applicable to the Line of Duty Act Program because neither the benefit nor the cost are salary-based.

State Employees

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown. It is assumed state employees who are covered under the Virginia Sickness and Disability Program (VSDP) receive a 3.50% annual increase in pay while disabled. This adjusted pay is used to determine deferred retirement benefits payable from the System.

Years of Service	Annual Step-Rate/ Promotional Rates of Increase	Total Annual Rate of Increase
1	1.85%	5.35%
3	1.25%	4.75%
6	0.95%	4.45%
9	0.50%	4.00%
11-19	0.15%	3.65%
20 or more	0.00%	3.50%

Teachers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown.

Years of Service	Annual Step-Rate/ Promotional Rates of Increase	Total Annual Rate of Increase
1	2.45%	5.95%
3	2.35%	5.85%
6	1.95%	5.45%
9	1.85%	5.35%
11	1.35%	4.85%
15	1.15%	4.65%
19	0.95%	4.45%
20 or more	0.00%	3.50%

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown.

Years of Service	Annual Step-Rate/ Promotional Rates of Increase	Total Annual Rate of Increase
1	1.85%	5.35%
3	1.25%	4.75%
6	0.95%	4.45%
9	0.50%	4.00%
11-19	0.15%	3.65%
20 or more	0.00%	3.50%

FIGURE 4.10: SALARY INCREASE RATES – OPEB PLANS, cont.

Political Subdivision Employees Not Receiving Enhanced Hazardous Duty Benefits – All Other Employers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown.

Years of Service	Annual Step-Rate/ Promotional Rates of Increase	Total Annual Rate of Increase
1	1.85%	5.35%
3	1.25%	4.75%
6	0.95%	4.45%
9	0.50%	4.00%
11-19	0.15%	3.65%
20 or more	0.00%	3.50%

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – Ten Largest Employers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown.

Years of Service	Annual Step-Rate/ Promotional Rates of Increase	Total Annual Rate of Increase
1	1.25%	4.75%
3	1.25%	4.75%
6	0.90%	4.40%
9	0.90%	4.40%
11-19	0.50%	4.00%
20 or more	0.00%	3.50%

Political Subdivision Employees Receiving Enhanced Hazardous Duty Benefits – All Other Employers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown.

Years of Service	Annual Step-Rate/ Promotional Rates of Increase	Total Annual Rate of Increase
1	1.25%	4.75%
3	1.25%	4.75%
6	0.90%	4.40%
9	0.90%	4.40%
11-19	0.50%	4.00%
20 or more	0.00%	3.50%

State Police Officers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown. It is assumed state police officers who are covered under the Virginia Sickness and Disability Program (VSDP) receive a 3.50% annual increase in pay while disabled. This adjusted pay is used to determine deferred retirement benefits payable from the System.

Years of Service	Annual Step-Rate/ Promotional Rates of Increase	Total Annual Rate of Increase
1	1.25%	4.75%
3	1.25%	4.75%
6	0.90%	4.40%
9	0.90%	4.40%
11-19	0.50%	4.00%
20 or more	0.00%	3.50%

FIGURE 4.10: SALARY INCREASE RATES – OPEB PLANS, cont.

Virginia Law Officers

Inflation of 2.50% plus a productivity component of 1.00% and a step-rate/promotional component as shown. It is assumed Virginia law officers who are covered under the Virginia Sickness and Disability Program (VSDP) receive a 3.50% annual increase in pay while disabled. This adjusted pay is used to determine deferred retirement benefits payable from the System.

Years of Service	Annual Step-Rate/ Promotional Rates of Increase	Total Annual Rate of Increase
1	1.25%	4.75%
3	1.25%	4.75%
6	0.90%	4.40%
9	0.90%	4.40%
11-19	0.50%	4.00%
20 or more	0.00%	3.50%

Judges

Salary increase rates are 4.50%.

FIGURE 4.11: PORTING RATES – LONG-TERM CARE

Porting rates represent the probability that an individual will choose to port the coverage upon employment termination. Porting rates are assumed to increase with longevity because the contributions for terminated employees are based on the age at which they started the program (either their age in 2002 or age at hire, if later).

Current Selected Policy Porting Rate Assumptions by Policy Issue Age and Policy Duration

Issue Age	Policy Duration (in years)					
	0	10	20	30	40	50+
30	0.1000	0.1234	0.2185	0.4537	0.7574	1.0000
40	0.1000	0.1608	0.3423	0.5526	0.9230	1.0000
50	0.1027	0.2244	0.4116	0.6790	1.0000	1.0000
60	0.1162	0.2667	0.4986	0.8407	1.0000	1.0000
70	0.1485	0.3308	0.6099	0.9985	1.0000	1.0000
80	0.1875	0.4043	0.7524	1.0000	1.0000	1.0000
90	0.2012	0.4601	0.9347	1.0000	1.0000	1.0000
100	0.2171	0.5261	1.0000	1.0000	1.0000	1.0000
110	0.2354	0.6042	1.0000	1.0000	1.0000	1.0000

ADDITIONAL INFORMATION ABOUT ACTUARIAL ASSUMPTIONS AND METHODS: OTHER POST-EMPLOYMENT BENEFIT (OPEB) PLANS

Mortality Rates:

Pre-Retirement: RP-2014 Employee Rates to age 80, Healthy Annuitant Rates at ages 81 and older Projected BB to 2020

- State – Males set back 1 year, 85% of rates, and females set back 1 year
- State Police – Males 90% of rates, females set forward 1 year
- ValORS – Males 90% of rates, females set forward 1 year
- Judicial – Males set back 1 year, 85% of rates, females set back 1 year
- Political subdivisions, non-hazardous duty – Males 95% of rates, females 105% of rates
- Political subdivisions, hazardous duty – Males 90% of rates, females set forward 1 year

Post-Retirement: RP-2014 Employee Rates to age 49, Healthy Annuitant Rates at ages 50 and older Projected BB to 2020

- State – Males set back 1 year, females set back 1 year, 1.5% compounding increase from ages 70 to 85
- Teachers – Males 1% increase compounded from 70 to 90, females set back 3 years, 1.5% increase compounded from ages 65 to 70, and 2.0% increase compounded from ages 75 to 90
- State Police – Males set forward 1 year, 1% increase compounded from ages 70 to 90, females set forward 3 years
- ValORS – Males set forward 1 year with 1% increase compounded from ages 70 to 90, females set forward 3 years
- Judicial – Males set forward 1 year, females set back 1 year with 1.5% compounding increase from age 70 to 85
- Political subdivisions, non-hazardous duty – Males set forward 3 years, 1% increase compounded from ages 70 to 90
- Political subdivisions, hazardous duty – Males set forward 1 year, 1% increase compounded from ages 70 to 90, females set forward 3 years

Post-Disablement: RP-2014 Disabled Mortality Rates Projected BB to 2020

- State – Males 115% of rates, females 130% of rates
- Teachers – Males and females 115% of rates
- State Police – Males set forward 2 years, unisex using 100% male
- ValORS – Males set forward 2 years, unisex using 100% male
- Judicial – Males 115% of rates, females 130% of rates
- Political subdivisions, non-hazardous duty – Males set forward 2 years, 110% of rates, females 125% of rates
- Political subdivisions, hazardous duty – Males set forward 2 years, unisex using 100% males

Provision for Expense. The assumed investment return represents the anticipated net rate of return after payment of all administrative expenses.

Asset Valuation Method. For the Group Life Insurance Program, the state and teacher employer groups for the Retiree Health Insurance Credit Program, VSDP and VLDP, the method of valuing assets is intended to recognize a “smoothed” market value of assets. Under this method, the difference between actual return on market value from investment experience and the expected return

on market value is recognized over a five-year period.

The resulting actuarial value of assets cannot be less than 80% or more than 120% of the market value of assets. For the Line of Duty Act Program and the political subdivision employer groups in the Retiree Health Insurance Credit Program or employees who are eligible for the state-funded benefit for constitutional officers and their employees, general registrars and their employees and local social services employees, the actuarial value of assets is equal to the market value of assets.

Actuarial Cost Method. For the Group Life Insurance, Retiree Health Insurance Credit Programs, VSDP, VLDP and the Line of Duty Act Program, the normal contribution is determined using the entry age normal method. Under this method, a calculation is made for the cost of benefits to determine the uniform and constant percentage rate of the employer contribution which, if applied to the compensation of the average new member during the entire period of the member's anticipated covered service, would meet the cost of all benefits payable on the member's behalf. The unfunded accrued liability is determined by subtracting the current assets and the present value of prospective employer normal contributions from the present value of the expected benefits to be paid. The accrued liability contribution amortizes the balance of the unfunded accrued actuarial liability (UAAL) over a period of years from the valuation date.

Actuarial Gains and Losses. Actuarial gains and losses are reflected in the UAAL and are amortized as part of that balance.

Payroll Growth Rates. The payroll growth rate is assumed to be 3.00% based on a zero population growth assumption.

Funding Period. For all programs, the amortization of the legacy UAAL began at 30 years on June 30, 2013, and this amortization period is to decrease by one year on each subsequent valuation date until the legacy UAAL is fully amortized (amortization period is 0 years). With each subsequent valuation, a new amortization base will be used to amortize that portion of the UAAL not covered by the current balances of the previously established amortization bases. Here, each valuation's newly allocated share of the UAAL will be amortized over a closed 20-year period. In the event this funding policy produces an effective amortization period of greater than 30 years, a 30-year amortization period for the aggregate UAAL is used in accordance with GASB 43 and 45.

Summary of Other Post-Employment Benefit Plan Provisions

Group Life Insurance Program

ADMINISTRATION

The plan is administered by the Board of Trustees of the Virginia Retirement System (the System). Contributions received are held in trust. Payments are made to Securian Financial as reimbursement for the payment of life insurance proceeds to the beneficiaries.

An addition to the contribution requirement for the active member benefit provides for the retiree death benefit. The active portion of the contribution is used to purchase group term life insurance from an insurance company; the retired member portion is held in a trust until required for benefit payments.

When a covered retiree dies, Securian Financial pays the insurance claim and then collects a premium equal to the cost of the claim.

The retired member contribution is determined actuarially. The Board sets administrative policy and determines the allocation of the assets held for investment.

ELIGIBILITY

The following employees are covered under the Group Life Insurance Program upon employment:

- Full-time permanent, salaried employees of the Commonwealth of Virginia, including state employees, faculty members of the state's public colleges and universities, state police officers (SPORS), Virginia law officers (VaLORS) and judicial employees (JRS).
- Full-time permanent, salaried teachers and other administrative employees of local public school divisions.
- Full-time permanent, salaried sheriffs, deputy sheriffs and other eligible non-hazardous duty and hazardous duty employees of political subdivisions that have elected to participate in the Group Life Insurance Program.
- Employees of five localities that do not participate in VRS for retirement: City of Richmond, City of Portsmouth, City of

Roanoke, City of Norfolk and Roanoke City School Board.

- Certain members who were employed at the time of initial coverage under the Group Life Insurance Program had the option to decline coverage.

ACTIVE MEMBER BENEFIT

Active members are covered for the following benefits:

- Natural death benefit equal to the member's compensation rounded to the next highest thousand and then doubled
- Accidental death benefit, which is double the natural death benefit
- Accidental dismemberment benefit, seatbelt benefit, repatriation benefit, felonious assault benefit and an accelerated death benefit option

Covered employees may elect additional coverage for themselves as well as a spouse or dependent children through the Optional Group Life Insurance Program. Optional group life benefits are not included in the valuations of the OPEB plans.

RETIREE BENEFIT

1. Service Retirement. A death benefit equal to the active member's natural death benefit and the accelerated death benefit option continue for retirees and for deferred members who have met the eligibility requirements for retirement upon leaving employment. Coverage begins to reduce by 25% on the January 1 following one calendar year after the member's employment ends and by 25% each January 1 thereafter, until it reaches 25% of its original value. For covered members with at least 30 years of service credit, there is a minimum benefit payable under the Group Life Insurance Program, set at \$8,000 by statute in 2015. This will be increased annually based on the VRS Plan 2 cost-of-living adjustment calculation. The minimum benefit adjusted for the COLA was \$8,463 as of June 30, 2020. A member may end employment and defer retirement until a later date; however, the group life insurance will begin reducing based on the last month of employment.

2. Disability Retirement. The benefits available to disability retirees are the same as those for service retirees, except that the first 25% annual reduction begins on the January 1 following the first full calendar year from the month the retiree reaches normal retirement age.

Retiree Health Insurance Credit Program

ADMINISTRATION

The plan is administered by the System’s Board of Trustees. Contributions received are held in trust. The Board sets administrative policy and determines the allocation of the assets held for investment.

ELIGIBILITY

The health insurance credit is a tax-free reimbursement in an amount set by the General Assembly for each year of service credit against the portion of qualified health insurance premiums retirees pay for single coverage. The credit cannot exceed the amount of the premium and ends upon the retiree’s death.

If a member has worked for more than one employer under VRS, SPORS, VaLORS or JRS, for the purpose of this valuation, the most current (or last) employer assumes the full liability for that employee.

CREDIT AMOUNTS

The dollar amounts vary depending on the employee type, as shown in the following table:

Health Insurance Credit Dollar Amounts at Retirement

ELIGIBLE EMPLOYEES	AMOUNT PER YEAR OF SERVICE	MAXIMUM CREDIT PER MONTH
State employees	\$4.00	No Cap
Teachers and other administrative school employees	\$4.00	No Cap
General registrars and their employees, constitutional officers and their employees and local social service employees	\$1.50	\$45.00
General registrars and their employees, constitutional officers and their employees and local social service employees, if the political subdivision elects the \$1.00 enhancement	\$2.50	\$75.00
Other political subdivision employees as elected by the employer	\$1.50	\$45.00

Virginia Sickness and Disability Program (VSDP)

ADMINISTRATION

The plan is administered by the System’s Board of Trustees. Contributions received are held in trust. The Board sets administrative policy and determines the allocation of the assets held for investment.

ELIGIBILITY

The following state employees are covered automatically under the Virginia Sickness and Disability Program (VSDP) upon employment:

- Full-time permanent, salaried employees of the Commonwealth of Virginia (VRS) and part-time

permanent, salaried state employees who work at least 20 hours a week;

- Public college and university faculty members who elect to participate in VRS instead of an optional retirement plan. These faculty members can elect VSDP or a disability plan offered by their institution;
- Full-time permanent, salaried state police officers (SPORS); and
- Full-time permanent, salaried Virginia law officers other than state police (VaLORS).

State employees hired before January 1, 1999, had the option to elect VSDP or retain their eligibility to be considered for disability retirement.

SHORT-TERM AND LONG-TERM DISABILITY BENEFITS

VSDP coverage provides short-term and long-term disability benefits for non-work-related and work-related illnesses and injuries. Eligible members who become disabled receive short-term disability benefits for up to 125 workdays, following a seven-calendar-day waiting period from the first day of disability.

Members who are still disabled after 125 workdays are evaluated for long-term disability. Members hired or rehired on or after July 1, 2009, must satisfy eligibility periods for non-work-related disability coverage and certain income-replacement levels.

The long-term disability benefit provides income replacement equal to 60% of the member's pre-disability income. While members are on long-term disability, they are not considered employees of the Commonwealth of Virginia. Members who can work at least 20 hours a week but cannot perform their full duties may be eligible for long-term disability benefits while working. They must have returned to work with modified duties while on short-term disability.

The long-term disability benefit is adjusted by any salary, wages, workers' compensation benefits or other disability payments the member receives for the same condition. If a member's condition becomes catastrophic, income replacement will increase to 80% of pre-disability income for as long as the condition is considered catastrophic. A disability is determined to be catastrophic if a member is unable to perform at least two of a specified list of activities of daily living without assistance.

Long-term disability benefits end if the member can perform the full duties of his or her pre-disability position without any restrictions during the first 24 months of disability; can perform the regular duties of any job for which the member is reasonably qualified after 24 months of disability and earning 80% or more of his or her pre-disability income; takes a refund of his or her member contributions and interest; does not cooperate or comply with the

requirements of VSDP; or begins receiving a VRS service retirement benefit. Benefits also end in the event of the member's death.

VSDP LONG-TERM CARE PLAN

VSDP plan members are eligible for no-cost long-term care coverage under the VSDP Long-Term Care Plan. The plan provides a two-year maximum coverage period with a maximum \$96-per-day daily benefit for nursing home care and other covered services. The benefit of many of the other services is less than the nursing home benefit, which means those needing these services will take longer to reach their lifetime maximum amount, resulting in longer coverage duration.

Benefits begin after 90 days from the date the member is certified by a licensed health care professional as eligible for benefits. The benefit schedule includes the possibility of an increase for inflation every five years in the amount of 5.00% compounded annually since the last inflation increase. Since such increases are not prefunded, they are accompanied by a corresponding increase in contributions. Upon retirement or termination from employment, VSDP plan members may elect to continue their long-term care coverage by paying the premiums.

Virginia Local Disability Program (VLDP)

ADMINISTRATION

The plan is administered by the System's Board of Trustees. Contributions received are held in trust. The Board sets administrative policy and determines the allocation of the assets held for investment.

ELIGIBILITY

The following state employees are covered automatically under the Virginia Local Disability Program (VLDP) upon employment:

- Full-time permanent, salaried Hybrid Retirement Plan employees of participating local public school divisions (teachers); and
- Full-time permanent, salaried Hybrid Retirement Plan employees of participating political subdivisions.

SHORT-TERM AND LONG-TERM DISABILITY BENEFITS

VLDP coverage provides short-term and long-term disability benefits for non-work-related and work-related illnesses and injuries. Eligible members who become disabled receive short-term disability benefits for up to 125 workdays, following a seven-calendar-day waiting period from the first day of disability. Members who are still disabled after 125 workdays are evaluated for long-term disability. The long-term disability benefit provides income replacement equal to 60% of the member's pre-disability income. While members are on long-term disability, they are not considered employees. Members who can work at least 20 hours a week but cannot perform their full duties may be eligible for long-term disability benefits while working. They must have returned to work with modified duties while on short-term disability.

The long-term disability benefit is adjusted by any salary, wages, workers' compensation benefits or other disability payments the member receives for the same condition. If a member's condition becomes catastrophic, income replacement will increase to 80% of pre-disability income for as long as the condition is considered catastrophic. A disability is determined to be catastrophic if a member is unable to perform at least two of a specified list of activities of daily living without assistance.

Long-term disability benefits end if the member can perform the full duties of his or her pre-disability position without any restrictions during the first 24 months of disability; can perform the regular duties of any job for which the member is reasonably qualified after 24 months of disability and earning 80% or more of his or her pre-disability income; takes a refund of his or her member contributions and interest; does not cooperate or comply with the requirements of VLDP; or begins receiving a VRS service retirement benefit. Benefits also end in the event of the member's death.

VLDP LONG-TERM CARE PLAN

VLDP plan members are eligible for no-cost long-term care coverage under the VSDP Long-Term Care Plan. The plan provides a two-year maximum

coverage period with a maximum \$96-per-day daily benefit for nursing home care and other covered services. The benefit of many of the other services is less than the nursing home benefit, which means those needing these services will take longer to reach their lifetime maximum amount, resulting in longer coverage duration.

Benefits begin after 90 days from the date the member is certified by a licensed health care professional as eligible for benefits. The benefit schedule includes the possibility of an increase for inflation every five years in the amount of 5.00% compounded annually since the last inflation increase. Since such increases are not prefunded, they are accompanied by a corresponding increase in contributions. Upon retirement or termination from employment, VLDP plan members may elect to continue their long-term care coverage by paying the premiums.

Line of Duty Act Program

ADMINISTRATION

The plan is administered by the System's Board of Trustees. Contributions received are held in trust. The Board sets administrative policy and determines the allocation of the assets held for investment.

ELIGIBILITY

Members of SPORS and VaLORS as well as members of VRS who are eligible for enhanced hazardous duty coverage are covered under the Line of Duty Act. Paid employees and volunteers in hazardous duty positions in all VRS-participating and non-VRS participating localities also are covered under the act.

BENEFITS

Coverage provides death and disability benefits, administered by VRS, and health insurance benefits, which are administered by the Virginia Department of Human Resource Management (DHRM). The System is responsible for managing the assets of the Line of Duty Act Fund.

Summary of OPEB Plan Changes

The following changes have occurred to the OPEB plan provisions.

2009 VALUATION: No actuarially material changes are made to the plan provisions. There are two changes of note:

1. On April 16, 2009, the Board adopts the recommended economic and demographic assumptions proposed by the actuary as a result of the June 2008 actuarial experience study.
2. For the June 30, 2009, valuation, the Board suspends application of the 80% to 120% market value-of-assets corridor on the actuarial value of assets for the Group Life Insurance Program and the Retiree Health Insurance Credit Program.

2010 VALUATION: No actuarially material changes are made to the plan provisions. There are two changes of note:

1. For the June 30, 2010, valuation, the application of the 80% to 120% market value-of-assets corridor on the actuarial value of assets is reinstated.
2. The Board reduces the investment rate-of-return assumption for the Group Life Insurance Program, the Retiree Health Insurance Credit Program and the Virginia Sickness and Disability Program (VSDP) from 7.50% to 7.00%.

