

West Virginia Consolidated Public Retirement Board



Pension Trust Funds of the State of West Virginia
(A Component Unit of the State of West Virginia)



Serving Those Who Serve West Virginia



West Virginia Consolidated Public Retirement Board

Pension Trust Funds of the State of West Virginia

ANNUAL COMPREHENSIVE FINANCIAL REPORT

For the Fiscal Year Ended June 30, 2023

Prepared by:

Elizabeth J. Cooper, CPA
Chief Financial Officer

**The West Virginia Consolidated Public Retirement Board
Administers the Following Retirement Systems:**

Public Employees' Retirement System
Teachers' Retirement System
State Police Death, Disability, and Retirement System
State Police Retirement System
Deputy Sheriff Retirement System
Judges' Retirement System
Emergency Medical Services Retirement System
Municipal Police Officers & Firefighters Retirement System
Natural Resources Police Officers Retirement System
Teachers' Defined Contribution Retirement System

Contact Information:

Jeffrey E. Fleck, Executive Director
601 57th Street, SE
Charleston, WV 25304
(304) 558-8570 or (800) 654-4406
CPRB@wv.gov



West Virginia Consolidated Public Retirement Board

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Introductory Section



2023 ANNUAL COMPREHENSIVE FINANCIAL REPORT *For the Fiscal Year Ended June 30, 2023*

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- 8 Board of Trustees, Administrative Staff, and Advisors
- 9 Awards and Recognition

Consolidated Public Retirement Board
Pension Trust Funds of the State of West Virginia



Consolidated Public Retirement Board



EXECUTIVE DIRECTOR
Jeffrey E. Fleck

601 57th Street SE, Suite 5
Charleston, WV 25304
Telephone: 304-558-3570 or 800-654-4406
Fax: 304-957-7522
Email: cprb@wv.gov
www.wvreirement.com



BOARD CHAIRMAN
Joseph G. Bunn

December 18, 2023

To the Citizens of West Virginia and the West Virginia Consolidated Public Retirement Board Members:

It is with great pleasure that we submit our Annual Comprehensive Financial Report (CAFR) of the West Virginia Consolidated Public Retirement Board (WVCPRB) for the fiscal year ended June 30, 2023. This report provides detail information on the performance of the ten retirement systems (the Systems) administered by WVCPRB, including:

- Public Employees Retirement System (PERS)
- Teachers Retirement System (TRS)
- Teachers Defined Contribution Retirement System (TDCRS)
- State Police Death, Disability Retirement System (SPDDRS)
- State Police Retirement System (SPRS)
- Deputy Sheriffs Retirement System (DSRS)
- Judges Retirement System (JRS)
- Emergency Medical Service Retirement System (EMSRS)
- Municipal Police Officers & Firefighters Retirement System (MPFRS)
- Natural Resources Police Officers Retirement System (NRPORS)

Each system is considered a component unit of the State of West Virginia for financial reporting purposes, and, as such, the financial information contained in this report is also included in the State of West Virginia's Annual Comprehensive Financial Report. Responsibility for both the accuracy of the data, and the completeness and fairness of the presentation including all disclosures, rests with the management of the Systems. Sufficient internal controls exist to provide reasonable assurance regarding the safekeeping of assets and fair presentation of the financial statements, supporting schedules, and statistical tables. We trust that you and the respective members of the Systems will find this report helpful in understanding your retirement systems.

Administration and Plan History

The PERS, TRS, TDCRS, SPDDRS, SPRS, DSRS, JRS, EMSRS, MPFRS, and NRPORS operate under common management and are collectively referred to as The West Virginia Consolidated Public Retirement Board. In addition to executive management, these plans share accounting and information services, the costs of which are allocated to the funds on an equitable basis. The plans were established under various provisions of the Legislature to provide benefits to qualified persons employed by State-supported institutions, entities, and components. Additional information regarding the administration and history of each system, including laws establishing the plan and services provided, can be found in the *Financial Section-Notes to the Financial Statements* portion of this report.

Financial Information

Accounting Method - As required by Accounting Principles Generally Accepted in the United States of America (GAAP), the financial information of the PERS, TRS, TDCRS, SPDDRS, SPRS, DSRS, JRS, EMSRS, MPFRS, and NRPORS is reported on the accrual basis of accounting. Revenues are recognized when earned and expenses are recognized when the corresponding liability is incurred. Investments are reported at fair value.