2011 VALUATION: No actuarially material changes are made to the plan provisions.

2012 VALUATION: The changes resulting from legislation are listed below:

1. Under House Bill 791, effective July 1, 2012, the life insurance amount reduction start date for disabled retirees was changed to January 1 following the first full year from the date the retiree reaches normal retirement age.
2. In 2012 House Bill 1130/Senate Bill 498 was enacted and was effective on January 1, 2013, requiring that active non-vested members of Plan 1 have to satisfy the Rule of 90 (sum of age and service is at least 90) or reach their Social Security normal retirement age to be eligible for unreduced retirement. These same members must attain age 60 with five years of service to be eligible for early retirement. This provision applies to the state and teacher plans and to members of political subdivision plans who are not covered by hazardous duty benefits. In addition, state employees on long-term disability are assumed to receive cost-of-living adjustments to

their long-term disability benefits in an amount of 2.25% per year, compounded annually.

3. Benefit offset adjustments for VSDP were adjusted to reflect actual VRS experience.

2013 VALUATION: No actuarially material changes are made to the plan provisions. There are two changes of note:

1. On June 20, 2013, the Board adopts the recommended economic and demographic assumptions proposed by the actuary as a result of the June 2012 experience study.
2. Changes noted in the 2012 valuation information, with effective dates in fiscal year 2013 were implemented.

2014 VALUATION: No actuarially material changes are made to the plan provisions. The 2014 valuation includes Hybrid Retirement Plan members for the first time. The hybrid plan covers eligible employees hired on or after January 1, 2014, in the state, teacher and judicial plans or Plan 1 or Plan 2 members who elected during a one-time opt-in period, to be covered under the hybrid plan. The hybrid plan does not apply to members in the SPORS and VaLORS plans. The hybrid plan consists of defined benefit plan and defined contribution plan components.

2015 VALUATION: No actuarially material changes are made to the plan provisions. There are two changes of note:

1. An administrative expense charge was added to the employer contribution rates to cover administrative expenses.
2. The retirement rates for the judicial plan were extended to age 73 to reflect the change in the mandatory retirement age to 73.

2016 VALUATION: No actuarially material changes are made to the plan provisions.

2017 VALUATION: No actuarially material changes are made to the plan provisions. There is one change of note: On April 26, 2017, the Board adopts the recommended economic and demographic assumptions proposed by the actuary as a result of the June 2016 experience study.

2018 VALUATION: No actuarially material changes are made to the plan provisions.

2019 VALUATION: The investment rate was decreased from 7.00% per annum to 6.75% per annum.

2020 VALUATION: No actuarially material changes are made to the plan provisions.



Virginia
Retirement
System

5 Statistical Section



HONORING OUR HEROES

VRS MEMBERS SERVING THE COMMONWEALTH

5

Statistical Section

VRS Fiscal Year Returns

Pension Trust Funds:

Schedule of Retirement Contributions by System and Plan

Schedule of Pension Trust Fund Additions by Source

Schedule of Pension Trust Fund Deductions by Type

Schedule of Retirement Benefits by System and Plan

Schedule of Retirement Benefits by Type

Schedule of Refunds by Type

Schedule of Retirees and Beneficiaries by Type of Retirement

Schedule of Retirees and Beneficiaries by Type of Retirement and Plan

Schedule of Retirees and Beneficiaries by Payout Option Selected

Schedule of Average Benefit Payments

Schedule of Funding (Market Value Basis): All Pension Plans

Schedule of Funding (Market Value Basis): VRS Pension Plans

Other Employee Benefit Trust Funds:

Schedule of Group Life Insurance Additions by Source

Schedule of Group Life Insurance Deductions by Type

Schedule of Retiree Health Insurance Credit Additions by Source

Schedule of Retiree Health Insurance Credit Deductions by Type

Schedule of Disability Insurance Trust Fund Additions by Source

Schedule of Disability Insurance Trust Fund Deductions by Type

Schedule of Retired Members and Beneficiaries by Plan

Schedule of Average Benefit Payments by Plan

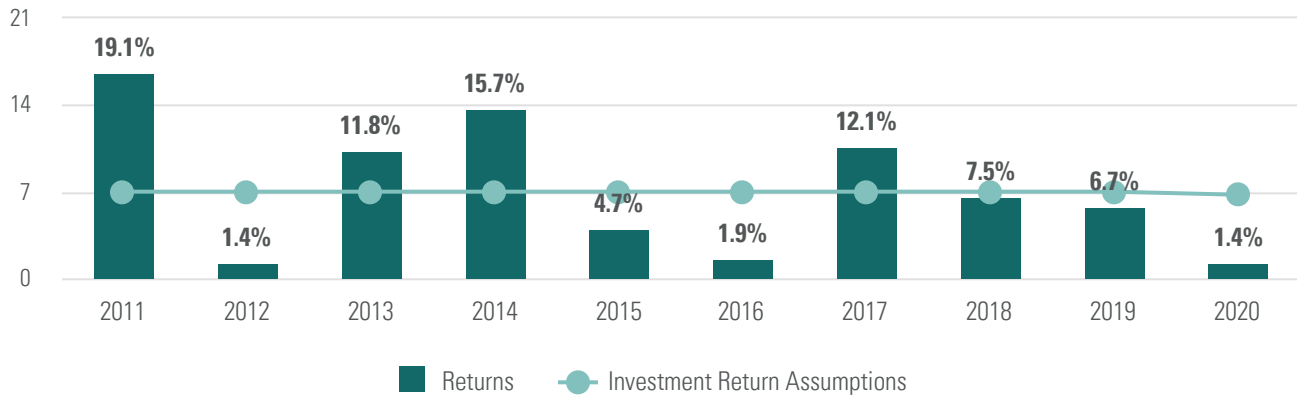
VRS-Participating Employers

Hybrid Defined Contribution Plan Statements

Commonwealth of Virginia 457 Deferred Compensation and Cash Match Plans

The Statistical Section presents detailed historical information regarding the pension and other employee benefit plans administered by the System. This information includes a 10-year analysis of changes in plan net position, plan enrollment, contributions, plan additions and deductions, benefits and refunds. In addition, this section provides information regarding retirees and an analysis of funding, enrollment and investment activity related to the Commonwealth of Virginia 457 Deferred Compensation Plan and the Virginia Cash Match Plan. The Statistical Section also lists VRS-participating employers as of the end of the fiscal year.

VRS FISCAL YEAR RETURNS



Pension Trust Funds

FIGURE 5.1: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION – ALL PENSION TRUST FUNDS

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN MILLIONS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 46,287	\$ 53,151	\$ 52,091	\$ 56,979	\$ 64,521	\$ 66,407	\$ 66,363	\$ 72,814	\$ 76,556	\$ 79,790
Funding:										
Member and Employer Contributions and Other Additions	1,550	1,820	2,600	2,695	3,226	3,323	3,144	3,331	3,338	3,480
Less: Benefits and Administrative Expenses and Transfers	3,397	3,518	3,791	4,030	4,263	4,504	4,692	4,953	5,155	5,424
Net Funding	(1,847)	(1,698)	(1,191)	(1,335)	(1,037)	(1,181)	(1,548)	(1,622)	(1,817)	(1,944)
Investment Income:										
Interest, Dividends and Other Investment Income	1,032	1,053	911	986	913	907	904	926	967	804
Net Appreciation (Depreciation) in Fair Value	7,679	(415)	5,168	7,891	2,010	230	7,095	4,438	4,084	708
Net Investment Income	8,711	638	6,079	8,877	2,923	1,137	7,999	5,364	5,051	1,512
Net Increase (Decrease)	6,864	(1,060)	4,888	7,542	1,886	(44)	6,451	3,742	3,234	(432)
Fiduciary Net Position Restricted – End of Year	\$ 53,151	\$ 52,091	\$ 56,979	\$ 64,521	\$ 66,407	\$ 66,363	\$ 72,814	\$ 76,556	\$ 79,790	\$ 79,358

FIGURE 5.2: NUMBER OF ACTIVE MEMBERS

AT JUNE 30

(EXPRESSED IN THOUSANDS)

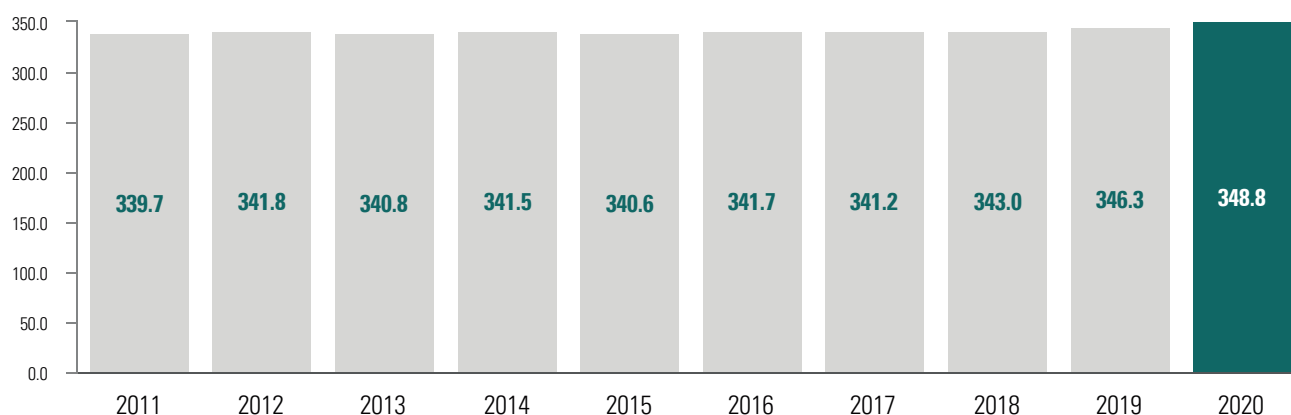


FIGURE 5.3: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION – VIRGINIA RETIREMENT SYSTEM

FOR THE YEARS ENDED JUNE 30

VIRGINIA RETIREMENT SYSTEM (VRS) – STATE

(EXPRESSED IN MILLIONS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 12,432	\$ 14,040	\$ 13,516	\$ 14,502	\$ 16,169	\$ 16,399	\$ 16,368	\$ 17,790	\$ 18,532	\$ 19,090
Funding:										
Member and Employer Contributions and Other Additions	253	309	520	541	676	923	737	750	747	787
Less: Benefits and Administrative Expenses and Transfers	968	992	1,054	1,119	1,175	1,231	1,279	1,340	1,401	1,468
Net Funding	(715)	(683)	(534)	(578)	(499)	(308)	(542)	(590)	(654)	(681)
Investment Income:										
Interest, Dividends and Other Investment Income	275	263	235	249	228	221	222	248	232	192
Net Appreciation (Depreciation) in Fair Value	2,048	(104)	1,285	1,996	501	56	1,742	1,084	980	169
Net Investment Income	2,323	159	1,520	2,245	729	277	1,964	1,332	1,212	361
Net Increase (Decrease)	1,608	(524)	986	1,667	230	(31)	1,422	742	558	(320)
Fiduciary Net Position Restricted – End of Year	\$ 14,040	\$ 13,516	\$ 14,502	\$ 16,169	\$ 16,399	\$ 16,368	\$ 17,790	\$ 18,532	\$ 19,090	\$ 18,770

FIGURE 5.3: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION – VIRGINIA RETIREMENT SYSTEM (cont.)

FOR THE YEARS ENDED JUNE 30

VIRGINIA RETIREMENT SYSTEM (VRS) – TEACHER

(EXPRESSED IN MILLIONS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 21,515	\$ 24,518	\$ 23,928	\$ 26,076	\$ 29,411	\$ 30,344	\$ 30,168	\$ 33,120	\$ 34,920	\$ 36,523
Funding:										
Member and Employer Contributions and Other Additions	623	816	1,204	1,225	1,641	1,443	1,531	1,684	1,684	1,747
Less: Benefits and Administrative Expenses and Transfers	1,651	1,697	1,834	1,933	2,036	2,136	2,212	2,306	2,393	2,510
Net Funding	(1,028)	(881)	(630)	(708)	(395)	(693)	(681)	(622)	(709)	(763)
Investment Income:										
Interest, Dividends and Other Investment Income	477	481	415	449	415	413	412	407	443	366
Net Appreciation (Depreciation) in Fair Value	3,554	(190)	2,363	3,594	913	104	3,221	2,015	1,869	323
Net Investment Income	4,031	291	2,778	4,043	1,328	517	3,633	2,422	2,312	689
Net Increase (Decrease)	3,003	(590)	2,148	3,335	933	(176)	2,952	1,800	1,603	(74)
Fiduciary Net Position Restricted – End of Year	\$ 24,518	\$ 23,928	\$ 26,076	\$ 29,411	\$ 30,344	\$ 30,168	\$ 33,120	\$ 34,920	\$ 36,523	\$ 36,449

VIRGINIA RETIREMENT SYSTEM (VRS) – POLITICAL SUBDIVISIONS

(EXPRESSED IN MILLIONS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 10,699	\$ 12,722	\$ 12,823	\$ 14,395	\$ 16,628	\$ 17,283	\$ 17,418	\$ 19,250	\$ 20,303	\$ 21,259
Funding:										
Member and Employer Contributions and Other Additions	606	615	747	765	761	776	716	732	748	780
Less: Benefits and Administrative Expenses and Transfers	635	679	741	804	867	942	998	1,095	1,138	1,210
Net Funding	(29)	(64)	6	(39)	(106)	(166)	(282)	(363)	(390)	(430)
Investment Income:										
Interest, Dividends and Other Investment Income	243	272	228	252	237	241	239	237	258	215
Net Appreciation (Depreciation) in Fair Value	1,809	(107)	1,338	2,020	524	60	1,875	1,179	1,088	190
Net Investment Income	2,052	165	1,566	2,272	761	301	2,114	1,416	1,346	405
Net Increase (Decrease)	2,023	101	1,572	2,233	655	135	1,832	1,053	956	(25)
Fiduciary Net Position Restricted – End of Year	\$ 12,722	\$ 12,823	\$ 14,395	\$ 16,628	\$ 17,283	\$ 17,418	\$ 19,250	\$ 20,303	\$ 21,259	\$ 21,234

FIGURE 5.3: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION – VIRGINIA RETIREMENT SYSTEM (cont.)

FOR THE YEARS ENDED JUNE 30

STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS) PENSION TRUST FUND

(EXPRESSED IN MILLIONS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 534	\$ 599	\$ 575	\$ 625	\$ 721	\$ 733	\$ 731	\$ 796	\$ 837	\$ 865
Funding:										
Member and Employer Contributions and Other Additions	13	16	31	48	34	39	38	42	38	39
Less: Benefits and Administrative Expenses and Transfers	47	47	49	51	54	55	59	59	64	66
Net Funding	(34)	(31)	(18)	(3)	(20)	(16)	(21)	(17)	(26)	(27)
Investment Income:										
Interest, Dividends and Other Investment Income	12	12	11	11	10	11	9	10	10	8
Net Appreciation (Depreciation) in Fair Value	87	(5)	57	88	22	3	77	48	44	8
Net Investment Income	99	7	68	99	32	14	86	58	54	16
Net Increase (Decrease)	65	(24)	50	96	12	(2)	65	41	28	(11)
Fiduciary Net Position Restricted – End of Year	\$ 599	\$ 575	\$ 625	\$ 721	\$ 733	\$ 731	\$ 796	\$ 837	\$ 865	\$ 854

VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS) PENSION TRUST FUND

(EXPRESSED IN MILLIONS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 792	\$ 911	\$ 895	\$ 992	\$ 1,150	\$ 1,191	\$ 1,211	\$ 1,346	\$ 1,424	\$ 1,496
Funding:										
Member and Employer Contributions and Other Additions	35	42	68	85	79	97	91	91	93	99
Less: Benefits and Administrative Expenses and Transfers	64	69	76	84	90	98	103	111	115	123
Net Funding	(29)	(27)	(8)	1	(11)	(1)	(12)	(20)	(22)	(24)
Investment Income:										
Interest, Dividends and Other Investment Income	18	18	16	18	16	16	17	17	18	14
Net Appreciation (Depreciation) in Fair Value	130	(7)	89	139	36	5	130	81	76	14
Net Investment Income	148	11	105	157	52	21	147	98	94	28
Net Increase (Decrease)	119	(16)	97	158	41	20	135	78	72	4
Fiduciary Net Position Restricted – End of Year	\$ 911	\$ 895	\$ 992	\$ 1,150	\$ 1,191	\$ 1,211	\$ 1,346	\$ 1,424	\$ 1,496	\$ 1,500

FIGURE 5.3: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION – VIRGINIA RETIREMENT SYSTEM (cont.)

FOR THE YEARS ENDED JUNE 30

JUDICIAL RETIREMENT SYSTEM (JRS) PENSION TRUST FUND

(EXPRESSED IN MILLIONS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 315	\$ 361	\$ 354	\$ 389	\$ 442	\$ 457	\$ 467	\$ 512	\$ 540	\$ 558
Funding:										
Member and Employer Contributions and Other Additions	20	22	30	31	35	45	31	32	28	28
Less: Benefits and Administrative Expenses and Transfers	32	34	37	39	41	42	41	42	44	47
Net Funding	(12)	(12)	(7)	(8)	(6)	3	(10)	(10)	(16)	(19)
Investment Income:										
Interest, Dividends and Other Investment Income	7	7	6	7	7	5	5	7	6	5
Net Appreciation (Depreciation) in Fair Value	51	(2)	36	54	14	2	50	31	28	5
Net Investment Income	58	5	42	61	21	7	55	38	34	10
Net Increase (Decrease)	46	(7)	35	53	15	10	45	28	18	(9)
Fiduciary Net Position Restricted – End of Year	\$ 361	\$ 354	\$ 389	\$ 442	\$ 457	\$ 467	\$ 512	\$ 540	\$ 558	\$ 549

SCHEDULE OF RETIREMENT CONTRIBUTIONS BY SYSTEM AND PLAN

FISCAL YEARS 2011-2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Virginia Retirement System				State Police Officers' Retirement System	Virginia Law Officers' Retirement System	Judicial Retirement System	Total
	State	Teacher	Political	Sub-Total				
2020	\$ 787,339	\$ 1,746,683	\$ 779,951	\$ 3,313,973	\$39,097	\$ 98,626	\$ 28,255	\$ 3,479,951
2019	747,065	1,684,222	747,714	3,179,001	37,816	93,198	26,098	3,336,113
2018	750,078	1,684,478	731,625	3,166,181	42,117	91,288	31,327	3,330,913
2017	736,815	1,530,706	716,199	2,983,720	37,589	91,414	30,884	3,143,607
2016	922,801	1,442,652	775,881	3,141,334	39,414	96,966	44,738	3,322,452
2015	676,239	1,640,775	760,937	3,077,951	34,107	79,165	34,518	3,225,741
2014	541,294	1,224,875	764,921	2,531,090	48,329	85,391	30,778	2,695,588
2013	519,319	1,204,021	746,040	2,469,380	31,553	67,654	30,000	2,598,587
2012*	307,843	814,681	613,572	1,736,096	16,611	42,202	21,875	1,816,784
2011*	252,110	622,904	605,908	1,480,922	12,343	34,423	20,338	1,548,026

* The General Assembly funded contribution rates for all state employee groups and teachers significantly below those certified by the Board of Trustees for fiscal year 2011. For fiscal year 2012, the funding for all state employee groups remained at low levels for the first three quarters of the year.

FIGURE 5.4: NUMBER OF RETIREES AND BENEFICIARIES

AT JUNE 30

(EXPRESSED IN THOUSANDS)

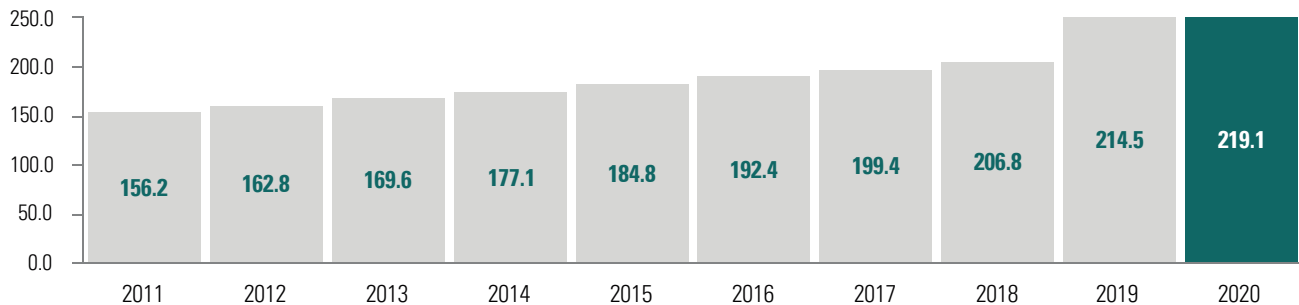
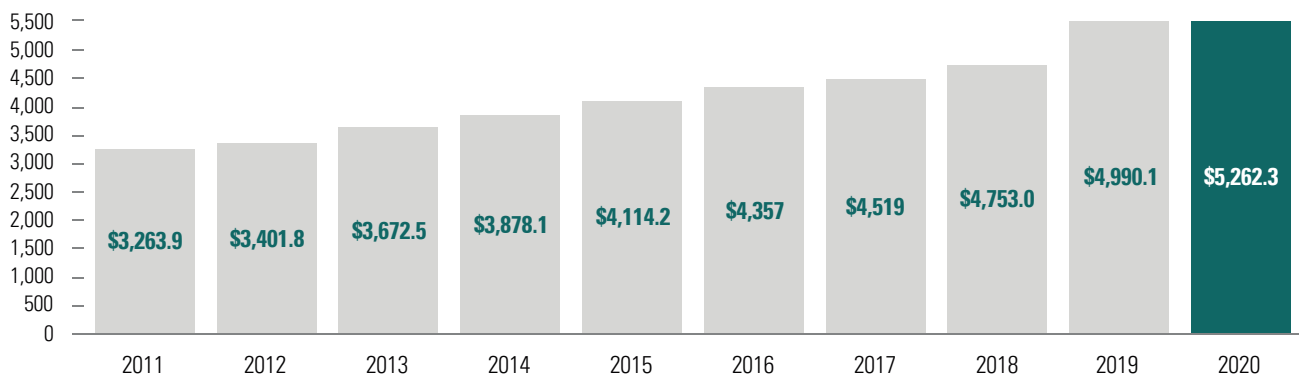


FIGURE 5.5: RETIREMENT BENEFITS PAID

FISCAL YEARS ENDED JUNE 30, 2010-2020

(EXPRESSED IN MILLIONS)



SCHEDULE OF PENSION TRUST FUND ADDITIONS BY SOURCE

FISCAL YEARS 2010-2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Member Contributions	Employer Contributions			Investment Income (Loss)	Other	Total
		For Members	Employer Share				
VIRGINIA RETIREMENT SYSTEM (VRS)							
2020	\$ 888,213	\$ —	\$ 2,425,760	\$ 1,455,122	\$ 1,723	\$ 4,770,818	
2019	953,343	—	2,399,465	4,898,307	2,299	8,253,414	
2018	910,312	—	2,389,567	5,158,889	1,076	8,459,844	
2017	888,870	115	2,191,935	7,725,350	1,798	10,808,068	
2016	817,652	23,463	2,352,150	1,095,229	1,789	4,290,283	
2015	758,355	51,006	2,292,248	2,815,780	1,723	5,919,112	
2014**	702,089	93,468	1,736,913	8,558,759	460	11,091,689	
2013**	572,543	207,695	1,689,142	5,864,628	1,547	8,335,555	
2012*	208,243	557,522	970,331	614,613	3,782	2,354,491	
2011	26,529	712,560	741,833	8,405,834	1,290	9,888,046	
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)							
2020	\$ 6,600	—	\$ 32,497	\$ 16,333	—	\$ 55,430	
2019	6,379	—	31,437	54,792	—	92,608	
2018	6,311	—	35,806	58,148	—	100,265	
2017	5,701	—	31,888	87,265	—	124,854	
2016	5,759	—	33,655	12,635	—	52,049	
2015	5,680	—	28,427	32,466	—	66,573	
2014	5,646	—	42,683	98,682	—	147,011	
2013	5,361	—	26,192	67,067	—	98,620	
2012*	5,167	1	11,443	6,853	—	23,464	
2011	121	4,742	7,480	99,209	—	111,552	
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)							
2020	\$ 18,712	\$ —	\$ 79,914	\$ 28,579	\$ —	\$ 127,205	
2019	17,871	—	75,327	93,872	—	187,070	
2018	17,495	—	73,793	98,293	—	189,581	
2017	17,598	—	73,816	146,039	—	237,453	
2016	17,574	—	79,392	20,897	—	117,863	
2015	17,081	—	62,084	52,312	—	131,477	
2014	17,908	—	67,483	156,786	—	242,177	
2013	17,256	—	50,398	105,084	27	172,765	
2012*	17,510	48	24,644	11,195	110	53,507	
2011	941	16,102	17,380	147,982	130	182,535	
JUDICIAL RETIREMENT SYSTEM (JRS)							
2020	\$ 3,436	\$ —	\$ 24,819	\$ 10,491	\$ —	\$ 38,746	
2019	4,031	—	23,490	35,719	—	63,240	
2018	4,010	—	28,620	37,689	—	70,319	
2017	2,225	2,209	28,039	56,180	—	88,653	
2016	1,154	2,349	41,909	8,137	—	53,549	
2015	643	2,531	31,560	20,049	—	54,783	
2014	327	2,724	27,727	60,833	—	91,611	
2013	179	2,795	27,026	41,557	—	71,557	
2012	47	2,921	18,907	4,576	—	26,451	
2011	32	3,003	17,303	58,587	—	78,925	

* Member contributions and employer contributions for members reflect the shift to member-paid retirement contributions for state employees, except judges, effective July 1, 2011.

** Member contributions and employer contributions for members reflect the shift to member-paid retirement contributions for teachers and political subdivision employees, effective July 1, 2012.

SCHEDULE OF PENSION TRUST FUND DEDUCTIONS BY TYPE

FISCAL YEARS 2010-2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Retirement Benefits	Refunds	Administrative Expenses	Other	Total
VIRGINIA RETIREMENT SYSTEM (VRS)					
2020	\$ 5,033,582	\$ 101,961	\$ 50,094	\$ 3,705	\$ 5,189,342
2019	4,774,664	112,169	48,586	9,282	4,944,701
2018	4,548,751	116,473	44,661	8,750	4,718,635
2017	4,324,025	114,137	44,955	10,927	4,494,044
2016	4,169,852	99,444	39,695	2,263	4,311,254
2015	3,935,656	100,993	38,898	2,323	4,077,870
2014	3,711,208	98,049	39,785	6,745	3,855,787
2013	3,516,219	77,588	31,154	4,579	3,629,540
2012	3,257,359	84,577	25,475	694	3,368,105
2011	3,125,772	96,209	25,082	6,464	3,253,527
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)					
2020	\$ 64,991	\$ 552	\$ 360	\$ 38	\$ 65,941
2019	62,683	805	488	61	64,037
2018	58,197	867	509	63	59,636
2017	57,814	630	926	99	59,469
2016	53,515	584	591	23	54,713
2015	53,338	375	471	27	54,211
2014	50,467	685	353	78	51,583
2013	47,884	364	227	51	48,526
2012	46,113	319	243	7	46,682
2011	46,259	279	222	68	46,828
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)					
2020	\$ 117,137	\$ 4,893	\$ 623	\$ 73	\$ 122,726
2019	109,193	4,933	831	103	115,060
2018	104,776	5,604	861	247	111,488
2017	96,224	4,938	1,540	310	103,012
2016	92,270	4,524	938	38	97,770
2015	84,990	4,797	743	44	90,574
2014	78,412	4,665	557	124	83,758
2013	71,638	3,586	344	82	75,650
2012	64,849	4,027	366	15	69,257
2011	59,749	4,051	395	103	64,298
JUDICIAL RETIREMENT SYSTEM (JRS)					
2020	\$ 46,546	\$ 12	\$ 232	\$ 42	\$ 46,832
2019	43,584	—	315	43	43,942
2018	41,165	24	326	45	41,560
2017	40,895	—	594	67	41,556
2016	41,341	—	363	15	41,719
2015	40,205	—	283	17	40,505
2014	37,984	—	221	47	38,252
2013	36,800	—	141	31	36,972
2012	33,454	—	143	5	33,602
2011	32,115	5	158	40	32,318

SCHEDULE OF RETIREMENT BENEFITS BY SYSTEM AND PLAN

FISCAL YEARS 2010-2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Virginia Retirement System				State Police Officers' Retirement System	Virginia Law Officers' Retirement System	Judicial Retirement System	Total
	State	Teacher	Political Subdivisions	Sub-Total				
2020	\$ 1,427,873	\$ 2,448,204	\$ 1,157,505	\$ 5,033,582	\$64,991	\$117,137	\$46,546	\$ 5,262,256
2019	1,360,833	2,331,038	1,082,793	4,774,664	62,683	109,193	43,584	4,990,124
2018	1,296,803	2,241,927	1,010,021	4,548,751	58,197	104,776	41,165	4,752,889
2017	1,234,388	2,147,781	941,856	4,324,025	57,814	96,224	40,895	4,518,958
2016	1,195,198	2,081,069	893,585	4,169,852	53,515	92,270	41,341	4,356,978
2015	1,136,102	1,980,353	819,201	3,935,656	53,338	84,990	40,205	4,114,189
2014	1,081,866	1,874,636	754,706	3,711,208	50,467	78,412	37,984	3,878,071
2013	1,024,464	1,788,548	703,207	3,516,219	47,884	71,638	36,800	3,672,541
2012	961,209	1,654,377	641,773	3,257,359	46,113	64,849	33,454	3,401,775
2011	931,893	1,599,208	594,671	3,125,772	46,259	59,749	32,115	3,263,895

SCHEDULE OF RETIREMENT BENEFITS BY TYPE

FISCAL YEARS 2011-2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Service Benefits	Disability Benefits	Survivor Benefits	Total
STATE				
2020	\$ 1,344,216	\$ 66,004	\$ 17,653	\$ 1,427,873
2019	1,277,123	66,909	16,801	1,360,833
2018	1,212,167	68,343	16,295	1,296,805
2017	1,146,792	72,148	15,448	1,234,388
2016	1,105,788	74,127	15,283	1,195,198
2015	1,048,497	73,490	14,115	1,136,102
2014	994,111	74,245	13,510	1,081,866
2013	937,148	74,353	12,963	1,024,464
2012	874,606	74,558	12,045	961,209
2011	845,009	75,395	11,489	931,893
TEACHER				
2020	\$ 2,325,036	\$ 112,702	\$ 10,466	\$ 2,448,204
2019	2,210,585	110,690	9,763	2,331,038
2018	2,122,961	109,420	9,546	2,241,927
2017	2,030,384	108,142	9,255	2,147,781
2016	1,965,675	106,580	8,814	2,081,069
2015	1,867,670	104,305	8,378	1,980,353
2014	1,764,792	101,720	8,124	1,874,636
2013	1,682,021	98,767	7,760	1,788,548
2012	1,551,557	95,498	7,322	1,654,377
2011	1,498,877	93,450	6,881	1,599,208

SCHEDULE OF RETIREMENT BENEFITS BY TYPE, cont.

FISCAL YEARS 2011-2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Service Benefits	Disability Benefits	Survivor Benefits	Total
POLITICAL SUBDIVISIONS				
2020	\$ 1,000,280	\$ 146,763	\$ 10,462	\$ 1,157,505
2019	930,161	142,828	9,804	1,082,793
2018	861,564	139,170	9,285	1,010,019
2017	797,794	135,025	9,037	941,856
2016	752,038	132,240	9,307	893,585
2015	685,530	125,992	7,679	819,201
2014	625,221	122,362	7,123	754,706
2013	578,105	118,023	7,079	703,207
2012	521,682	113,610	6,481	641,773
2011	477,944	110,750	5,977	594,671
TOTAL VIRGINIA RETIREMENT SYSTEM (VRS)				
2020	\$ 4,669,532	\$ 325,469	\$ 38,581	\$ 5,033,582
2019	4,417,869	320,427	36,368	4,774,664
2018	4,196,692	316,933	35,126	4,548,751
2017	3,974,970	315,315	33,740	4,324,025
2016	3,823,501	312,947	33,404	4,169,852
2015	3,601,697	303,787	30,172	3,935,656
2014	3,384,124	298,327	28,757	3,711,208
2013	3,197,274	291,143	27,802	3,516,219
2012	2,947,845	283,666	25,848	3,257,359
2011	2,821,830	279,595	24,347	3,125,772
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)				
2020	\$ 56,996	\$ 7,230	\$ 765	\$ 64,991
2019	55,125	6,892	666	62,683
2018	50,901	6,644	652	58,197
2017	50,708	6,523	583	57,814
2016	46,429	6,447	639	53,515
2015	46,426	6,392	520	53,338
2014	43,693	6,270	504	50,467
2013	41,254	6,128	502	47,884
2012	39,626	6,011	476	46,113
2011	39,828	5,983	448	46,259

SCHEDULE OF RETIREMENT BENEFITS BY TYPE, cont.

FISCAL YEARS 2010-2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Service Benefits	Disability Benefits	Survivor Benefits	Total
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)				
2020	\$ 111,821	\$ 4,412	\$ 903	\$ 117,136
2019	104,023	4,312	858	109,193
2018	99,748	4,227	801	104,776
2017	91,364	4,141	719	96,224
2016	87,538	4,013	719	92,270
2015	80,663	3,728	599	84,990
2014	74,291	3,549	572	78,412
2013	67,715	3,380	543	71,638
2012	61,128	3,246	475	64,849
2011	56,409	2,910	430	59,749
JUDICIAL RETIREMENT SYSTEM (JRS)				
2020	\$ 45,056	\$ 241	\$ 1,248	\$ 46,545
2019	42,091	235	1,258	43,584
2018	39,725	229	1,211	41,165
2017	39,406	335	1,154	40,895
2016	39,806	387	1,148	41,341
2015	38,632	401	1,172	40,205
2014	36,396	402	1,186	37,984
2013	35,289	394	1,117	36,800
2012	31,963	413	1,078	33,454
2011	30,635	463	1,017	32,115

SCHEDULE OF REFUNDS BY TYPE

FISCAL YEARS 2011-2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Separation	Death	Total
STATE (VRS)			
2020	\$ 19,539	\$ 7,888	\$ 27,427
2019	20,068	6,829	26,897
2018	22,114	8,122	30,236
2017	23,294	7,543	30,837
2016	18,623	6,617	25,240
2015	20,768	6,956	27,724
2014	19,662	5,374	25,036
2013	14,980	5,114	20,094
2012	17,664	5,199	22,863
2011	20,832	5,485	26,317

SCHEDULE OF REFUNDS BY TYPE, cont.

FISCAL YEARS 2011-2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Separation	Death	Total
TEACHER (VRS)			
2020	\$ 30,131	\$ 6,080	\$ 36,211
2019	31,115	5,600	36,715
2018	34,057	6,521	40,578
2017	34,320	5,201	39,521
2016	30,070	4,997	35,067
2015	30,314	5,744	36,058
2014	30,947	5,156	36,103
2013	23,406	4,746	28,152
2012	26,823	3,645	30,468
2011	32,560	4,021	36,581
POLITICAL SUBDIVISIONS (VRS)			
2020	\$ 32,399	\$ 5,924	\$ 38,323
2019	35,015	5,234	40,249
2018	35,900	5,425	41,325
2017	37,717	4,351	42,068
2016	32,832	4,548	37,380
2015	31,571	5,327	36,898
2014	32,483	4,393	36,876
2013	24,908	4,434	29,342
2012	27,205	4,041	31,246
2011	29,647	3,664	33,311
TOTAL VIRGINIA RETIREMENT SYSTEM (VRS)			
2020	\$ 82,069	\$ 19,892	\$ 101,961
2019	86,198	17,663	103,861
2018	92,071	20,068	112,139
2017	97,042	17,095	114,137
2016	83,282	16,162	99,444
2015	82,966	18,027	100,993
2014	83,126	14,923	98,049
2013	63,294	14,294	77,588
2012	71,692	12,885	84,577
2011	83,039	13,170	96,209

SCHEDULE OF REFUNDS BY TYPE, cont.

FISCAL YEARS 2011-2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Separation	Death	Total
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)			
2020	\$ 316	\$ 236	\$ 552
2019	774	31	805
2018	573	294	867
2017	601	29	630
2016	405	179	584
2015	325	50	375
2014	685	—	685
2013	243	121	364
2012	303	16	319
2011	273	6	279
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)			
2020	\$ 4,497	\$ 396	\$ 4,893
2019	4,592	341	4,933
2018	4,899	705	5,604
2017	4,694	244	4,938
2016	3,688	836	4,524
2015	4,465	332	4,797
2014	4,340	325	4,665
2013	3,157	429	3,586
2012	3,673	354	4,027
2011	3,904	147	4,051
JUDICIAL RETIREMENT SYSTEM (JRS)			
2020	\$ —	\$ 12	\$ 12
2019	—	—	—
2018	—	—	—
2017	—	—	—
2016	—	—	—
2015	—	—	—
2014	—	—	—
2013	—	—	—
2012	—	—	—
2011	5	—	5

SCHEDULE OF RETIREES AND BENEFICIARIES BY TYPE OF RETIREMENT

AS OF JUNE 30, 2020

Minimum Guaranteed Benefit Amount	Number of Retirees	Type of Retirement		
		Service Retirement	Disability Retirement	Pre-Retirement Death
\$ 1-200	13,235	12,280	394	561
201-400	21,981	19,847	1,556	578
401-600	19,746	17,111	2,216	419
601-800	16,953	14,444	2,203	306
801-1,000	15,661	13,419	2,007	235
1,001-1,200	14,441	12,552	1,709	180
1,201-1,400	12,403	10,842	1,410	151
1,401-1,600	11,719	10,498	1,110	111
1,601-1,800	11,187	10,171	944	72
1,801-2,000	11,682	10,795	786	101
2,001-2,500	25,901	24,339	1,415	147
2,501-3,000	16,990	16,186	729	75
3,001-3,500	10,780	10,368	359	53
3,501-4,000	6,304	6,135	139	30
4,001-4,500	4,033	3,939	77	17
Over 4,500	6,097	6,005	58	34
Totals	219,113	198,931	17,112	3,070

SCHEDULE OF RETIREES AND BENEFICIARIES BY TYPE OF RETIREMENT AND PLAN

AS OF JUNE 30, 2020

Plan	Number of Retirees	Type of Retirement		
		Service Retirement	Disability Retirement	Pre-Retirement Death
VRS – State	59,554	54,723	3,581	1,250
VRS – Teacher	94,755	89,008	5,006	741
VRS – Political Subdivisions	57,671	48,673	8,095	903
SPORS	1,423	1,182	200	41
ValORS	5,176	4,842	223	111
JRS	534	503	7	24
All Plans	219,113	198,931	17,112	3,070

SCHEDULE OF RETIREES AND BENEFICIARIES BY PAYOUT OPTION SELECTED

AS OF JUNE 30, 2020

Minimum Guaranteed Benefit Amount	Payout Option Selected							
	Basic Benefit	Survivor Option	PLOP with Basic Benefit	PLOP with Survivor Option	Advance Pension Option	Leveling Option	Increased Basic Benefit	Social Security Leveling Benefit
\$ 1-200	9,956	2,012	272	41	192	447	8	307
201-400	17,019	3,291	575	98	267	434	4	293
401-600	15,046	3,021	609	127	229	352	3	359
601-800	12,821	2,503	632	116	231	303	8	339
801-1,000	11,375	2,339	731	166	244	370	3	433
1,001-1,200	9,983	2,235	1,023	222	283	249	0	446
1,201-1,400	8,354	1,919	1,144	222	253	179	0	332
1,401-1,600	7,606	1,783	1,475	294	202	128	0	231
1,601-1,800	7,111	1,608	1,683	343	221	88	0	133
1,801-2,000	7,275	1,496	2,101	436	207	68	0	99
2,001-2,500	14,688	3,180	6,470	966	412	79	0	106
2,501-3,000	9,544	1,999	4,457	637	271	35	0	47
3,001-3,500	5,790	1,557	2,758	483	169	10	0	13
3,501-4,000	3,483	902	1,515	276	122	4	0	2
4,001-4,500	2,137	640	994	194	66	1	0	1
Over 4,500	3,144	1,384	1,111	372	79	2	0	5
Totals	145,332	31,869	27,550	4,993	3,448	2,749	26	3,146