Internal Controls – The WVCPRB maintains a system of internal controls designed to provide reasonable assurance that assets are properly safeguarded, transactions are properly executed, and financial statements are reliable. Because the cost of internal control should not exceed anticipated benefits, the objective is to provide reasonable, rather than absolute, assurance that the financial statements are free of any material misstatements.

Summary Comparative Data - Management's Discussion and Analysis (MD&A) includes a narrative introduction, an overview of the financial statements, including the notes and required supplementary information, and summary comparative data for fiscal years 2023 and 2022.

Plan Funded Position

The funding objective of the WVCPRB pension trust funds is to meet long-term benefit requirements through contributions, which remain relatively level as a percent of member payroll over time, and through investment earnings. During the year ended June 30, 2023, the funded ratios for the retirement systems increased for 4 of the 9 defined benefit systems, while 5 of the systems experienced a decrease, and this measure was not applicable to the new system (based on actuarial valuations completed as of July 1, 2022). The funded ratios of the defined benefit systems, are as follows:

	July 1, 2022	July 1, 2021	Increase (Decrease)
PERS	98.24%	97.53%	0.71%
TRS	78.43%	76.03%	2.40%
SPDDRS	95.14%	106.09%	-10.95%
SPRS	86.40%	103.94%	-17.54%
DSRS	88.41%	87.52%	0.89%
JRS	239.48%	263.08%	-23.60%
EMSRS	102.72%	112.83%	-10.11%
MPFRS	140.05%	180.16%	-40.11%
NRPORS	90.32%	89.78%	0.54%

Historical information concerning funding progress is presented in the *actuarial section* for each system.

Investment Activity

Total investments for the WVCPRB increased in fiscal year 2023, primarily due to both an increase in the fair value of the investments and the income they produced. The total investment assets at June 30, 2023 and 2022 were (in thousands):

	June 30, 2023	June 30, 2022	Increase (Decrease)
PERS	\$ 8,398,436	\$ 8,004,836	\$ 393,600
TRS	9,319,702	8,980,422	339,280
SPDDRS	778,440	767,509	10,931
SPRS	320,096	289,417	30,679
DSRS	316,039	293,315	22,724
JRS	278,545	259,323	19,222
EMSRS	125,180	112,408	12,772
MPFRS	34,945	26,795	8,150
NRPORS	27,642	24,467	3,175
TDCRS	663,300	603,837	59,463
	\$ 20,262,325	\$ 19,362,329	\$ 899,996

Investment Activity (Continued)

Interest and dividend income and the associated investment yields for fiscal years ended June 30, 2023 and 2022, were (dollars in thousands):

	Fiscal Year Ended June 30, 2023			Fiscal Year Ended June 30, 2022			Increase (Decrease)		
	Interest & Dividends	Change in Fair Market Value	Yield	Interest & Dividends	Change in Fair Market Value	Yield	Interest & Dividends	Change in Fair Market Value	Yield
PERS	\$ 672	\$ 669,885	8.33%	\$ 28	\$ (542,528)	-6.25%	\$ 644	\$ 1,212,413	14.58%
TRS	1,166	741,051	8.25%	61	(600,605)	-6.20%	1,105	1,341,656	14.45%
SPDDRS	80	63,030	8.21%	8	(51,138)	-6.17%	72	114,168	14.38%
SPRS	20	24,953	8.62%	1	(19,816)	-6.50%	19	44,769	15.12%
DSRS	19	24,945	8.50%	1	(19,975)	-6.37%	18	44,920	14.87%
JRS	16	22,047	8.50%	1	(17,632)	-6.33%	15	39,679	14.83%
EMRSRS	14	9,632	8.57%	-	(7,672)	-6.43%	14	17,304	15.00%
MPFRS	14	2,549	9.51%	1	(1,831)	-7.03%	13	4,380	16.54%
NRPORS	5	2,133	8.72%	-	(1,661)	-6.51%	5	3,794	15.23%
TDCRS	49,285	70,638	11.70%	30,189	(113,626)	-18.66%	18,796	184,264	30.36%

Additional information concerning investments, including investment policies and procedures, is located in the investment section of this Annual Comprehensive Financial Report.

Management's Discussion and Analysis

GASB Statement No. 34 requires that management provide a narrative introduction, overview, and analysis to accompany the Financial Statements in the form of Management's Discussion and Analysis (MD&A). This letter of transmittal is intended to complement the MD&A and should be read in conjunction with it. The MD&A can be found immediately following the Independent Auditor's Report.