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

FOR RETIREMENTS EFFECTIVE JULY 1, 2011, TO JUNE 30, 2020

			Years of Credited Service					
			1-10	11-15	16-20	21-25	26-30	Over 30
FY 2020	State	Average Monthly Benefit	\$ 654.02	\$ 984.34	\$ 1,311.22	\$ 1,872.61	\$ 2,460.80	\$ 3,323.14
		Number of Active Retirees	382	397	401	325	415	1,002
		Average AFC	\$ 50,021.38	\$ 55,053.57	\$ 52,571.08	\$ 60,413.38	\$ 62,656.41	\$ 68,789.87
	Teacher	Average Monthly Benefit	\$ 486.13	\$ 865.93	\$ 1,316.79	\$ 1,846.00	\$ 2,713.81	\$ 3,340.62
		Number of Active Retirees	451	625	721	617	839	992
		Average Benefit	\$ 41,230.05	\$ 50,874.1	\$ 56,958.75	\$ 63,197.88	\$ 70,243.56	\$ 74,914.36
	Political Subdivisions	Average Monthly Benefit	\$ 474.58	\$ 754.72	\$ 1,155.81	\$ 1,717.05	\$ 2,542.99	\$ 3,322.17
		Number of Active Retirees	576	546	602	506	538	577
		Average Benefit	\$ 37,276.05	\$ 42,185.67	\$ 49,206.57	\$ 55,027.95	\$ 64,091.24	\$ 73,794.49
	Total VRS	Average Monthly Benefit	\$ 527.00	\$ 857.00	\$ 1,259.00	\$ 1,807.00	\$ 2,603.93	\$ 3,329.66
		Number of Active Retirees	1,409	1,568	1,724	1,448	1,792	2,571
		Weighted Average AFC	\$ 41,997	\$ 48,907	\$ 53,231	\$ 59,718	\$ 66,639	\$ 72,276
	SPORS	Average Monthly Benefit	\$ —	\$ 1,082.49	\$ 1,598.18	\$ 2,968.10	\$ 3,262.20	\$ 4,753.84
		Number of Active Retirees	—	3	6	3	15	21
		Average Benefit	\$ —	\$ 61,959.94	\$ 60,268.35	\$ 74,259.53	\$ 78,750.91	\$ 97,682.52
	VaLORS	Average Monthly Benefit	\$ 494.08	\$ 789.70	\$ 1,144.94	\$ 1,492.00	\$ 1,884.22	\$ 2,710.04
		Number of Active Retirees	29	39	61	82	45	22
		Average Benefit	\$ 35,862.33	\$ 39,996.68	\$ 42,574.08	\$ 46,019.45	\$ 49,167.93	\$ 65,649.72
	JRS	Average Monthly Benefit	\$ 1,471.81	\$ 1,455.31	\$ —	\$ —	\$ 5,506.51	\$ 8,830.85
		Number of Active Retirees	2	1	—	—	1	26
		Average Benefit	\$ 154,667	\$ 152,410.31	\$ —	\$ —	\$ 154,819.57	\$ 169,367.62
All Plans	Average Monthly Benefit	\$ 528.00	\$ 856.00	\$ 1,257.00	\$ 1,792.00	\$ 2,593.35	\$ 3,390.01	
	Number of Active Retirees	1,440	1,611	1,791	1,533	1,853	2,640	
	Weighted Average AFC	\$ 42,030	\$ 48,780	\$ 52,892	\$ 59,014	\$ 66,361	\$ 73,379	
FY 2019	State	Average Monthly Benefit	\$ 556.77	\$ 1,130.53	\$ 2,220.79	\$ 3,096.43	\$ 4,017.05	\$ 6,231.70
		Number of Active Retirees	425	843	738	680	242	5
		Average AFC	\$ 48,438.21	\$ 53,122.77	\$ 60,109.13	\$ 67,482.06	\$ 73,075.21	\$ 92,173.89
	Teacher	Average Monthly Benefit	\$ 476.86	\$ 1,065.89	\$ 2,315.80	\$ 3,207.99	\$ 4,293.18	\$ 4,423.04
		Number of Active Retirees	490	1,485	1,416	871	132	4
		Average Benefit	\$ 41,487.37	\$ 52,765.27	\$ 66,479.2	\$ 73,634.63	\$ 83,052.23	\$ 79,395.87
	Political Subdivisions	Average Monthly Benefit	\$ 442.07	\$ 906.12	\$ 2,142.88	\$ 2,887.59	\$ 3,729.12	\$ 5,607.75
		Number of Active Retirees	554	1,027	1,023	543	72	2
		Average Benefit	\$ 34,890.16	\$ 43,392.24	\$ 59,749.44	\$ 66,564.07	\$ 75,715.07	\$ 81,452.4
	Total VRS	Average Monthly Benefit	\$ 486.86	\$ 1,033.22	\$ 2,238.05	\$ 3,088.68	\$ 4,052.29	\$ 5,460.56
		Number of Active Retirees	1,469	3,355	3,177	2,094	446	11
		Weighted Average AFC	\$ 41,010.35	\$ 49,985.92	\$ 62,832.47	\$ 69,803.18	\$ 76,454.22	\$ 85,577.98
	SPORS	Average Monthly Benefit	\$ —	\$ 1,677.61	\$ 3,040.45	\$ 4,156.60	\$ 5,375.07	\$ —
		Number of Active Retirees	—	2	24	26	6	—
		Average Benefit	\$ —	\$ 56,913.25	\$ 75,116.44	\$ 89,192.84	\$ 102,437.81	\$ —
	VaLORS	Average Monthly Benefit	\$ 480.85	\$ 983.78	\$ 1,644.12	\$ 2,774.46	\$ 4,785.22	\$ —
		Number of Active Retirees	23	129	121	25	3	—
		Average Benefit	\$ 40,863.42	\$ 40,995.09	\$ 47,746.88	\$ 60,974.57	\$ 83,333.98	\$ —
	JRS	Average Monthly Benefit	\$ 422.28	\$ —	\$ 6,166.24	\$ 7,382.26	\$ 7,546.48	\$ 8,028.31
		Number of Active Retirees	2	—	1	3	5	8
		Average Benefit	\$ 91,640	\$ —	\$ 168,489.58	\$ 162,497.43	\$ 155,159.32	\$ 157,977.8
All Plans	Average Monthly Benefit	\$ 486.68	\$ 1,031.76	\$ 2,223.40	\$ 3,103.94	\$ 4,112.31	\$ 6,541.72	
	Number of Active Retirees	1,494	3,486	3,323	2,148	460	19	
	Weighted Average AFC	\$ 41,075.86	\$ 49,657.19	\$ 62,403.68	\$ 70,064.58	\$ 77,693.49	\$ 116,062.11	

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

FOR RETIREMENTS EFFECTIVE JULY 1, 2011, TO JUNE 30, 2020

			Years of Credited Service					
			1-10	11-15	16-20	21-25	26-30	Over 30
FY 2018	State	Average Monthly Benefit	\$ 430.51	\$ 743.61	\$ 1,115.65	\$ 1,492.54	\$ 2,155.74	\$ 3,201.83
		Number of Active Retirees	329	382	437	329	413	1,226
		Average AFC	\$ 46,191.00	\$ 51,341.00	\$ 51,470.00	\$ 56,655.00	\$ 59,536.00	\$ 70,115.00
	Teacher	Average Monthly Benefit	\$ 397.48	\$ 702.13	\$ 1,164.24	\$ 1,605.86	\$ 2,411.89	\$ 3,225.68
		Number of Active Retirees	478	647	802	653	782	1,424
		Average Benefit	\$ 39,946.00	\$ 47,785.00	\$ 55,420.00	\$ 58,933.00	\$ 65,809.00	\$ 73,067.00
	Political Subdivisions	Average Monthly Benefit	\$ 348.9	\$ 619.09	\$ 889.04	\$ 1,452.77	\$ 2,234.06	\$ 2,986.58
		Number of Active Retirees	471	644	583	523	595	877
		Average Benefit	\$ 35,320.00	\$ 40,381.00	\$ 42,941.00	\$ 53,511.00	\$ 61,134.00	\$ 68,504.00
	Total VRS	Average Monthly Benefit	\$ 388.08	\$ 679.64	\$ 1,064.53	\$ 1,527.89	\$ 2,293.68	\$ 3,157.94
		Number of Active Retirees	1,278	1,673	1,822	1,505	1,790	3,527
		Weighted Average AFC	\$ 39,849.00	\$ 45,747.00	\$ 50,480.00	\$ 56,551.00	\$ 62,808.00	\$ 70,906.00
	SPORS	Average Monthly Benefit	\$ —	\$ 467.23	\$ —	\$ 1,344.71	\$ 2,929.29	\$ 4,355.99
		Number of Active Retirees	—	2	—	4	16	22
		Average Benefit	\$ —	\$ 54,484.00	\$ —	\$ 60,252.00	\$ 75,772.00	\$ 92,743.00
	VaLORS	Average Monthly Benefit	\$ 457.08	\$ 706.48	\$ 1,001.35	\$ 1,231.97	\$ 1,846.1	\$ 2,624.09
		Number of Active Retirees	22	51	63	131	81	41
		Average Benefit	\$ 37,163.00	\$ 37,664.00	\$ 40,782.00	\$ 44,121.00	\$ 51,789.00	\$ 59,481.00
	JRS	Average Monthly Benefit	\$ —	\$ 2,287.69	\$ —	\$ —	\$ 2,020.72	\$ 7,766.95
		Number of Active Retirees	—	1	—	—	3	14
		Average Benefit	\$ —	\$ 148,351.00	\$ —	\$ —	\$ 149,709.00	\$ 158,830.00
All Plans	Average Monthly Benefit	\$ 389.25	\$ 681.11	\$ 1,062.42	\$ 1,503.79	\$ 2,279.44	\$ 3,177.07	
	Number of Active Retirees	1,300	1,727	1,885	1,640	1,890	3,604	
	Weighted Average AFC	\$ 39,803.00	\$ 45,578.00	\$ 50,155.00	\$ 55,567.00	\$ 62,583.00	\$ 71,251.00	
FY 2017	State	Average Monthly Benefit	\$ 413.21	\$ 743.04	\$ 1,034.43	\$ 1,550.8	\$ 2,059.13	\$ 3,066.54
		Number of Active Retirees	320	374	414	338	374	1,200
		Average AFC	\$ 45,412.00	\$ 49,487.00	\$ 48,208.00	\$ 58,190.00	\$ 56,901.00	\$ 65,405.00
	Teacher	Average Monthly Benefit	\$ 386.27	\$ 693.17	\$ 1,093.01	\$ 1,571.09	\$ 2,414.56	\$ 3,132.83
		Number of Active Retirees	444	644	772	656	756	1,369
		Average Benefit	\$ 39,773.00	\$ 45,512.00	\$ 52,398.00	\$ 58,570.00	\$ 65,087.00	\$ 70,892.00
	Political Subdivisions	Average Monthly Benefit	\$ 350.60	\$ 553.85	\$ 886.92	\$ 1,351.87	\$ 2,211.27	\$ 2,813.82
		Number of Active Retirees	493	590	562	482	591	813
		Average Benefit	\$ 33,216.00	\$ 35,209.00	\$ 41,290	\$ 48,136.00	\$ 59,764.00	\$ 65,487.00
	Total VRS	Average Monthly Benefit	\$ 379.14	\$ 653.66	\$ 1,012.88	\$ 1,494.85	\$ 2,267.51	\$ 3,032.62
		Number of Active Retirees	1,257	1,608	1,748	1,476	1,721	3,382
		Weighted Average AFC	\$ 38,637.00	\$ 42,656.00	\$ 47,834.00	\$ 55,076.00	\$ 61,480.00	\$ 67,646.00
	SPORS	Average Monthly Benefit	\$ 599.64	\$ 639.34	\$ —	\$ 1,826.61	\$ 2,960.46	\$ 3,905.67
		Number of Active Retirees	1	4	—	3	23	47
		Average Benefit	\$ 55,565	\$ 46,014	\$ —	\$ 58,898	\$ 74,016.00	\$ 85,256.00
	VaLORS	Average Monthly Benefit	\$ 444.50	\$ 653.93	\$ 1,032.94	\$ 1,318.83	\$ 1,788.27	\$ 2,564.74
		Number of Active Retirees	17	44	45	107	82	38
		Average Benefit	\$ 35,913.00	\$ 36,428.00	\$ 41,026.00	\$ 43,808.00	\$ 47,182.00	\$ 58,498.00
	JRS	Average Monthly Benefit	\$ —	\$ 511.79	\$ —	\$ 2,608.35	\$ 4,863.62	\$ 8,352.50
		Number of Active Retirees	—	2	—	2	2	14
		Average Benefit	\$ —	\$ 142,367.00	\$ —	\$ 147,295.00	\$ 156,110.00	\$ 153,865.00

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

FOR RETIREMENTS EFFECTIVE JULY 1, 2011, TO JUNE 30, 2020

			Years of Credited Service					
			1-10	11-15	16-20	21-25	26-30	Over 30
FY 2017	All Plans	Average Monthly Benefit	\$ 380.18	\$ 653.46	\$ 1,013.37	\$ 1,485.01	\$ 2,257.56	\$ 3,060.69
		Number of Active Retirees	1,275	1,658	1,793	1,588	1,828	3,481
		Weighted Average AFC	\$ 38,614.00	\$ 42,619.00	\$ 47,663.00	\$ 54,440.00	\$ 61,100.00	\$ 68,130.00
FY 2016*	State	Average Monthly Benefit	\$ 401.55	\$ 768.31	\$ 1,038.35	\$ 1,539.86	\$ 1,907.73	\$ 3,004.64
		Number of Active Retirees	315	318	357	307	411	1,307
		Average AFC	\$ 43,993.00	\$ 49,585.00	\$ 49,392.00	\$ 55,174.00	\$ 54,986.00	\$ 64,126.00
	Teacher	Average Monthly Benefit	\$ 432.49	\$ 746.26	\$ 1,115.50	\$ 1,606.80	\$ 2,436.89	\$ 3,078.52
		Number of Active Retirees	484	681	699	671	797	1,468
		Average AFC	\$ 42,306	\$ 49,610	\$ 54,438	\$ 58,555	\$ 65,786.00	\$ 70,336.00
	Political Subdivisions	Average Monthly Benefit	\$ 320.69	\$ 562.57	\$ 895.21	\$ 1,252.95	\$ 2,082.39	\$ 2,946.00
		Number of Active Retirees	545	569	556	473	647	895
		Average AFC	\$ 31,052.00	\$ 38,544.00	\$ 41,480.00	\$ 45,989.00	\$ 58,617.00	\$ 68,431.00
	Total VRS	Average Monthly Benefit	\$ 379.90	\$ 684.08	\$ 1,022.44	\$ 1,477.29	\$ 2,196.01	\$ 3,019.89
		Number of Active Retirees	1,344	1,568	1,612	1,451	1,855	3,670
		Weighted Average AFC	\$ 38,138.00	\$ 45,589.00	\$ 48,851.00	\$ 53,743.00	\$ 60,893.00	\$ 67,660.00
	SPORS	Average Monthly Benefit	\$ —	\$ 139.46	\$ 864.59	\$ 1,538.59	\$ 2,960.02	\$ 4,092.02
		Number of Active Retirees	—	2	2	5	11	18
		Average AFC	\$ —	\$ 24,869.00	\$ 53,438.00	\$ 62,731.00	\$ 75,082.00	\$ 92,720.00
	VaLORS	Average Monthly Benefit	\$ 372.46	\$ 619.25	\$ 946.46	\$ 1,203.56	\$ 1,596.89	\$ 2,458.85
		Number of Active Retirees	29	26	48	90	79	51
		Average AFC	\$ 39,019	\$ 37,606	\$ 39,308	\$ 43,542.00	\$ 45,962.00	\$ 55,791.00
	JRS	Average Monthly Benefit	\$ —	\$ —	\$ —	\$ 4,396.22	\$ 5,647.58	\$ 8,048.62
		Number of Active Retirees	—	—	—	1	1	17
		Average AFC	\$ —	\$ —	\$ —	\$ 146,295.00	\$ 146,294.00	\$ 154,562.00
All Plans	Average Monthly Benefit	\$ 379.74	\$ 682.34	\$ 1,020.04	\$ 1,463.44	\$ 2,177.77	\$ 3,040.16	
	Number of Active Retirees	1,373	1,596	1,662	1,547	1,946	3,756	
	Weighted Average AFC	\$ 38,156.00	\$ 45,433.00	\$ 48,581.00	\$ 53,239.00	\$ 60,411.00	\$ 68,012.00	
FY 2015	State	Average Monthly Benefit	\$ 392.12	\$ 694.37	\$ 1,030.11	\$ 1,446.53	\$ 1,930.58	\$ 3,016.49
		Number of Active Retirees	329	327	369	301	388	1,170
	Teacher	Average Monthly Benefit	\$ 381.68	\$ 714.22	\$ 1,066.14	\$ 1,541.72	\$ 2,476.42	\$ 3,096.71
		Number of Active Retirees	559	669	696	704	732	1,453
	Political Subdivisions	Average Monthly Benefit	\$ 330.59	\$ 513.35	\$ 843.1	\$ 1,254.45	\$ 2,059.4	\$ 2,708.39
		Number of Active Retirees	592	620	478	458	572	846
	Total VRS	Average Monthly Benefit	\$ 363.56	\$ 633.14	\$ 988.43	\$ 1,432.21	\$ 2,210.28	\$ 2,974.96
		Number of Active Retirees	1,480	1,616	1,543	1,463	1,692	3,469
	SPORS	Average Monthly Benefit	\$ 1,078.6	\$ 969.65	\$ —	\$ 2,506.63	\$ 2,539.27	\$ 3,697.36
		Number of Active Retirees	1	1	—	2	16	34
	VaLORS	Average Monthly Benefit	\$ 455.8	\$ 585.05	\$ 946.2	\$ 1,161.28	\$ 1,715.68	\$ 2,141.37
		Number of Active Retirees	23	50	52	95	93	56
	JRS	Average Monthly Benefit	\$ —	\$ —	\$ —	\$ —	\$ 5,408.75	\$ 7,674.09
		Number of Active Retirees	—	—	—	—	1	31
	All Plans	Average Monthly Benefit	\$ 365.45	\$ 631.90	\$ 987.05	\$ 1,417.08	\$ 2,189.44	\$ 3,009.36
		Number of Active Retirees	1,504	1,667	1,595	1,560	1,802	3,590

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

FOR RETIREMENTS EFFECTIVE JULY 1, 2011, TO JUNE 30, 2020

			Years of Credited Service						
			1-10	11-15	16-20	21-25	26-30	Over 30	
FY 2014	State	Average Monthly Benefit	\$ 374.40	\$ 674.96	\$ 1,035.41	\$ 1,308.58	\$ 1,913.24	\$ 2,766.37	
		Number of Active Retirees	341	363	299	315	333	1,185	
	Teacher	Average Monthly Benefit	\$ 408.27	\$ 701.52	\$ 1,083.91	\$ 1,559.04	\$ 2,383.18	\$ 3,055.18	
		Number of Active Retirees	604	651	611	690	804	1,463	
	Political Subdivisions	Average Monthly Benefit	\$ 308.87	\$ 542.75	\$ 855.38	\$ 1,248.49	\$ 2,007.63	\$ 2,668.41	
		Number of Active Retirees	569	563	456	448	524	676	
	Total VRS	Average Monthly Benefit	\$ 363.28	\$ 638.73	\$ 997.01	\$ 1,408.99	\$ 2,170.49	\$ 2,873.56	
		Number of Active Retirees	1,514	1,577	1,366	1,453	1,661	3,324	
	SPORS	Average Monthly Benefit	\$ —	\$ —	\$ 615.19	\$ 1,631.99	\$ 2,809.19	\$ 3,597.68	
		Number of Active Retirees	—	—	1	2	10	28	
	VaLORS	Average Monthly Benefit	\$ 383.32	\$ 695.40	\$ 899.70	\$ 1,133.65	\$ 1,700.98	\$ 2,537.26	
		Number of Active Retirees	25	29	45	75	72	36	
	JRS	Average Monthly Benefit	\$ —	\$ —	\$ —	\$ —	\$ 5,051.59	\$ 7,400.90	
		Number of Active Retirees	—	—	—	—	3	22	
	All Plans	Average Monthly Benefit	\$ 363.61	\$ 639.75	\$ 993.63	\$ 1,395.78	\$ 2,159.73	\$ 2,905.16	
		Number of Active Retirees	1,539	1,606	1,412	1,530	1,746	3,410	
	FY 2013**	State	Average Monthly Benefit	\$ 373.47	\$ 636.41	\$ 1,035.61	\$ 1,362.08	\$ 1,881.63	\$ 2,813.81
			Number of Active Retirees	291	299	261	283	340	1,086
Teacher		Average Monthly Benefit	\$ 429.20	\$ 689.55	\$ 1,128.94	\$ 1,537.48	\$ 2,304.17	\$ 2,915.42	
		Number of Active Retirees	531	574	536	636	747	1,672	
Political Subdivisions		Average Monthly Benefit	\$ 295.20	\$ 525.24	\$ 803.27	\$ 1,220.49	\$ 1,920.03	\$ 2,666.07	
		Number of Active Retirees	562	512	396	394	496	753	
Total VRS		Average Monthly Benefit	\$ 363.12	\$ 617.34	\$ 1,000.42	\$ 1,404.56	\$ 2,093.05	\$ 2,830.51	
		Number of Active Retirees	1,384	1,385	1,193	1,313	1,583	3,511	
SPORS		Average Monthly Benefit	\$ —	\$ —	\$ —	\$ 2,263.68	\$ 2,752.85	\$ 3,282.00	
		Number of Active Retirees	—	—	—	3	10	17	
VaLORS		Average Monthly Benefit	\$ 332.59	\$ 632.67	\$ 883.09	\$ 1,223.64	\$ 1,709.19	\$ 2,246.63	
		Number of Active Retirees	29	30	39	67	70	49	
JRS		Average Monthly Benefit	\$ —	\$ —	\$ 3,645.63	\$ 4,738.37	\$ —	\$ 7,490.90	
		Number of Active Retirees	—	—	3	1	—	28	
All Plans		Average Monthly Benefit	\$ 362.24	\$ 617.66	\$ 1,003.13	\$ 1,400.06	\$ 2,080.06	\$ 2,860.90	
		Number of Active Retirees	1,413	1,415	1,235	1,384	1,663	3,605	
FY 2012		All Plans	Average Monthly Benefit	\$ 349.17	\$ 628.04	\$ 950.15	\$ 1,360.69	\$ 2,149.70	\$ 2,843.02
			Number of Active Retirees	1,331	1,309	1,176	1,273	1,453	3,367
FY 2011	All Plans	Average Monthly Benefit	\$ 346.15	\$ 590.10	\$ 923.89	\$ 1,364.97	\$ 2,058.50	\$ 2,791.19	
		Number of Active Retirees	1,218	1,196	1,164	1,383	1,637	4,318	

* Average Final Compensation (AFC) information was not available prior to fiscal year 2016.

** Fiscal year 2013 is the first year for which information is available to support this detailed presentation by plan.

FIGURE 5.6: DISTRIBUTION OF RETIREES BY PAYOUT OPTION SELECTED

ALL RETIREES AT JUNE 30, 2020

	Basic Benefit	Survivor Option	PLOP with Basic Benefit	PLOP with Survivor Option	Advance Pension Option	Total
VRS – State	59.46%	18.69%	12.33%	3.07%	6.45%	100.00%
VRS – Teacher	70.75%	10.01%	13.51%	1.36%	4.37%	100.00%
VRS – Political Subdivisions	67.65%	16.75%	10.91%	2.60%	2.09%	100.00%
SPORS	41.68%	33.59%	15.25%	8.92%	0.56%	100.00%
VaLORS	60.57%	16.73%	15.90%	3.42%	3.38%	100.00%
JRS	24.54%	47.00%	12.55%	14.04%	1.87%	100.00%
All Plans	69.00%	14.00%	12.00%	2.00%	3.00%	100.00%

FISCAL YEAR 2020 RETIREES

	Basic Benefit	Survivor Option	PLOP with Basic Benefit	PLOP with Survivor Option	Advance Pension Option	Total
VRS – State	62.56%	14.44%	17.25%	3.39%	2.36%	100.00%
VRS – Teacher	71.00%	9.09%	17.46%	1.63%	0.82%	100.00%
VRS – Political Subdivisions	67.20%	12.74%	15.96%	2.81%	1.29%	100.00%
SPORS	43.75%	12.50%	33.33%	10.42%	0.00%	100.00%
VaLORS	63.67%	11.87%	19.06%	1.44%	3.96%	100.00%
JRS	36.66%	26.67%	20.00%	16.67%	0.00%	100.00%
All Plans	66.00%	11.00%	17.00%	2.00%	4.00%	100.00%

Benefit Payout Options

Basic Benefit. The Basic Benefit is based on the unreduced (normal) retirement benefit calculation. It does not provide for a continuation of a benefit to a survivor. Upon the member's death, any remaining member contributions and accrued interest are paid in a lump sum to the member's beneficiary.

Survivor Option. Members may choose a whole percentage of their benefit, between 10% and 100%, to continue as a lifetime benefit to a survivor upon their death. The member's benefit is actuarially reduced accordingly.

Basic Benefit With Partial Lump-Sum Option Payment (PLOP) and Survivor Option With PLOP. This option is available with the Basic Benefit or Survivor Option. Members who are in active service for one or more years beyond their eligibility for an unreduced retirement benefit are eligible to elect a partial lump-sum payment of their member contributions and accrued interest equal to one, two or three times their annual retirement benefit, depending on how long they work beyond their unreduced retirement eligibility. The monthly benefit is actuarially reduced accordingly.

Advance Pension Option. With this option, members elect to receive a temporary higher benefit that begins at retirement and continues until an age chosen by the member, between age 62 up to the normal retirement age under Social Security. At that point, the monthly benefit is permanently reduced on an actuarially equivalent basis.

FIGURE 5.7: DISTRIBUTION OF RETIREES BY YEARS OF SERVICE

ALL RETIREES AT JUNE 30, 2020

	1-10 Years	11-20 Years	21-30 Years	31-40 Years	41-50 Years	Over 50 Years	Total
VRS – State	19.40%	21.56%	27.84%	26.62%	4.49%	0.09%	100.00%
VRS – Teacher	13.20%	23.64%	33.84%	27.61%	1.69%	0.02%	100.00%
VRS – Political Subdivisions	24.15%	28.40%	30.30%	15.95%	1.17%	0.03%	100.00%
SPORS	14.82%	3.72%	32.34%	43.50%	5.48%	0.14%	100.00%
VaLORS	13.65%	27.90%	46.97%	10.90%	0.56%	0.02%	100.00%
JRS	22.28%	2.25%	6.37%	9.93%	14.23%	44.94%	100.00%
All Plans	17.81%	24.25%	31.51%	23.94%	2.34%	0.15%	100.00%

FISCAL YEAR 2020 RETIREES

	1-10 Years	11-20 Years	21-30 Years	31-40 Years	41-50 Years	Over 50 Years	Total
VRS – State	13.10%	27.31%	25.36%	23.79%	10.13%	0.31%	100.00%
VRS – Teacher	10.64%	31.85%	34.28%	19.74%	3.44%	0.05%	100.00%
VRS – Political Subdivisions	17.31%	34.26%	31.24%	14.77%	2.36%	0.06%	100.00%
SPORS	0.00%	18.75%	37.50%	37.50%	6.25%	0.00%	100.00%
VaLORS	10.44%	35.97%	46.04%	6.47%	1.08%	0.00%	100.00%
JRS	6.67%	3.33%	3.33%	16.67%	40.00%	30.00%	100.00%
All Plans	13.48%	31.34%	31.17%	19.03%	4.96%	0.02%	100.00%

FIGURE 5.8: DISTRIBUTION OF RETIREES BY AGE AT RETIREMENT

ALL RETIREES AT JUNE 30, 2020

	Under 55	55-59	60-65	Over Age 65	Total
VRS – State	16.49%	21.61%	34.29%	27.61%	100.00%
VRS – Teacher	14.12%	33.51%	34.17%	18.20%	100.00%
VRS – Political Subdivisions	24.14%	19.90%	30.62%	25.34%	100.00%
SPORS	54.66%	29.73%	11.60%	4.01%	100.00%
VaLORS	43.78%	24.21%	23.82%	8.19%	100.00%
JRS	5.25%	15.54%	32.96%	46.25%	100.00%
All Plans	18.33%	26.41%	32.88%	22.38%	100.00%

FISCAL YEAR 2020 RETIREES

	Under 55	55-59	60-65	Over Age 65	Total
VRS – State	5.06%	12.87%	35.59%	46.48%	100.00%
VRS – Teacher	7.07%	18.23%	40.19%	34.51%	100.00%
VRS – Political Subdivisions	15.12%	15.61%	31.03%	38.24%	100.00%
SPORS	39.58%	29.17%	27.08%	4.17%	100.00%
VaLORS	39.92%	18.71%	30.22%	11.15%	100.00%
JRS	0.00%	6.67%	23.33%	70.00%	100.00%
All Plans	9.98%	16.01%	35.77%	38.24%	100.00%

FIGURE 5.9: DISTRIBUTION OF RETIREES BY AVERAGE FINAL COMPENSATION

ALL RETIREES AT JUNE 30, 2020

	Up to \$10,000	\$10,001- 20,000	\$20,001- 30,000	\$30,001- 40,000	\$40,001- 50,000	\$50,001- 60,000	\$60,001- 70,000	\$70,001- 80,000	\$80,001- 90,000	\$90,001- 100,000	Over \$100,000	Total
VRS – State	5.77%	6.43%	16.53%	19.91%	16.29%	11.32%	8.08%	5.37%	3.47%	2.26%	4.57%	100.00%
VRS – Teacher	2.85%	7.01%	9.24%	11.95%	17.44%	18.49%	13.30%	7.53%	5.17%	3.64%	3.38%	100.00%
VRS – Political Subdivisions	7.21%	13.35%	16.74%	17.63%	14.93%	10.34%	7.08%	4.56%	2.82%	1.84%	3.50%	100.00%
SPORS	10.26%	0.70%	3.09%	7.66%	14.05%	14.48%	15.18%	15.11%	10.26%	5.13%	4.08%	100.00%
VaLORS	2.76%	0.04%	6.09%	43.76%	30.60%	10.49%	3.69%	1.39%	0.52%	0.31%	0.35%	100.00%
JRS	17.80%	0.37%	0.00%	0.00%	0.37%	0.37%	0.94%	0.94%	2.43%	3.75%	73.03%	100.00%
All Plans	4.86%	8.30%	13.06%	16.31%	16.71%	14.14%	10.00%	6.05%	4.01%	2.72%	3.84%	100.00%

FISCAL YEAR 2020 RETIREES

	Up to \$10,000	\$10,001- 20,000	\$20,001- 30,000	\$30,001- 40,000	\$40,001- 50,000	\$50,001- 60,000	\$60,001- 70,000	\$70,001- 80,000	\$80,001- 90,000	\$90,001- 100,000	Over \$100,000	Total
VRS – State	0.48%	1.10%	8.42%	16.56%	18.34%	15.37%	11.94%	8.59%	5.68%	3.90%	9.62%	100.00%
VRS – Teacher	0.29%	4.45%	10.34%	6.97%	10.22%	15.76%	18.33%	11.00%	6.62%	7.47%	8.55%	100.00%
VRS – Political Subdivisions	1.04%	9.00%	10.34%	15.52%	16.83%	14.17%	10.55%	6.94%	5.41%	3.26%	6.94%	100.00%
SPORS	0.00%	0.00%	0.00%	0.00%	0.00%	14.59%	8.33%	18.75%	27.08%	10.42%	20.83%	100.00%
VaLORS	0.36%	0.00%	0.72%	32.73%	45.32%	12.59%	3.96%	1.80%	1.08%	0.72%	0.72%	100.00%
JRS	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
All Plans	0.58%	4.80%	9.50%	12.79%	15.26%	15.03%	13.76%	8.87%	5.93%	5.03%	8.45%	100.00%

SCHEDULE OF FUNDING (MARKET VALUE OF ASSETS BASIS): ALL PENSION PLANS

(EXPRESSED IN THOUSANDS)

Actuarial Valuation Date June 30	Market Value of Assets (MVA) (a)	Actuarial Accrued Liability (AAL) – Entry Age (b)	Net Pension Liability (AAL-MVA) (b-a)	Funded Ratio Funded (MVA/ AAL) (a/b)	Covered Payroll (c)	Net Pension Liability as a Percentage of Covered Payroll (b-a)/(c)
VIRGINIA RETIREMENT SYSTEM (VRS)**						
2019	\$ 76,871,911	\$ 99,133,971	\$ 22,262,060	77.5%	\$18,242,017	122.0%
2018	73,754,573	93,174,818	19,420,245	79.2%	17,614,448	110.3%
2017	70,159,680	89,851,284	19,691,604	78.1%	16,764,876	117.5%
2016	63,954,159	87,118,992	23,164,833	73.4%	16,325,998	141.9%
2015	64,025,668	84,711,142	20,685,474	75.6%	15,901,380	130.1%
2014	62,207,257	82,083,384	19,876,127	75.8%	15,671,359	126.8%
2013*	54,972,736	79,077,591	24,104,855	69.5%	15,269,079	157.9%
2012	50,266,721	77,858,856	27,592,135	64.6%	14,880,275	185.4%
2011	51,280,335	75,184,760	23,904,425	68.2%	14,708,859	162.5%
2010	44,645,816	72,800,401	28,154,585	61.3%	14,757,790	190.8%
STATE POLICE OFFICERS' RETIREMENT SYSTEM (SPORS)						
2019	\$ 865,273	\$ 1,181,120	\$ 315,847	73.3%	\$ 132,230	238.9%
2018	836,702	1,112,893	276,191	75.2%	126,523	218.3%
2017	796,073	1,040,628	244,555	76.5%	110,265	221.8%
2016	730,688	1,081,980	351,292	67.5%	114,877	305.8%
2015	733,352	1,050,701	317,349	69.7%	110,543	285.5%
2014	720,990	1,029,155	308,165	70.1%	112,303	274.0%
2013*	625,562	996,690	371,128	62.7%	109,006	341.0%
2012	575,468	1,013,278	437,810	56.8%	104,189	420.6%
2011	598,686	985,704	387,018	60.8%	99,669	388.3%
2010	533,962	948,892	414,930	56.3%	97,601	425.3%
VIRGINIA LAW OFFICERS' RETIREMENT SYSTEM (VaLORS)						
2019	\$ 1,495,990	\$ 2,211,238	\$ 715,248	67.7%	\$ 369,776	193.4%
2018	1,423,980	2,057,504	633,524	69.2%	346,106	183.0%
2017	1,345,887	1,977,781	631,894	68.1%	339,150	186.3%
2016	1,211,446	1,984,257	772,811	61.1%	352,677	219.1%
2015	1,191,353	1,906,721	715,368	62.5%	330,397	217.2%
2014	1,150,450	1,820,045	669,595	63.2%	352,709	190.0%
2013*	992,031	1,742,110	750,079	56.9%	342,154	219.0%
2012	894,916	1,753,014	858,098	51.1%	344,616	248.9%
2011	910,666	1,683,191	772,525	54.1%	356,240	216.8%
2010	792,429	1,579,321	786,892	50.2%	346,040	227.5%
JUDICIAL RETIREMENT SYSTEM (JRS)						
2019	\$ 557,541	\$ 669,741	\$ 112,200	83.2%	\$ 76,848	179.2%
2018	540,009	645,662	105,653	83.6%	67,424	179.2%
2017	512,749	631,522	118,773	81.2%	66,288	179.2%
2016	467,389	607,798	140,409	76.9%	65,524	214.3%
2015	456,258	600,388	144,130	76.0%	61,881	230.3%
2014	442,194	608,169	165,975	72.7%	59,373	279.4%
2013*	388,835	590,626	201,791	65.8%	57,110	353.5%
2012	354,250	582,456	228,206	60.8%	56,958	400.9%
2011	361,401	569,494	208,093	63.5%	58,919	353.7%
2010	314,794	559,920	245,126	56.4%	61,021	401.2%

* Revised economic and demographic assumptions due to experience study.

** The breakdown of VRS data into state, teacher and political subdivisions is also presented in the Statistical Section.

SCHEDULE OF FUNDING (MARKET VALUE BASIS): VRS PENSION PLANS

(EXPRESSED IN THOUSANDS)

Actuarial Valuation Date June 30	Market Value of Assets (MVA) (a)	Actuarial Accrued Liability (AAL) – Entry Age (b)	Net Pension Liability (AAL-MVA) (b-a)	Funded Ratio (MVA/AAL) (a/b)	Covered Payroll (c)	Net Pension Liability as a Percentage of Covered Payroll (b-a)/(c)
VIRGINIA RETIREMENT SYSTEM (VRS) – STATE						
2019	\$ 19,090,109	\$ 25,398,188	\$ 6,308,079	75.2%	\$ 4,375,061	144.2%
2018	18,532,189	24,115,157	5,582,968	76.8%	4,161,922	134.1%
2017	17,789,888	23,311,534	5,521,646	76.3%	4,037,072	136.8%
2016	16,367,842	22,878,243	6,510,401	71.5%	4,002,477	162.7%
2015	16,398,575	22,291,558	5,892,983	73.6%	3,872,724	152.2%
2014	16,168,535	21,822,936	5,654,401	74.1%	3,854,779	146.7%
2013*	14,502,362	21,068,651	6,566,289	68.8%	3,716,548	176.7%
2012	13,469,215	20,944,258	7,475,043	64.3%	3,713,119	201.3%
2011	13,992,901	20,407,958	6,415,057	68.6%	3,686,259	174.0%
2010	12,384,638	19,539,453	7,154,815	63.4%	3,514,396	203.6%
VIRGINIA RETIREMENT SYSTEM (VRS) – TEACHER						
2019	\$ 36,522,768	\$ 49,303,959	\$ 12,781,191	74.1%	\$ 8,608,489	148.5%
2018	34,919,563	46,516,176	11,596,613	75.1%	8,479,023	136.8%
2017	33,119,545	45,006,017	11,886,472	73.6%	7,919,450	150.1%
2016	30,168,211	43,581,629	13,413,418	69.2%	7,666,824	175.0%
2015	30,344,072	42,564,178	12,220,106	71.3%	7,488,507	163.2%
2014	29,411,183	41,297,669	11,886,486	71.2%	7,362,793	161.4%
2013*	26,076,425	39,852,334	13,775,909	65.4%	7,211,543	191.0%
2012	23,930,149	39,090,408	15,160,259	61.2%	7,004,577	216.4%
2011	24,520,362	37,771,732	13,251,370	64.9%	6,922,130	191.4%
2010	21,517,178	37,088,576	15,571,398	58.0%	7,119,889	218.7%
VIRGINIA RETIREMENT SYSTEM (VRS) – POLITICAL SUBDIVISIONS						
2019	\$ 21,259,034	\$ 24,431,824	\$ 3,172,790	87.0%	\$ 5,258,467	60.3%
2018	20,302,821	22,543,485	2,240,664	90.1%	4,973,503	45.1%
2017	19,250,247	21,533,733	2,283,486	89.4%	4,808,354	47.5%
2016	17,418,106	20,659,120	3,241,014	84.3%	4,656,697	69.6%
2015	17,283,021	19,855,406	2,572,385	87.0%	4,540,149	56.7%
2014	16,627,539	18,962,779	2,335,240	87.7%	4,453,787	52.4%
2013*	14,393,949	18,156,606	3,762,657	79.3%	4,340,988	86.7%
2012	12,867,357	17,824,190	4,956,833	72.2%	4,162,579	119.1%
2011	12,767,072	17,005,070	4,237,998	75.1%	4,100,470	103.4%
2010	10,744,000	16,172,372	5,428,372	66.4%	4,123,505	131.6%
VIRGINIA RETIREMENT SYSTEM (VRS) – TOTAL						
2019	\$ 76,871,911	\$ 99,133,971	\$ 22,262,060	77.5%	\$ 18,242,017	122.0%
2018	73,754,573	93,174,818	19,420,245	79.2%	17,614,448	110.3%
2017	70,159,680	89,851,284	19,691,604	78.1%	16,764,876	117.5%
2016	63,954,159	87,118,992	23,164,833	73.4%	16,325,998	141.9%
2015	64,025,668	84,711,142	20,685,474	75.6%	15,901,380	130.1%
2014	62,207,257	82,083,384	19,876,127	75.8%	15,671,359	126.8%
2013*	54,972,736	79,077,591	24,104,855	69.5%	15,269,079	157.9%
2012	50,266,721	77,858,856	27,592,135	64.6%	14,880,275	185.4%
2011	51,280,335	75,184,760	23,904,425	68.2%	14,708,859	162.5%
2010	44,645,816	72,800,401	28,154,585	61.3%	14,757,790	190.8%

* Revised economic and demographic assumptions due to experience study.