Professional Services

Professional consultants are engaged by the Board to perform certain professional services that are essential to the effective operation of the respective plans. The Certification letters from the independent actuary, in conjunction with our internal actuary, are included in this report. The professional consultants engaged by the Board are listed in the Introductory Section of this report.

Financial Statement Audit

Eide Bailly, LLP, issued an unmodified ("clean") opinion on the West Virginia Consolidated Public Retirement Board's financial statements for the fiscal year ended June 30, 2022. The independent auditor's report is located at the front of the Financial Section of this report.

Highlights and Initiatives

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the West Virginia Consolidated Public Retirement Board for its annual comprehensive financial report for the fiscal year ended June 30, 2022. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized annual comprehensive financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current annual comprehensive financial report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

Acknowledgments

The compilation of this report reflects the combined effort of the staff of the West Virginia Consolidated Public Retirement Board under the leadership of its Executive Director and the Guidance of the Board Members. It is intended to provide extensive and reliable information as a basis for making management decisions, determining compliance with legal provisions, and determining responsible stewardship of the funds of the PERS, TRS, SPDDRS, SPRS, DSRS, JRS, EMSRS, MPFRS, NRPORS, and TDCRS.

We would like to take this opportunity to express our gratitude to the staff, the Governor, the Board of Trustees, the legislature, the consultants, and the many people who have worked so diligently through continued cooperative efforts to assure the successful operation and financial soundness of the PERS, TRS, SPDDRS, SPRS, DSRS, JRS, EMSRS, MPFRS, NRPORS, and TDCRS systems.