Other Employee Benefit Trust Funds

FIGURE 5.10: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION –
GROUP LIFE INSURANCE FUND

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN MILLIONS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 783	\$ 833	\$ 747	\$ 888	\$ 1,079	\$ 1,163	\$ 1,225	\$ 1,438	\$ 1,595	\$ 1,763
Funding:										
Member and Employer Contributions and Other Additions	45	47	202	206	208	214	240	249	257	270
Benefits and Administrative Expenses	147	141	151	161	177	175	186	203	203	214
Net Funding	(102)	(94)	51	45	31	39	54	46	55	56
Investment Income:										
Interest, Dividends and Other Investment Income	18	16	14	17	16	17	18	19	21	18
Net Appreciation (Depreciation) in Fair Value	134	(9)	76	130	36	6	140	92	92	18
Net Investment Income	152	7	90	147	52	23	158	111	113	36
Net Increase (Decrease)	50	(86)	141	192	83	62	213	157	168	92
Fiduciary Net Position Restricted – End of Year	\$ 833	\$ 747	\$ 888	\$ 1,079	\$ 1,163	\$ 1,225	\$ 1,438	\$ 1,595	\$ 1,763	\$ 1,855

SCHEDULE OF GROUP LIFE INSURANCE ADDITIONS BY SOURCE

FISCAL YEARS 2011–2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Contributions				Investment Income (Loss)	Other	Total
	State	Teacher	Political Subdivisions	Sub-Total			
2020	\$ 82,484	\$ 115,184	\$ 72,509	\$ 270,177	\$ 36,276	\$ —	\$ 306,453
2019	77,778	110,262	69,288	257,328	113,440	—	370,768
2018	75,997	106,329	66,606	248,932	110,917	—	359,849
2017	71,666	103,751	64,667	240,084	158,430	—	398,514
2016	65,980	91,121	57,156	214,257	23,445	—	237,702
2015	63,927	88,871	55,665	208,463	52,175	—	260,638
2014	64,151	86,807	54,628	205,586	146,865	—	352,451
2013	61,541	85,725	53,449	200,715	90,166	973	291,854
2012	14,243	20,183	12,108	46,534	7,295	751	54,580
2011	13,348	19,427	11,920	44,695	151,509	353	196,557

SCHEDULE OF GROUP LIFE INSURANCE DEDUCTIONS BY TYPE

FISCAL YEARS 2011–2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Group Life Claims			Administrative Expenses	Other	Total
	Active	Retired	Sub-Total			
2020	\$ 64,273	\$ 147,787	\$ 212,060	\$ 824	\$ 1,439	\$ 214,323
2019	66,036	133,843	199,879	709	1,981	202,569
2018	64,822	135,463	200,285	664	1,713	202,662
2017	56,889	127,203	184,092	31	1,731	185,854
2016	60,427	113,416	173,843	81	1,469	175,393
2015	55,429	120,331	175,760	183	1,393	177,336
2014	53,478	105,880	159,358	275	1,276	160,909
2013	47,875	101,612	149,487	65	1,148	150,700
2012	54,605	85,338	139,943	77	1,006	141,026
2011	51,236	93,791	145,027	484	1,039	146,550

**FIGURE 5.11: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION –
RETIREE HEALTH INSURANCE CREDIT FUND**

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$244,958	\$209,033	\$127,234	\$146,472	\$170,048	\$173,194	\$173,211	\$201,315	\$235,372	\$269,346
Funding:										
Employer Contributions and Other Additions	50,052	51,356	145,031	146,742	144,834	151,916	168,271	184,706	187,652	195,872
Less: Reimbursements and Administrative Expenses	126,963	131,435	137,906	143,088	148,459	154,320	159,280	164,295	169,072	169,128
Net Funding	(76,911)	(80,079)	7,125	3,654	(3,625)	(2,404)	8,991	20,411	18,580	26,744
Investment Income:										
Interest, Dividends and Other Investment Income	4,849	2,997	1,856	2,226	2,140	2,098	2,168	2,343	2,785	2,576
Net Appreciation (Depreciation) in Fair Value	36,137	(4,717)	10,257	17,696	4,631	323	16,945	11,303	12,609	2,512
Net Investment Income	40,986	(1,720)	12,113	19,922	6,771	2,421	19,113	13,646	15,394	5,088
Net Increase (Decrease)	(35,925)	(81,799)	19,238	23,576	3,146	17	28,104	34,057	33,974	31,832
Fiduciary Net Position Restricted – End of Year	\$209,033	\$127,234	\$146,472	\$170,048	\$173,194	\$173,211	\$201,315	\$235,372	\$269,346	\$301,178

VIRGINIA RETIREMENT SYSTEM – STATE

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$136,242	\$107,777	\$ 54,290	\$ 59,880	\$ 65,202	\$ 67,434	\$ 68,685	\$ 79,516	\$ 95,908	\$109,023
Funding:										
Employer Contributions and Other Additions	5,425	5,859	60,848	59,438	63,907	66,410	74,520	79,952	79,926	84,850
Less: Reimbursements and Administrative Expenses	57,013	58,224	60,911	61,249	64,551	66,157	71,395	69,272	73,000	70,681
Net Funding	(51,588)	(52,365)	(63)	(1,811)	(644)	253	3,125	10,680	6,926	14,169
Investment Income:										
Interest, Dividends and Other Investment Income	2,735	1,977	866	941	910	864	875	981	1,121	1,136
Net Appreciation (Depreciation) in Fair Value	20,388	(3,099)	4,787	6,192	1,966	134	6,831	4,731	5,068	1,050
Net Investment Income	23,123	(1,122)	5,653	7,133	2,876	998	7,706	5,712	6,189	2,186
Net Increase (Decrease)	(28,465)	(53,487)	5,590	5,322	2,232	1,251	10,831	16,392	13,115	16,355
Fiduciary Net Position Restricted – End of Year	\$107,777	\$ 54,290	\$ 59,880	\$ 65,202	\$ 67,434	\$ 68,685	\$ 79,516	\$ 95,908	\$109,023	\$125,378

**FIGURE 5.11: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION –
RETIREE HEALTH INSURANCE CREDIT FUND, cont.**

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	VIRGINIA RETIREMENT SYSTEM – TEACHER									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 94,755	\$ 85,006	\$ 56,869	\$ 68,955	\$ 82,108	\$ 84,386	\$ 82,854	\$ 96,091	\$111,639	\$129,016
Funding:										
Employer Contributions and Other Additions	41,410	42,245	80,489	80,720	78,875	80,831	88,059	99,019	100,643	105,210
Less: Reimbursements and Administrative Expenses	66,779	69,777	73,147	75,033	79,670	83,510	83,640	89,578	90,616	92,356
Net Funding	(25,369)	(27,532)	7,342	5,687	(795)	(2,679)	4,419	9,441	10,027	12,854
Investment Income:										
Interest, Dividends and Other Investment Income	1,849	1,033	728	1,012	970	995	1,000	1,049	1,330	1,096
Net Appreciation (Depreciation) in Fair Value	13,771	(1,638)	4,016	6,454	2,103	152	7,818	5,058	6,020	1,195
Net Investment Income	15,620	(605)	4,744	7,466	3,073	1,147	8,818	6,107	7,350	2,291
Net Increase (Decrease)	(9,749)	(28,137)	12,086	13,153	2,278	(1,532)	13,237	15,548	17,377	15,145
Fiduciary Net Position Restricted – End of Year	\$ 85,006	\$ 56,869	\$ 68,955	\$ 82,108	\$ 84,386	\$ 82,854	\$ 96,091	\$111,639	\$129,016	\$144,161

	VIRGINIA RETIREMENT SYSTEM – POLITICAL SUBDIVISIONS									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 11,217	\$ 13,911	\$ 14,267	\$ 16,126	\$ 18,592	\$ 19,332	\$ 19,321	\$ 22,156	\$ 23,170	\$ 24,468
Funding:										
Employer Contributions and Other Additions	1,940	1,975	1,945	1,876	1,933	1,991	2,278	2,179	2,406	2,553
Less: Reimbursements and Administrative Expenses	1,489	1,626	1,802	1,817	2,015	2,278	1,717	2,735	2,598	3,044
Net Funding	451	349	143	59	(82)	(287)	561	(556)	(192)	(491)
Investment Income:										
Interest, Dividends and Other Investment Income	265	(13)	262	273	260	239	258	270	270	281
Net Appreciation (Depreciation) in Fair Value	1,978	20	1,454	2,134	562	37	2,016	1,300	1,220	208
Net Investment Income	2,243	7	1,716	2,407	822	276	2,274	1,570	1,490	489
Net Increase (Decrease)	2,694	356	1,859	2,466	740	(11)	2,835	1,014	1,298	(2)
Fiduciary Net Position Restricted – End of Year	\$ 13,911	\$ 14,267	\$ 16,126	\$ 18,592	\$ 19,332	\$ 19,321	\$ 22,156	\$ 23,170	\$ 24,468	\$ 24,466

**FIGURE 5.11: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION –
RETIREE HEALTH INSURANCE CREDIT FUND, cont.**

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

VIRGINIA RETIREMENT SYSTEM – CONSTITUTIONAL OFFICERS										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 1,898	\$ 1,651	\$ 1,337	\$ 830	\$ 2,377	\$ 1,120	\$ 1,479	\$ 2,427	\$ 3,278	\$ 4,479
Funding:										
Employer Contributions and Other Additions	805	805	805	2,833	113	1,830	2,305	2,397	2,794	2,526
Less: Reimbursements and Administrative Expenses	1,052	1,119	1,312	3,245	1,370	1,471	1,572	1,727	1,831	1,979
Net Funding	(247)	(314)	(507)	(412)	(1,257)	359	733	670	963	547
Investment Income:										
Interest, Dividends and Other Investment Income	—	—	—	—	—	—	24	31	41	44
Net Appreciation (Depreciation) in Fair Value	—	—	—	1,959	—	—	191	150	197	42
Net Investment Income	—	—	—	1,959	—	—	215	181	238	86
Net Increase (Decrease)	(247)	(314)	(507)	1,547	(1,257)	359	948	851	1,201	633
Fiduciary Net Position Restricted – End of Year	\$ 1,651	\$ 1,337	\$ 830	\$ 2,377	\$ 1,120	\$ 1,479	\$ 2,427	\$ 3,278	\$ 4,479	\$ 5,112

VIRGINIA RETIREMENT SYSTEM – SOCIAL SERVICES										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ 877	\$ 732	\$ 534	\$ 683	\$ 1,738	\$ 915	\$ 861	\$ 1,091	\$ 1,319	\$ 2,273
Funding:										
Employer Contributions and Other Additions	472	472	862	1,818	5	824	1,062	1,126	1,847	689
Less: Reimbursements and Administrative Expenses	617	670	713	1,683	828	878	929	971	1,015	1,061
Net Funding	(145)	(198)	149	135	(823)	(54)	133	155	832	(372)
Investment Income:										
Interest, Dividends and Other Investment Income	—	—	—	—	—	—	11	12	22	18
Net Appreciation (Depreciation) in Fair Value	—	—	—	920	—	—	86	61	100	16
Net Investment Income	—	—	—	920	—	—	97	73	122	34
Net Increase (Decrease)	(145)	(198)	149	1,055	(823)	(54)	230	228	954	(338)
Fiduciary Net Position Restricted – End of Year	\$ 732	\$ 534	\$ 683	\$ 1,738	\$ 915	\$ 861	\$ 1,091	\$ 1,319	\$ 2,273	\$ 1,935

**FIGURE 5.11: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION –
RETIREE HEALTH INSURANCE CREDIT FUND, cont.**

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

VIRGINIA RETIREMENT SYSTEM – REGISTRARS										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$ (31)	\$ (44)	\$ (63)	\$ (2)	\$ 31	\$ 7	\$ 11	\$ 34	\$ 58	\$ 87
Funding:										
Employer Contributions and Other Additions	—	—	82	57	1	30	47	33	36	44
Less: Reimbursements and Administrative Expenses	13	19	21	61	25	26	27	12	12	7
Net Funding	(13)	(19)	61	(4)	(24)	4	20	21	24	37
Investment Income:										
Interest, Dividends and Other Investment Income	—	—	—	—	—	—	—	—	1	1
Net Appreciation (Depreciation) in Fair Value	—	—	—	37	—	—	3	3	4	1
Net Investment Income	—	—	—	37	—	—	3	3	5	2
Net Increase (Decrease)	(13)	(19)	61	33	(24)	4	23	24	29	39
Fiduciary Net Position Restricted – End of Year	\$ (44)	\$ (63)	\$ (2)	\$ 31	\$ 7	\$ 11	\$ 34	\$ 58	\$ 87	\$ 126

SCHEDULE OF RETIREE HEALTH INSURANCE CREDIT ADDITIONS BY SOURCE

FISCAL YEARS 2011–2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Contributions					Investment Income (Loss)	Other	Total
	State	Teacher	Political Subdivisions	State-Funded HIC	Sub-Total			
2020	\$ 84,850	\$ 105,210	\$ 2,553	\$ 3,259	\$ 195,872	\$ 5,088	\$ —	\$ 200,960
2019	79,926	100,643	2,406	3,259	186,234	15,394	—	201,628
2018	79,400	99,469	2,291	3,546	184,706	13,646	—	198,352
2017	74,520	88,059	2,278	3,414	168,271	19,113	—	187,384
2016	66,411	80,831	1,990	2,684	151,916	2,421	—	154,337
2015	63,908	78,874	1,933	119	144,834	6,771	—	151,605
2014	59,438	80,720	1,876	4,708	146,742	19,922	—	166,664
2013	60,848	80,489	1,945	1,749	145,031	12,113	—	157,144
2012	5,859	42,245	1,975	1,277	51,356	(1,720)	—	49,636
2011	5,425	41,410	1,940	1,277	50,052	40,986	—	91,038

SCHEDULE OF RETIREE HEALTH INSURANCE CREDIT DEDUCTIONS BY TYPE

FISCAL YEARS 2011–2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Retiree Health Insurance Reimbursements					Sub-Total	Administrative Expenses	Other	Total
	State	Teacher	Political Subdivisions	State- Funded HIC					
2020	\$ 70,440	\$ 92,086	\$ 2,996	\$ 3,035	\$ 168,557	\$ 548	\$ 23	\$ 169,128	
2019	72,857	90,455	2,564	2,849	168,725	328	19	169,072	
2018	69,099	89,420	2,697	2,722	163,938	257	15	164,210	
2017	71,255	83,510	1,677	2,523	158,965	294	21	159,280	
2016	65,984	83,329	2,226	2,375	153,914	401	5	154,320	
2015	64,354	79,457	1,956	2,222	147,989	465	5	148,459	
2014	59,433	76,389	1,799	4,989	142,610	463	15	143,088	
2013	60,749	72,997	1,746	2,046	137,538	358	10	137,906	
2012	58,074	69,638	1,582	1,808	131,102	333	—	131,435	
2011	56,751	66,608	1,459	1,682	126,500	463	—	126,963	

FIGURE 5.12: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION – DISABILITY INSURANCE TRUST FUND

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	2011*	2012*	2013	2014	2015	2016	2017	2018	2019	2020
Fiduciary Net Position Restricted – Beginning of Year	\$336,213	\$369,071	\$343,972	\$370,121	\$410,097	\$414,518	\$407,826	\$442,334	\$462,961	\$488,241
Funding:										
Employer Contributions and Other Additions	6	78	17,267	17,693	24,026	25,156	24,768	25,982	25,263	26,994
Less: Disability Insurance Benefits and Administrative Expenses	29,001	28,955	30,668	34,290	37,942	38,782	38,466	38,706	31,627	35,168
Net Funding	(28,995)	(28,877)	(13,401)	(16,597)	(13,916)	(13,626)	(13,698)	(12,724)	(6,364)	(8,174)
Investment Income:										
Interest, Dividends and Other Investment Income	7,317	7,048	5,919	6,264	5,705	5,576	5,458	6,609	6,923	5,558
Net Appreciation (Depreciation) in Fair Value	54,536	(3,270)	33,631	50,309	12,632	1,358	42,748	26,742	24,721	4,595
Net Investment Income	61,853	3,778	39,550	56,573	18,337	6,934	48,206	33,351	31,644	10,153
Net Increase (Decrease)	32,858	(25,099)	26,149	39,976	4,421	(6,692)	34,508	20,627	25,280	1,979
Fiduciary Net Position Restricted – End of Year	\$369,071	\$343,972	\$370,121	\$410,097	\$414,518	\$407,826	\$442,334	\$462,961	\$488,241	\$490,220

* The disability insurance contribution rate for fiscal year 2011 and fiscal year 2012 was zero as a result of a statutory contribution holiday.

SCHEDULE OF DISABILITY INSURANCE TRUST FUND ADDITIONS BY SOURCE

FISCAL YEARS 2011–2020

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Contributions	Investment Income	Transfers and Other Additions	Total
LONG-TERM DISABILITY PROGRAM				
2020	\$ 26,559	\$ 7,786	\$ —	\$ 34,345
2019	24,856	25,197	—	50,053
2018	25,195	26,653	—	51,848
2017	23,399	40,339	—	63,738
2016	20,134	5,911	—	26,045
2015	19,458	15,884	—	35,342
2014	14,393	49,603	—	63,996
2013	14,061	35,090	—	49,151
2012	67	3,378	—	3,445
2011	5	55,686	—	55,691
LONG-TERM CARE PROGRAM				
2020	\$ 1,143	\$ 1,659	\$ —	\$ 2,802
2019	1,557	5,297	—	6,854
2018	2,065	5,420	—	7,485
2017	1,369	7,867	—	9,236
2016	5,022	1,023	—	6,045
2015	4,557	2,454	10	7,021
2014	2,998	6,970	302	10,270
2013	2,929	4,460	277	7,666
2012	11	400	—	411
2011	1	6,167	—	6,168
TOTAL DISABILITY INSURANCE TRUST FUND				
2020	\$ 27,702	\$ 9,445	\$ —	\$ 37,147
2019	26,413	30,494	—	56,907
2018	27,260	32,073	—	59,333
2017	24,768	48,206	—	72,974
2016	25,156	6,934	—	32,090
2015	24,015	18,338	10	42,363
2014	17,391	56,573	302	74,266
2013	16,990	39,550	277	56,817
2012	78	3,778	—	3,856
2011	6	61,853	—	61,859

SCHEDULE OF DISABILITY INSURANCE TRUST FUND DEDUCTIONS BY TYPE

FISCAL YEARS 2010-2019

(EXPRESSED IN THOUSANDS)

Year Ended June 30	Long-Term Disability Benefits	Long-Term Care and Costs	TPA Administrative Services	VRS Administrative Expenses	Transfers and Other Expenses	Total
LONG-TERM DISABILITY PROGRAM						
2020	\$ 27,162	\$ —	\$ 6,611	\$ 520	\$ 100	\$ 34,393
2019	23,045	—	6,431	650	27	30,153
2018	29,421	—	6,637	799	29	36,886
2017	29,792	—	7,001	600	45	37,438
2016	30,358	—	7,102	660	10	38,130
2015	28,504	—	7,953	729	13	37,199
2014	24,920	—	7,830	486	39	33,275
2013	23,015	—	6,320	449	26	29,810
2012	20,924	—	6,974	425	32	28,355
2011	20,050	—	7,512	585	148	28,295
LONG-TERM CARE PROGRAM						
2020	\$ —	\$ 643	\$ —	\$ 111	\$ 21	\$ 775
2019	—	1,331	—	137	6	1,474
2018	—	1,652	—	162	6	1,820
2017	—	902	—	117	9	1,028
2016	—	536	—	114	2	652
2015	—	628	—	113	2	743
2014	—	931	—	69	15	1,015
2013	—	798	—	57	3	858
2012	—	546	—	50	4	600
2011	—	624	—	65	17	706
TOTAL DISABILITY INSURANCE TRUST FUND						
2020	\$ 27,162	\$ 643	\$ 6,611	\$ 631	\$ 121	\$ 35,168
2019	23,045	1,331	6,431	787	33	31,627
2018	29,421	1,652	6,637	961	35	38,706
2017	29,792	902	7,001	717	54	38,466
2016	30,358	536	7,102	774	12	38,782
2015	28,504	628	7,953	842	15	37,942
2014	24,920	931	7,830	555	54	34,290
2013	23,015	798	6,320	506	29	30,668
2012	20,924	546	6,974	475	36	28,955
2011	20,050	624	7,512	650	165	29,001

FIGURE 5.13: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION – LINE OF DUTY ACT

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Net Position Restricted – Beginning of Year	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 728	\$ 2,708	\$ 3,461	\$ 1,889	\$ 2,839
Funding:										
Employer Contributions and Other Additions	10,678	11,554	6,869	7,229	9,121	10,881	11,608	10,890	13,377	13,567
Less: Disability Insurance Benefits and Administrative Expenses	10,678	11,559	7,814	8,668	8,572	9,026	11,538	13,140	13,362	13,001
Net Funding	—	(5)	(945)	(1,439)	549	1,855	70	(2,250)	15	566
Investment Income:										
Interest, Dividends and Other Investment Income	—	1	144	157	64	62	77	96	769	681
Net Appreciation (Depreciation) in Fair Value	—	4	801	1,282	115	63	606	582	166	246
Net Investment Income	—	5	945	1,439	179	125	683	678	935	927
Net Increase (Decrease)	—	9	—	—	728	1,980	753	(1,572)	950	1,493
Net Position Restricted – End of Year	\$ —	\$ 9	\$ —	\$ —	\$ 728	\$ 2,708	\$ 3,461	\$ 1,889	\$ 2,839	\$ 4,332

FIGURE 5.14: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION – VIRGINIA LOCAL DISABILITY PROGRAM

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

	2014*	2015	2016	2017	2018	2019	2020
Net Position Restricted – Beginning of Year	\$ —	\$ —	\$ —	\$ —	\$ 630	\$ 1,463	\$ 3,623
Funding:							
Employer Contributions and Other Additions	429	875	1,351	1,993	3,030	4,192	5,110
Less: Disability Insurance Benefits and Administrative Expenses	429	873	1,351	1,363	2,261	2,208	2,622
Net Funding	—	2	—	630	769	1,984	2,488
Investment Income:							
Interest, Dividends and Other Investment Income	—	—	—	—	14	26	43
Net Appreciation (Depreciation) in Fair Value	—	(2)	—	—	50	150	50
Net Investment Income	—	(2)	—	—	64	176	93
Net Increase (Decrease)	\$ —	—	—	630	833	2,160	2,581
Net Position Restricted – End of Year	\$ —	\$ —	\$ —	\$ 630	\$ 1,463	\$ 3,623	\$ 6,204

FIGURE 5.14: ANALYSIS OF CHANGES AND GROWTH IN FIDUCIARY NET POSITION – VIRGINIA LOCAL DISABILITY PROGRAM, cont.

FOR THE YEARS ENDED JUNE 30

(EXPRESSED IN THOUSANDS)

VIRGINIA RETIREMENT SYSTEM – TEACHER

	2014*	2015	2016	2017	2018	2019	2020
Net Position Restricted – Beginning of Year	\$ —	\$ —	\$ —	\$ —	\$ 279	\$ 647	\$ 1,661
Funding:							
Employer Contributions and Other Additions	182	370	567	883	1,339	1,966	2,426
Less: Disability Insurance Benefits and Administrative Expenses	182	369	567	604	1,000	1,035	1,245
Net Funding	—	1	—	279	339	931	1,181
Investment Income:							
Interest, Dividends and Other Investment Income	—	—	—	—	7	13	22
Net Appreciation (Depreciation) in Fair Value	—	(1)	—	—	22	70	23
Net Investment Income	—	(1)	—	—	29	83	45
Net Increase (Decrease)	\$ —	\$ —	\$ —	\$ 279	\$ 368	\$ 1,014	\$ 1,226
Net Position Restricted – End of Year	\$ —	\$ —	\$ —	\$ 279	\$ 647	\$ 1,661	\$ 2,887

VIRGINIA RETIREMENT SYSTEM – POLITICAL SUBDIVISIONS

	2014*	2015	2016	2017	2018	2019	2020
Net Position Restricted – Beginning of Year	\$ —	\$ —	\$ —	\$ —	\$ 351	\$ 816	\$ 1,962
Funding:							
Employer Contributions and Other Additions	247	505	784	1,110	1,691	2,226	2,684
Less: Disability Insurance Benefits and Administrative Expenses	247	504	784	759	1,261	1,173	1,377
Net Funding	—	1	—	351	430	1,053	1,307
Investment Income:							
Interest, Dividends and Other Investment Income	—	—	—	—	7	13	21
Net Appreciation (Depreciation) in Fair Value	—	(1)	—	—	28	80	27
Net Investment Income	—	(1)	—	—	35	93	48
Net Increase (Decrease)	\$ —	\$ —	\$ —	\$ 351	\$ 465	\$ 1,146	\$ 1,355
Net Position Restricted – End of Year	\$ —	\$ —	\$ —	\$ 351	\$ 816	\$ 1,962	\$ 3,317

* Fiscal year 2014 was the first year for which this data was available.

FIGURE 5.15: OTHER POST-EMPLOYMENT BENEFIT PLAN STATISTICS

SCHEDULE OF RETIRED MEMBERS AND BENEFICIARIES BY PLAN

	Group Life Insurance	Retiree Health Insurance Credit	Disability Insurance	Line of Duty
2020	208,644	129,855	2,488	739
2019	188,370	127,802	2,579	726
2018	182,438	124,406	2,710	696
2017	176,107	120,304	2,785	654
2016	169,786	116,408	2,844	621
2015	163,482	112,053	2,860	525
2014	156,549	108,076	2,764	551
2013	149,926	103,952	2,757	536
2012	143,657	99,836	2,722	788
2011	137,784	96,671	2,698	801

SCHEDULE OF AVERAGE BENEFIT PAYMENTS BY PLAN

Group Life Insurance			Retiree Health Insurance Credit		
Year Ended June 30	Number of Claims Paid	Average Claim Amount	Payment Period	Number of Recipients	Average Monthly Credit Amount
2020	5,304	\$ 25,516	June 2020	129,855	\$ 108
2019	5,171	24,307	June 2019	127,802	108
2018	5,255	24,865	June 2018	124,406	108
2017	4,846	24,634	June 2017	120,304	108
2016	4,660	23,735	June 2016	116,408	108
2015	4,520	24,754	June 2015	112,053	108
2014	4,259	23,489	June 2014	108,076	108
2013	4,206	21,816	June 2013	103,952	107
2012	4,013	21,737	June 2012	99,834	107
2011	3,999	21,896	June 2011	96,671	107

Disability Insurance			
Payment Period	Number of Claims Paid	Average Gross Monthly Benefit	Average Net Monthly Benefit*
June 2020	2,488	\$ 2,211	\$ 1,263
June 2019	2,579	2,181	1,252
June 2018	2,707	1,899	982
June 2017	2,783	1,851	969
June 2016	2,836	1,797	892
June 2015	2,829	1,820	885
June 2014	2,814	1,852	843
June 2013	2,707	1,852	814
June 2012	2,683	1,828	762
June 2011	2,650	1,770	759

* The net monthly benefit reflects adjustments for Social Security, workers' compensation and other offsets.

Line of Duty*

Line of Duty Death Benefits**			Health Insurance Benefits		
Year Ended June 30	LOD Death	Presumptive LOD Death	Year Ended June 30	Number of Active Claims	Avg. Annual Health Insurance Benefit
2020	2	7	2020	739	\$ 16,328
2019	1	3	2019	726	17,464
2018	3	0	2018	696	17,381
2017	3	3	2017	654	15,107
2016	1	2	2016	621	13,503
2015	0	3	2015	525	15,198
2014	3	2	2014	573	12,725
2013	2	3	2013	552	10,807
2012	4	4	2012	781	12,298
2011	6	11	2011	801	11,138

* The Line of Duty Program was funded by a trust fund beginning in fiscal year 2011. In that year and fiscal year 2012, employers had the option to opt-out and self-fund the benefits provided by the program. Data for fiscal year 2011 and fiscal year 2012 are not representative of the program's expected activity going forward.

** The Line of Duty Program provides a \$100,000 death benefit for an eligible individual whose death was as a direct or proximate result of the performance of duty. The program also provides a \$25,000 death benefit for certain individuals whose death arose out of their employment or was within five years of the date of retirement.

VRS-Participating Employers

More than 800 employers participate in the Virginia Retirement System (VRS) on behalf of their employees. Employers include state agencies, public colleges and universities, school divisions and political subdivisions.

The following employers were participating in VRS as of June 30, 2020:

PARTICIPATING POLITICAL SUBDIVISIONS: 463

A: retirement only

B: retirement and group life insurance

C: retirement, group life insurance and retiree health insurance credit

D: retirement and retiree health insurance credit

COUNTIES: 93

Accomack County: C	Dickenson County: A	Lancaster County: B	Rappahannock County: C
Albemarle County: B	Dinwiddie County: B	Lee County: B	Richmond County: B
Alleghany County: B	Essex County: C	Loudoun County: B	Roanoke County: C
Amelia County: C	Fauquier County: B	Louisa County: C	Rockbridge County: B
Amherst County: C	Floyd County: B	Lunenburg County: B	Rockingham County: B
Appomattox County: B	Fluvanna County: C	Madison County: C	Russell County: C
Augusta County: B	Franklin County: B	Mathews County: C	Scott County: B
Bath County: B	Frederick County: B	Mecklenburg County: B	Shenandoah County: C
Bedford County: B	Giles County: B	Middlesex County: B	Smyth County: B
Bland County: C	Gloucester County: C	Montgomery County: B	Southampton County: C
Botetourt County: B	Goochland County: B	Nelson County: B	Spotsylvania County: B
Brunswick County: B	Grayson County: B	New Kent County: C	Stafford County: C
Buchanan County: B	Greene County: C	Northampton County: B	Surry County: B
Buckingham County: B	Greensville County: C	Northumberland County: C	Sussex County: B
Campbell County: B	Halifax County: C	Nottoway County: B	Tazewell County: C
Caroline County: B	Hanover County: C	Orange County: B	Warren County: B
Carroll County: B	Henrico County: B	Page County: B	Washington County: C
Charles City County: B	Henry County: C	Patrick County: C	Westmoreland County: C
Charlotte County: B	Highland County: B	Pittsylvania County: C	Wise County: C
Chesterfield County: B	Isle of Wight County: C	Powhatan County: C	Wythe County: C
Clarke County: B	James City County: C	Prince Edward County: B	York County: C
Craig County: C	King & Queen County: C	Prince George County: B	
Culpeper County: B	King George County: B	Prince William County: C	
Cumberland County: B	King William County: B	Pulaski County: C	

CITIES AND TOWNS: 162

City of Alexandria: A	Town of Ashland: B	Town of Gordonsville: B	Town of Pennington Gap: A
City of Bristol: B	Town of Bedford: C	Town of Gretna: B	Town of Pound: A
City of Buena Vista: B	Town of Berryville: B	Town of Grottoes: B	Town of Pulaski: B
City of Chesapeake: B	Town of Big Stone Gap: A	Town of Grundy: B	Town of Purcellville: B
City of Colonial Heights: B	Town of Blacksburg: B	Town of Halifax: B	Town of Quantico: B
City of Covington: C	Town of Blackstone: B	Town of Hamilton: C	Town of Remington: B
City of Danville: A	Town of Bluefield: B	Town of Haymarket: B	Town of Rich Creek: B
City of Emporia: B	Town of Bowling Green: B	Town of Haysi: A	Town of Richlands: A
City of Fairfax: A	Town of Boydton: B	Town of Herndon: B	Town of Rocky Mount: B
City of Falls Church: B	Town of Boykins: A	Town of Hillsville: B	Town of Round Hill: B
City of Franklin: B	Town of Bridgewater: B	Town of Hurt: B	Town of Rural Retreat: A
City of Fredericksburg: B	Town of Broadway: B	Town of Independence: A	Town of Saltville: A
City of Galax: B	Town of Brodnax: A	Town of Iron Gate: B	Town of Scottsville: B
City of Hampton: B	Town of Brookneal: B	Town of Jarratt: A	Town of Shenandoah: C
City of Harrisonburg: B	Town of Buchanan: A	Town of Jonesville: B	Town of Smithfield: B
City of Hopewell: B	Town of Burkeville: B	Town of Kenbridge: C	Town of South Boston: B
City of Lexington: B	Town of Cape Charles: B	Town of Kilmarnock: C	Town of South Hill: A
City of Lynchburg: B	Town of Chase City: B	Town of La Crosse: A	Town of St. Paul: B
City of Manassas Park: B	Town of Chatham: B	Town of Lawrenceville: C	Town of Stanley: C
City of Manassas: C	Town of Chilhowie: B	Town of Lebanon: B	Town of Stephens City: B
City of Martinsville: B	Town of Chincoteague: B	Town of Leesburg: B	Town of Strasburg: C
City of Newport News: B	Town of Christiansburg: A	Town of Louisa: B	Town of Tappahannock: A
City of Norfolk: B	Town of Clarksville: B	Town of Lovettsville: B	Town of Tazewell: A
City of Norton: B	Town of Clifton Forge: B	Town of Luray: B	Town of Timberville: B
City of Petersburg: B	Town of Coeburn: B	Town of Madison: B	Town of Troutville: A
City of Poquoson: C	Town of Colonial Beach: B	Town of Marion: B	Town of Urbanna: B
City of Portsmouth: B	Town of Courtland: B	Town of McKenney: B	Town of Victoria: B
City of Radford: C	Town of Craigs ville: B	Town of Middleburg: B	Town of Vienna: B
City of Richmond: B	Town of Crewe: B	Town of Middletown: D	Town of Vinton: B
City of Roanoke: B	Town of Culpeper: B	Town of Mineral: A	Town of Wakefield: A
City of Salem: B	Town of Dayton: B	Town of Montross: B	Town of Warrenton: B
City of Staunton: B	Town of Dublin: B	Town of Mount Jackson: B	Town of Warsaw: B
City of Suffolk: B	Town of Dumfries: C	Town of Narrows: A	Town of Waverly: A
City of Virginia Beach: B	Town of Eastville: B	Town of New Market: B	Town of Weber City: B
City of Waynesboro: B	Town of Edinburg: A	Town of Occoquan: A	Town of West Point: B
City of Williamsburg: B	Town of Elkton: B	Town of Onancock: B	Town of Windsor: B
City of Winchester: C	Town of Exmore: A	Town of Onley: B	Town of Wise: B
Town of Abingdon: B	Town of Floyd: B	Town of Orange: B	Town of Woodstock: C
Town of Altavista: B	Town of Front Royal: B	Town of Parksley: B	Town of Wytheville: B
Town of Amherst: B	Town of Gate City: A	Town of Pearisburg: C	
Town of Appomattox: A	Town of Glasgow: B	Town of Pembroke: B	

AUTHORITIES, COMMISSIONS, DISTRICTS, REGIONAL INSTITUTIONS AND COMMUNITY SERVICES BOARDS: 208

Accomack-Northampton Planning District Commission: B	Commonwealth Regional Council: A
Albemarle County Service Authority: B	Crater Criminal Justice Training Academy: B
Albemarle-Charlottesville Regional Jail: B	Crater Juvenile Detention Home Community: B
Alexandria Redevelopment & Housing Authority: B	Culpeper Soil & Water Conservation District: B
Alexandria Renew Enterprises: A	Cumberland Mountain Community Services Board: B
Alleghany Highlands Community Services Board: B	Cumberland Plateau Regional Housing Authority: B
Alleghany Highlands Regional Library, Inc.: B	Daniel Boone Soil & Water Conservation District: C
Amherst County Service Authority: C	Danville-Pittsylvania Community Services Board: B
Anchor Commission: B	Danville Redevelopment & Housing Authority: B
Appalachian Juvenile Commission: C	Dinwiddie County Water Authority: B
Appomattox Regional Library: B	District 19 Community Services Board: C
Appomattox River Water Authority: B	Eastern Shore Community Services Board: B
Augusta County Service Authority: B	Eastern Shore Public Library: B
Bedford Public Library: B	Eastern Shore Soil & Water Conservation District: B
Bedford Regional Water Authority: B	Economic Development Authority of Henrico County: B
Big Sandy Soil & Water Conservation District: A	Evergreen Soil & Water Conservation District: B
Big Stone Gap Redevelopment & Housing Authority: A	Fauquier County Water & Sanitation Authority: B
Big Walker Soil & Water Conservation District: A	Ferrum Water & Sewage Authority: A
Blacksburg-VPI Sanitation Authority: B	Franklin Redevelopment & Housing Authority: B
Blue Ridge Behavioral Healthcare: B	Frederick County Sanitation Authority: C
Blue Ridge Juvenile Detention Center: B	Giles County Public Service Authority: B
Blue Ridge Regional Jail Authority: B	Goochland-Powhatan Community Services Board: B
Breaks Interstate Park Commission: A	Greensville County Water & Sewer Authority: C
Bristol Redevelopment & Housing Authority: B	Greensville-Emporia Department of Social Services: C
Bristol Virginia Utilities Authority: B	Halifax Service Authority: B
Brunswick Industrial Development Authority: B	Hampton-Newport News Community Services Board: A
Campbell County Utilities & Service Authority: B	Hampton Redevelopment & Housing Authority: B
Capital Region Airport Commission: C	Hampton Roads Planning District Commission: B
Central Rappahannock Regional Library: B	Hampton Roads Regional Jail Authority: B
Central Shenandoah Justice Training Academy: B	Hampton Roads Sanitation District: C
Central Virginia Planning District Commission: B	Hampton Roads Transit: B
Central Virginia Regional Jail: B	Hampton Roads Transportation Accountability Commission: C
Central Virginia Waste Management Authority: C	Hampton Raods Workforce Council: B
Charlottesville-Albemarle Airport Authority: B	Handley Regional Library: B
Charlottesville Redevelopment & Housing Authority: B	Harrisonburg-Rockingham Community Services Board: C
Chesapeake Bay Bridge & Tunnel District: B	Harrisonburg-Rockingham Regional Sewer Authority: B
Chesapeake Redevelopment & Housing Authority: B	Henricopolis Soil & Water Conservation District: B
Chesterfield County Health Center Commission: B	Henry County Public Service Authority: C
Clinch Valley Soil & Water Conservation District: B	Holston River Soil & Water Conservation District: A
Coeburn-Norton-Wise Regional Water Treatment Authority: B	Hopewell Redevelopment & Housing Authority: A
Colonial Behavioral Health: C	Horizon Behavioral Health: B
Colonial Soil & Water Conservation District: B	Institute for Advanced Learning and Research: A

AUTHORITIES, COMMISSIONS, DISTRICTS, REGIONAL INSTITUTIONS AND COMMUNITY SERVICES BOARDS, cont.

James City Service Authority: C	Peter Francisco Soil & Water Conservation District: A
John Marshall Soil & Water Conservation District: B	Petersburg Redevelopment & Housing Authority: C
Lee County Public Service Authority: B	Peumansend Creek Regional Jail Authority: B
Lee County Redevelopment & Housing Authority: B	Piedmont Community Services Board: B
Lenowisco Planning District Commission: B	Piedmont Regional Jail: B
Lonesome Pine Regional Library: B	Piedmont Regional Juvenile Detention Center: B
Lonesome Pine Soil & Water Conservation District: B	Pittsylvania County Service Authority: B
Loudoun County Sanitation Authority: B	Planning District One Behavioral Health Services Board: C
Massanutten Regional Library: B	Portsmouth Redevelopment & Housing Authority: B
Maury Service Authority: B	Potomac and Rappahannock Transportation Commission: B
Meherrin Regional Library: C	Potomac River Fisheries Commission: B
Meherrin River Regional Jail Authority: C	Prince William County Service Authority: C
Middle Peninsula Juvenile Detention Commission: C	Prince William Soil & Water Conservation District: B
Middle Peninsula-Northern Neck Community Services Board: B	Rappahannock Area Community Services Board: C
Middle Peninsula Planning District Commission: B	Rappahannock Area Youth Services & Group Home Commission: B
Middle Peninsula Regional Security Center: B	Rappahannock Juvenile Center: C
Middle River Regional Jail Authority: B	Rappahannock-Rapidan Community Services Board: B
Monacan Soil & Water Conservation District: C	Rappahannock-Rapidan Regional Planning District Commission: B
Montgomery Regional Solid Waste Authority: B	Rappahannock Regional Jail: B
Mount Rogers Community Services Board: B	Region Ten Community Services Board: B
Nelson County Service Authority: B	Richmond Metropolitan Transportation Authority: B
New River Resource Authority: C	Richmond Redevelopment & Housing Authority: B
New River Soil & Water Conservation District: B	Richmond Regional Planning District Commission: A
New River Valley Community Services Board: A	Rivanna Solid Waste Authority: B
New River Valley Emergency Communications Regional Authority: B	Rivanna Water & Sewer Authority: B
New River Valley Juvenile Detention Home Commission: B	Riverside Regional Jail: B
New River Valley Regional Commission: A	Roanoke Higher Education Authority: C
New River Valley Regional Jail: B	Roanoke Redevelopment & Housing Authority: A
Norfolk Airport Authority: B	Roanoke River Service Authority: B
Norfolk Redevelopment & Housing Authority: B	Robert E. Lee Soil & Water Conservation District: A
Northern Neck Planning District Commission: B	Rockbridge Area Community Services Board: B
Northern Neck Regional Jail: B	Rockbridge Area Social Services Department: B
Northern Shenandoah Valley Regional Commission: B	Rockbridge County Public Service Authority: B
Northern Virginia Health Care Center Commission: A	Rockbridge Regional Library: A
Northern Virginia Juvenile Detention Home: B	RSW Regional Jail Authority: B
Northern Virginia Transportation Authority: C	Russell County Public Service Authority: C
Northwestern Community Services Board: B	Scott County Public Service Authority: B
NRV Regional Water Authority	Scott County Redevelopment & Housing Authority: B
Pamunkey Regional Jail: C	Scott County Soil & Water Conservation District: B
Pamunkey Regional Library: C	Shenandoah Valley Juvenile Center: C
Peaks of Otter Soil & Water Conservation District: B	Shenandoah Valley Regional Airport Commission: B
Peanut Soil and Water Conservation District: A	Skyline Soil & Water Conservation District: A
Peninsula Airport Commission: B	South Central Wastewater Authority: B
Pepper's Ferry Regional Wastewater Authority: C	Southeastern Virginia Public Service Authority: B

AUTHORITIES, COMMISSIONS, DISTRICTS, REGIONAL INSTITUTIONS AND COMMUNITY SERVICES BOARDS, cont.