Sincerely,



Jeffrey E. Fleck
Executive Director

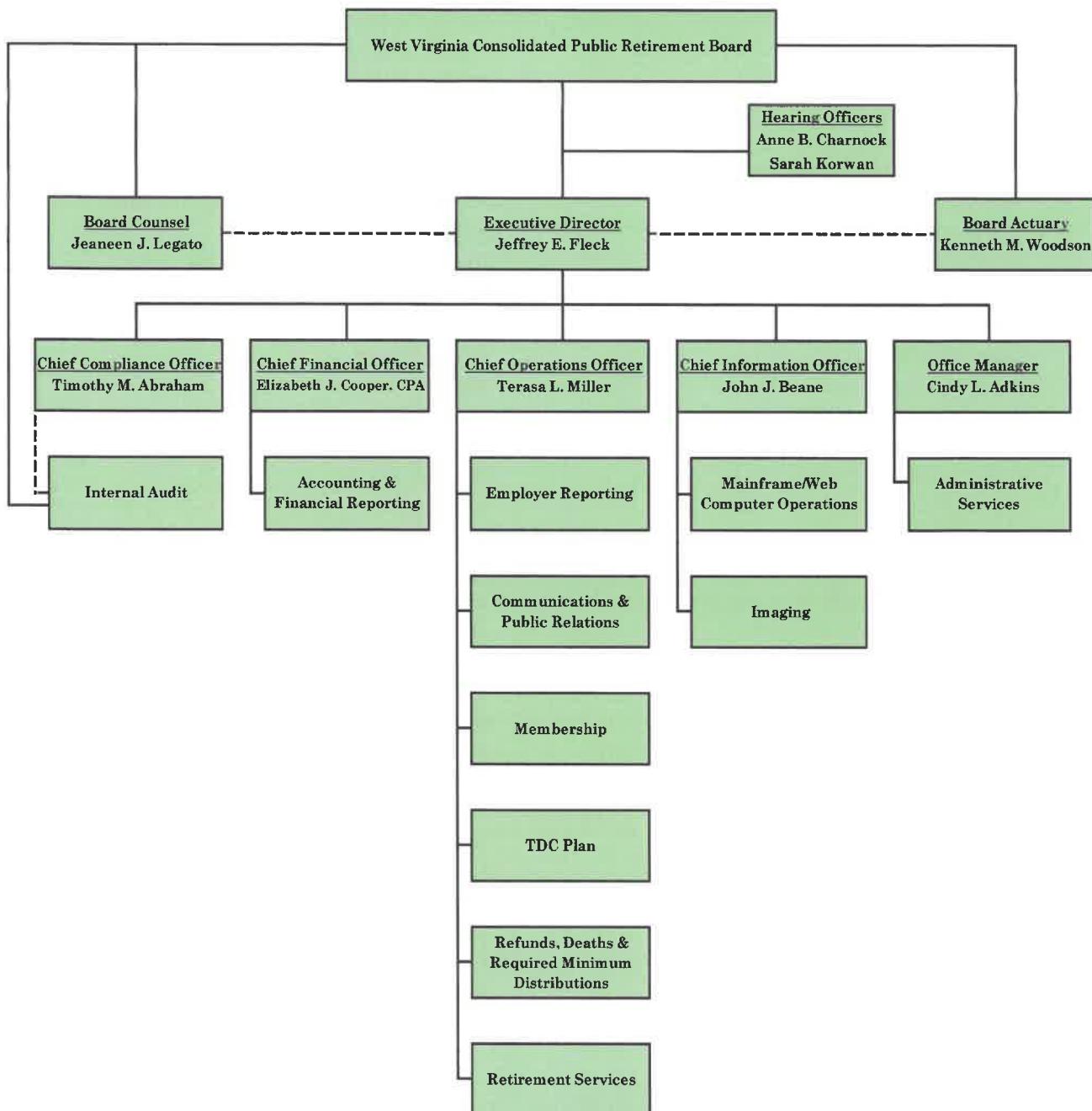


Elizabeth J. Cooper
Chief Financial Officer

West Virginia Consolidated Public Retirement Board

Introductory Section

Organization Chart



West Virginia Consolidated Public Retirement Board

Introductory Section

Board of Trustees, Administrative Staff, & Advisors

Board of Trustees:

Chair	Joseph G. Bunn, Esquire
Vice-Chair	Michael McKown
Statutory Board Member	Governor James C. Justice, III
Statutory Board Member	State Auditor John B. McCuskey
Statutory Board Member	State Treasurer Riley Moore
Statutory Board Member	Administration Cabinet Secretary – Mark D. Scott
Board Member	William A. Barker, Jr.
Board Member	Rhonda Bolyard
Board Member	Woodrow W. Brogan, III
Board Member	Daniel Cart
Board Member	Larry W. Cole
Board Member	Michael Corsaro
Board Member	Brad Mankins
Board Member	Beth K. Morgan
Board Member	D. Todd Murray
Board Member	Dominque N. Ranieri
Board Member	C. Jeffrey Vallet, CPA

Administrative Staff:

Executive Director	Jeffrey E. Fleck
Executive Assistant	Kimberly K. Pauley
Chief Operating Officer/Deputy Director	Terasa L. Miller
Chief Financial Officer	Elizabeth J. Cooper, CPA
Chief IT/Information Officer	John J. Beane
Contract Legal Counsel	J. Jeanean Legato
Administrative Services Manager	Cindy L. Adkins
Accounting Manager	Lori A. Cottrill
Membership Manager	Vicki L. Sutton
Retirement Services Manager	Lisa M. Trump
Employer Reporting Manager	Caroline R. Brady
TDCRS Manager	Paula M. Vanhorn
Refunds/Deaths/RMDs Manager	Sharon L. Whittaker
Compliance Officer	Timothy M. Abraham

Advisors:

External Legal Counsel	Bowles Rice, LLP
Consulting Actuary	Buck Global, LLC
Investment Manager	West Virginia Investment Management Board (1)
Independent Certified Public Accountants	Eide Bailly, LLP

(1) A schedule of investment fees and commissions by investment pool is presented in the Investment Section on pages 101, 104, 107, 111, and 114.