Southside Community Services Board: C	Virginia Highlands Airport Authority: B
Southside Planning District Commission: B	Virginia Peninsula Regional Jail: B
Southside Regional Jail: C	Virginia Peninsulas Public Service Authority: B
Southside Regional Juvenile Group Home Commission: B	Virginia Resources Authority: B
Southwest Regional Recreation Authority: B	Washington County Service Authority: B
Southwest Virginia Regional Jail: B	Washington Metropolitan Area Transportation Commission: A
Staunton Redevelopment & Housing Authority: B	Waynesboro Redevelopment & Housing Authority: B
Suffolk Redevelopment & Housing Authority: B	Western Tidewater Community Services Board: D
Sussex Service Authority: B	Western Tidewater Regional Jail: B
Tazewell Soil & Water Conservation District: B	Western Virginia Regional Jail Authority: C
Thomas Jefferson Planning District Commission: B	Western Virginia Water Authority: B
Thomas Jefferson Soil & Water Conservation District: B	Williamsburg Area Transit Authority: C
Tidewater Soil & Water Conservation District: A	Wise County Public Service Authority: B
Tidewater Youth Services Commission: C	Wise County Redevelopment & Housing Authority: C
Tri-County/City Soil & Water Conservation District: B	Woodway Water Authority: B
Upper Occoquan Sewage Authority: B	Wythe-Grayson Regional Library: B
Valley Community Services Board: B	Wytheville Redevelopment & Housing Authority: B
Virginia Biotechnology Research Park Authority: C	
Virginia Coalfield Economic Development Authority: C	

SCHOOLS: 144*

E: professional employees covered by retirement, group life insurance and the retiree health insurance credit and non-professional employees (as applicable) covered by retirement and group life insurance

F: professional and non-professional employees covered by retirement, group life insurance and the retiree health insurance credit

COUNTY SCHOOLS: 94

Accomack County Schools: E	Carroll County Schools: F	Giles County Schools: E	Loudoun County Schools: F
Albemarle County Schools: E	Charles City County Schools: E	Gloucester County Schools: F	Louisa County Schools: F
Alleghany County Schools: E	Charlotte County Schools: E	Goochland County Schools: E	Lunenburg County Schools: E
Amelia County Schools: E	Chesterfield County Schools: E	Grayson County Schools: E	Madison County Schools: E
Amherst County Schools: E	Clarke County Schools: E	Greene County Schools: E	Mathews County Schools: E
Appomattox County Schools: E	Craig County Schools: E	Greensville County Schools: E	Mecklenburg County Schools: E
Arlington County Schools: E	Culpeper County Schools: F	Halifax County Schools: F	Middlesex County Schools: E
Augusta County Schools: E	Cumberland County Schools: E	Hanover County Schools: E	Montgomery County Schools: E
Bath County Schools: F	Dickenson County Schools: E	Henrico County Schools: E	Nelson County Schools: E
Bedford County Schools: E	Dinwiddie County Schools: E	Henry County Schools: E	New Kent County Schools: E
Bland County Schools: E	Essex County Schools: E	Highland County Schools: E	Northampton County Schools: E
Botetourt County Schools: F	Fairfax County Schools: E	Isle of Wight County Schools: E	Northumberland County Schools: E
Brunswick County Schools: F	Fauquier County Schools: E	King & Queen County Schools: E	Nottoway County Schools: E
Buchanan County Schools: E	Floyd County Schools: E	King George County Schools: E	Orange County Schools: E
Buckingham County Schools: E	Fluvanna County Schools: E	King William County Schools: E	Page County Schools: E
Campbell County Schools: F	Franklin County Schools: F	Lancaster County Schools: E	Patrick County Schools: E
Caroline County Schools: E	Frederick County Schools: E	Lee County Schools: F	

COUNTY SCHOOLS, cont.

Pittsylvania County Schools: F	Richmond County Schools: E	Smyth County Schools: E	Warren County Schools: E
Powhatan County Schools: E	Roanoke County Schools: E	Southampton County Schools: E	Washington County Schools: F
Prince Edward County Schools: E	Rockbridge County Schools: E	Spotsylvania County Schools: E	Westmoreland County
Prince George County Schools: E	Rockingham County Schools: F	Stafford County Schools: F	Schools: E
Prince William County Schools: F	Russell County Schools: F	Surry County Schools: E	Wise County Schools: F
Pulaski County Schools: E	Scott County Schools: E	Sussex County Schools: E	Wythe County Schools: F
Rappahannock County Schools: F	Shenandoah County Schools: E	Tazewell County Schools: E	York County Schools: E

CITY AND TOWN SCHOOLS: 39

Alexandria City Schools: E	Falls Church Public Schools: E	Manassas Park City Schools: F	Roanoke City Schools: F
Bristol City Schools: E	Franklin City Schools: F	Martinsville City Schools: E	Salem City Schools: F
Buena Vista City Schools: E	Fredericksburg City Schools: E	Newport News Public Schools: F	Staunton City Schools: F
Charlottesville Public Schools: E	Galax City Schools: E	Norfolk Public Schools: E	Suffolk City Schools: E
Chesapeake Public Schools: E	Hampton City Schools: E	Norton City Schools: E	Virginia Beach City Schools: E
Colonial Beach Schools: E	Harrisonburg City Schools: E	Petersburg City Schools: E	Waynesboro City Schools: E
Colonial Heights City Schools: E	Hopewell City Schools: E	Poquoson City Schools: F	West Point Schools: E
Covington City Schools: F	Lexington City Schools: E	Portsmouth City Schools: E	Williamsburg–James City
Danville City Schools: E	Lynchburg Public Schools: E	Radford City Schools: E	County Schools: F
Fairfax City Schools: E	Manassas City Schools: F	Richmond City Public Schools: E	Winchester Public Schools: F

OTHER SCHOOLS: 11

Amelia-Nottoway Technical Center: E	Charlottesville-Albemarle Vocational Technical Center: E	New Horizons Technical Center: E	Rowanty Vocational Technical Center: E
Appomattox Regional Governor’s School: E	Jackson River Vocational Technical Center: F	Northern Neck Regional Special Education Program: E	Valley Vocational Technical Center: E
Bridging Communities Regional Career Center & Technical Center: E	Maggie Walker Governor’s School for Government and International Studies: E	Northern Neck Regional Vocational Center: E	

* Of the 144 school boards, 132 also provide coverage for non-professional employees and are treated as political subdivisions.

AGENCIES OF THE COMMONWEALTH OF VIRGINIA, INCLUDING PUBLIC COLLEGES AND UNIVERSITIES: 230

Covered by retirement, group life insurance, retiree health insurance credit and sickness and disability

TOTAL VRS-PARTICIPATING EMPLOYERS: 837

**FIGURE 5.16: VRS EMPLOYER RANKING
CURRENT YEAR**

AS OF JUNE 30, 2020

Employer	Active Employees	Percentage of Total
1. Fairfax County Public Schools – Professional Employees	22,097	6.33%
2. Loudoun County School Board – Professional Employees	9,896	2.84%
3. Prince William County School Board – Professional Employees	9,116	2.61%
4. Virginia Beach City School Board – Professional Employees	7,926	2.27%
5. Chesterfield County School Board – Professional Employees	6,467	1.85%
6. City of Virginia Beach	6,009	1.72%
7. University of Virginia – Academic Division	5,462	1.57%
8. Henrico County School Board	5,300	1.52%
9. Henrico County	5,194	1.49%
10. VPI & SU – Academic	4,782	1.37%
11. All Other	266,577	76.43%
Total	348,826	100.00%

HISTORICAL COMPARISON

AS OF JUNE 30, 2010

Employer	Active Employees	Percentage of Total
1. Fairfax County Schools – Professional Employees	19,640	5.73%
2. Virginia Beach City Schools – Professional Employees	8,335	2.43%
3. Prince William County Schools – Professional Employees	7,571	2.21%
4. Loudoun County Schools – Professional Employees	7,047	2.06%
5. Chesterfield County Schools – Professional Employees	6,195	1.81%
6. City of Virginia Beach – General Government	5,917	1.73%
7. University of Virginia – Academic Division	5,386	1.57%
8. Norfolk City Schools – Professional Employees	5,223	1.52%
9. Henrico County Schools – Professional Employees	5,057	1.48%
10. Henrico County – General Government	5,003	1.46%
11. All other	267,235	78.00%
Total	342,609	100.00%

HYBRID DEFINED CONTRIBUTION PLAN COMBINING STATEMENT OF FIDUCIARY NET POSITION

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Total Hybrid Defined Contribution Plans	
Assets:		
Receivables:		
Contributions	\$	10,931
Total Receivables		10,931
Investments:		
Hybrid Defined Contribution Investments		753,422
Total Investments		753,422
Total Assets		764,353
Liabilities:		
Other Payables		1,549
Total Liabilities		1,549
Net Position – Restricted for Benefits	\$	762,804

HYBRID DEFINED CONTRIBUTION PLAN COMBINING STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

FOR THE YEAR ENDED JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

	Total Hybrid Defined Contribution Plans	
Additions:		
Contributions:		
Members	\$	134,712
Employers		101,501
Total Contributions		236,213
Investment Income:		
Interest, Dividends and Other Investment Income		385
Net Appreciation/(Depreciation) in Fair Value of Investments		16,689
Total Investment Income Before Investment Expenses		17,074
Investment Expenses:		
Total Investment Expenses		—
Net Investment Income		17,074
Miscellaneous Revenue		(2)
Total Additions		253,285
Deductions:		
Refunds of Member Contributions		11,596
Administrative Expenses		4,700
Other Expenses		1,044
Total Deductions		17,340
Net Increase (Decrease)		235,945
Net Position – Restricted for Benefits – Beginning of Year		526,859
Net Position – Restricted for Benefits – End of Year	\$	762,804

HYBRID PLAN MEMBER AND EMPLOYER CONTRIBUTIONS

	Virginia Retirement System	Judicial Retirement System	Total Hybrid Contributions
Member Contributions	\$ 133,493	\$ 1,219	\$ 134,712
Employer Contributions	100,640	861	101,501
Total	\$ 234,133	\$ 2,080	\$ 236,213

Commonwealth of Virginia 457 Deferred Compensation and Cash Match Plans Program With Oversight by VRS

PLAN OVERVIEW

The Commonwealth of Virginia 457 Deferred Compensation Plan is qualified under Section 457(b) of the Internal Revenue Code and regulated by Title 51.1, Chapter 6, of the *Code of Virginia*. The 457 Deferred Compensation Plan provides eligible members a way to save for retirement through deferrals of compensation each pay period.

The Cash Match Plan is qualified under Section 401(a) of the Internal Revenue Code and is regulated by Title 51.1, Chapter 6, of the *Code of Virginia*. Employees participating in the Deferred Compensation Plan are eligible to receive an employer-provided contribution to the Cash Match Plan if they are state employees or employees whose employers have elected the Cash Match Plan.

ELIGIBILITY

New and re-hired salaried state employees in Plan 1 and Plan 2 are automatically enrolled in the Deferred Compensation Plan upon employment with two opportunities to opt out of the plan. The Deferred Compensation Plan is voluntary for salaried state employees hired before January 1, 2008, and for eligible political subdivision employees whose employers have elected to participate in the plan.

Wage employees of employers that offer the plans may participate in the Deferred Compensation Plan but not the Cash Match Plan. Figure 5.17 presents details of each plan's activity for the years ended June 30, 2020, 2019 and 2018.

Contributions to the Deferred Compensation Plan during fiscal year 2020 and fiscal year 2019 were \$158,533,725.53 and \$146,380,483, respectively.

Contributions to the Cash Match Plan during fiscal year 2020 and fiscal year 2019 were \$15,346,156 and \$15,494,911, respectively.

As shown in Figures 5.18 and 5.19, there were approximately 87,031 employees in the Deferred Compensation Plan and 72,350 employees in the Cash Match Plan as of June 30, 2020.

Current state legislation establishing the Commonwealth of Virginia 457 Deferred Compensation Plan allows participants to use plan funds to purchase eligible prior service credit in their defined benefit plan. Approximately 80 plan participants used the trustee-to-trustee transfer provision to buy VRS service credit.

The Virginia Retirement System (the System) has oversight but no investment responsibility for the Deferred Compensation and Cash Match Plans.

These plans' assets, therefore, are not included in the System's Basic Financial Statements.

FIGURE 5.17: STATEMENT OF CHANGES IN PLAN ACCUMULATION ASSETS

FOR THE YEARS ENDED JUNE 30

	Deferred Compensation Plan – 457(b)			Cash Match Plan – 401(a)		
	2020	2019	2018	2020	2019	2018
Plan Assets on July 1	\$ 2,875,519,022	\$ 2,700,559,681	\$ 2,434,472,689	\$ 479,319,288	\$ 456,617,544	\$ 418,697,759
Contributions	158,533,726	146,380,483	140,758,585	15,346,156	15,494,911	15,814,125
Distributions	(168,994,253)	(153,953,494)	(134,736,315)	(26,740,826)	(27,910,128)	(22,630,405)
Plan Transfers*	330,392,735	17,625,303	47,159,971	10,825,702	7,589,365	9,932,909
Third-Party Administrative Fees**	(2,353,135)	(2,298,608)	(2,293,173)	(76,827)	(71,792)	(70,186)
Period Earnings	78,098,013	167,205,656	215,197,925	14,523,058	27,599,388	34,873,341
Plan Assets on June 30	\$ 3,271,196,108	\$ 2,875,519,022	\$ 2,700,559,681	\$ 493,196,551	\$ 479,319,288	\$ 456,617,543

* For the Deferred Compensation Plan, this represents plan transfers from other eligible Section 457(b) plans into the Commonwealth's Plan. For the Cash Match Plan, this represents transfers from other qualified plans, including Partial Lump-Sum Option Payments (PLOPs) for the VRS pension plans.

** The current third-party administrator, ICMA-RC, is compensated based on an annual record-keeping and communication fee of \$30.50 per participant deducted on monthly basis (approximately \$2.54 per month). Participants with multiple accounts only pay one annual fee of \$30.50. In addition, administrative costs were incurred by VRS for each of the plans. For the Deferred Compensation Plan, they were \$804,806 and \$885,931 in fiscal year 2020 and fiscal year 2019, respectively. For the Cash Match Plan, they were \$444,250 and \$432,190 in fiscal year 2020 and fiscal year 2019, respectively. These costs are funded by the employers participating in the plans.

FIGURE 5.18: 457(b) ACTIVE AND INACTIVE PLAN PARTICIPANTS

AT JUNE 30

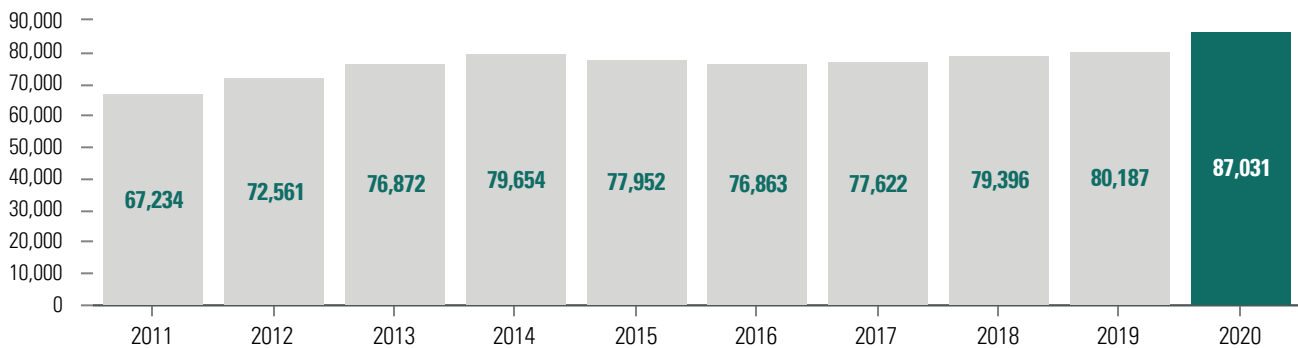


FIGURE 5.19: 401(a) ACTIVE AND INACTIVE PLAN PARTICIPANTS

AT JUNE 30

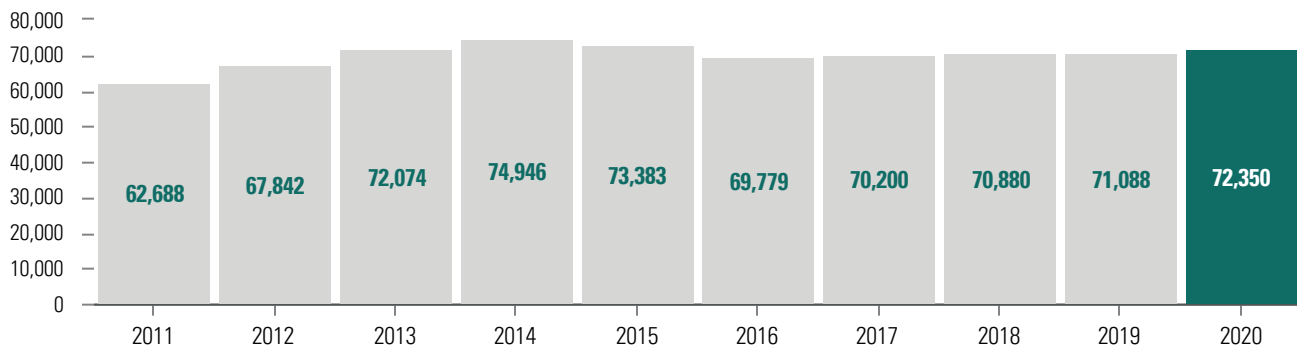


FIGURE 5.20: TOTAL PARTICIPANT ACCOUNTS IN EACH FUND OPTION

AT JUNE 30, 2020

(EXPRESSED IN THOUSANDS)

Fund Name	Deferred Compensation Plan – 457(b)	Cash Match Plan – 401(a)
Retirement Portfolio	9,027	7,029
Target Date 2025 Portfolio	7,284	5,822
Target Date 2030 Portfolio	7,573	6,008
Target Date 2035 Portfolio	7,662	6,149
Target Date 2040 Portfolio	7,071	5,678
Target Date 2045 Portfolio	7,801	6,440
Target Date 2050 Portfolio	7,841	6,676
Target Date 2055 Portfolio	6,267	5,402
Target Date 2060 Portfolio	2,810	2,412
Target Date 2065 Portfolio	402	382
Money Market Fund	4,402	3,079
Stable Value Fund	19,829	15,778
Bond Fund	9,798	6,135
Inflation-Protected Bond Fund	3,524	2,279
High-Yield Bond Fund	4,184	2,546
Stock Fund	24,880	17,975
Small/Mid-Cap Stock Fund	14,331	9,234
International Stock Fund	12,338	7,814
Global Real Estate Fund	7,482	5,425
VRS Investment Portfolio	1,462	899
Self-Directed Brokerage	601	79

The number of participant accounts exceeds the number of participants, as a participant may invest in more than one fund.

FIGURE 5.21: ACCUMULATION PLAN ASSETS BY FUND

FOR THE YEARS ENDED JUNE 30

Fund Name	Deferred Compensation Plan – 457(b)			Cash Match Plan – 401(a)		
	2020	2019	2018	2020	2019	2018
Retirement Portfolio	\$ 287,214,236	\$ 135,928,598	\$ 135,724,324	\$ 45,989,307	\$ 23,163,540	\$ 22,971,035
Target Date 2020 Portfolio	—	145,120,377	139,041,358	—	21,495,258	21,036,785
Target Date 2025 Portfolio	172,967,965	141,773,944	125,171,097	24,240,950	22,036,269	19,437,366
Target Date 2030 Portfolio	137,107,664	109,054,604	91,168,880	21,376,162	20,158,988	17,736,619
Target Date 2035 Portfolio	109,088,538	87,791,153	73,276,299	20,082,314	18,585,381	16,576,793
Target Date 2040 Portfolio	75,987,459	65,549,881	56,290,750	15,539,592	14,495,065	15,170,392
Target Date 2045 Portfolio	54,633,924	45,030,640	37,638,565	14,081,477	13,154,787	11,564,019
Target Date 2050 Portfolio	37,045,505	32,308,833	26,628,342	11,528,364	10,381,616	9,049,164
Target Date 2055 Portfolio	21,951,106	18,348,922	16,349,669	6,325,267	5,733,889	4,862,559
Target Date 2060 Portfolio	5,371,101	3,987,917	2,528,246	1,300,998	995,785	647,091
Target Date 2065 Portfolio	295,103	—	—	63,699	—	—
Money Market Fund	75,798,748	53,921,201	48,209,841	8,423,408	6,739,266	6,561,359
Stable Value Fund	527,291,096	411,350,637	401,846,607	100,396,075	96,730,425	95,743,802
Bond Fund	160,553,873	118,389,045	108,752,967	16,642,023	13,990,477	13,506,497
Inflation-Protected Bond Fund	38,335,085	34,277,998	32,288,234	3,868,972	3,319,138	3,260,090
High-Yield Bond Fund	34,867,403	36,982,014	31,318,366	4,121,189	4,533,496	3,765,406
Stock Fund	963,640,876	860,917,003	799,484,027	135,658,557	132,204,644	123,776,849
Small/Mid-Cap Stock Fund	264,424,982	265,760,065	268,354,513	31,536,887	35,672,477	35,332,087
International Stock Fund	146,079,592	141,061,592	147,777,818	14,393,847	15,854,876	16,730,996
Global Real Estate Fund	69,729,511	87,334,070	83,913,575	10,577,197	13,406,658	12,749,519
VRS Investment Portfolio – Interim Account	953,694	672,588	853,066	225,458	19,907	27,156
VRS Investment Portfolio	32,256,924	32,784,987	29,377,287	5,495,634	5,227,836	4,879,534
Self-Directed Brokerage	55,601,723	47,172,954	44,565,850	1,329,174	1,419,509	1,232,425
Total Accumulation Plan Assets	\$3,271,196,108	\$2,875,519,022	\$2,700,559,681	\$ 493,196,551	\$ 479,319,287	\$ 456,617,543

Detailed information on each of these funds, including the investment objective, distribution of assets, investment performance and annual operating expense for each fund, is presented in the Investment Section.

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