West Virginia Consolidated Public Retirement Board

Introductory Section

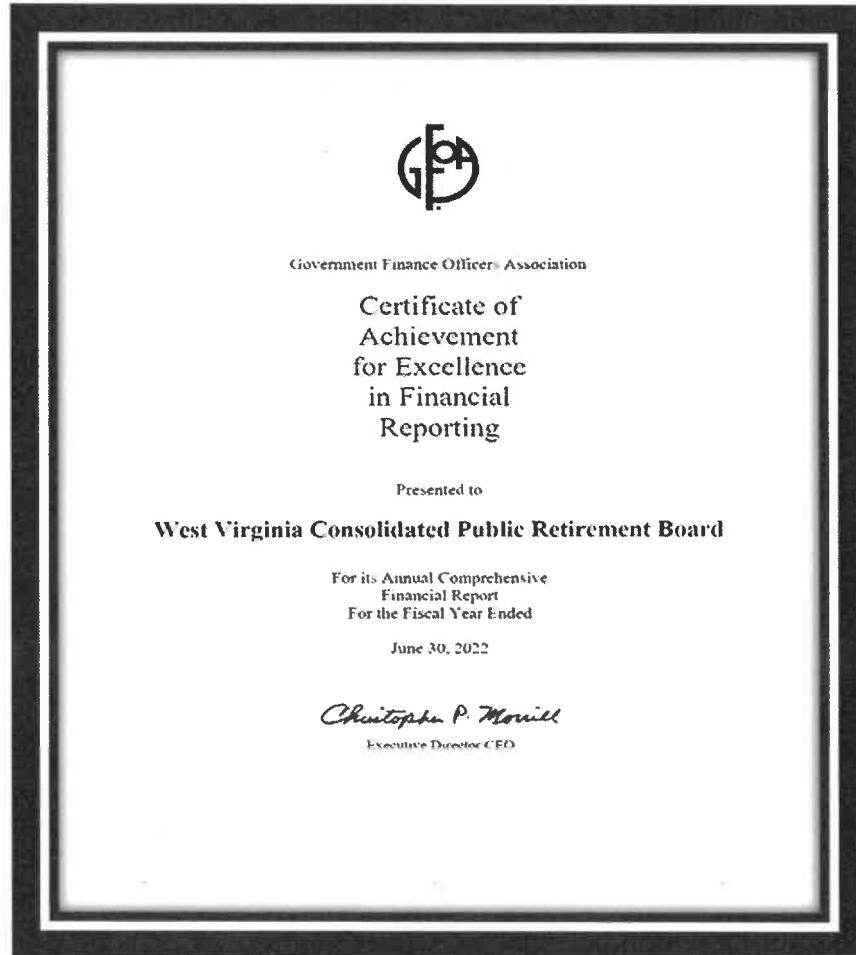
Awards and Recognition

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

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the West Virginia Consolidated Public Retirement (WVCPRB) for its Annual Comprehensive Financial Report (ACFR) for the fiscal year ended June 30, 2022. This was the 11th consecutive year that WVCPRB 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.

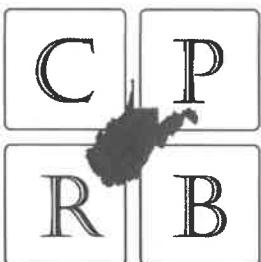
The WVCPRB ACFR for fiscal year 2023 continues to conform to the Certificate of Achievement Program requirements and will be submitted to GFOA to determine its eligibility for another certificate.



West Virginia Consolidated Public Retirement Board
Introductory Section



Financial Section



2023 ANNUAL COMPREHENSIVE FINANCIAL REPORT *For the Fiscal Years Ended June 30, 2023*

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Independent Auditor's Report

To the Members of the
West Virginia Consolidated Public Retirement Board
Charleston, West Virginia

Report on the Audit of the Financial Statements Opinion

We have audited the accompanying financial statements of the fiduciary activities of the West Virginia Consolidated Public Retirement Board (the Board), a component unit of the State of West Virginia, which comprise the statement of fiduciary net position as of the year ended June 30, 2023, and the related statement of changes in fiduciary net position, for the year then ended, and the related notes to the financial statements.

In our opinion, the accompanying financial statements referred to above present fairly, in all material respects, the respective financial position of the fiduciary activities of the Board, as of June 30, 2023, and the respective changes in financial position, for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States (Government Auditing Standards). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Board and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Emphasis of Matters

Reporting Entity

As discussed in Note 1, the financial statements of the West Virginia Consolidated Public Retirement Board are intended to present the financial position and the changes in financial position of the Board. They do not purport to, and do not present fairly the financial position of the State of West Virginia, as of June 30, 2023, the changes in its financial position, and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally in the United States of America. Our opinion is not modified with respect to this matter.

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877 W. Main St., Ste. 800 | Boise, ID 83702-5858 | T 208.344.7150 | F 208.344.7435 | EOE

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America; and for 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.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Board's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit 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 Board's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Board's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, the Schedules of Net Pension Liability and Changes in Net Pension Liability, Schedule of Contributions, Schedules of Investment Returns and respective notes to the required supplementary information as listed in the table of contents be presented to supplement the basic financial statements. Such information is the responsibility of management and, 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 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 Information

Our audit was conducted for the purpose of forming opinion on the financial statements that collectively comprise the Board's basic financial statements. The supplementary information as listed in the table of contents are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The 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 supplementary information listed are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Information

Management is responsible for the other information included in the annual report. The other information comprises the introductory, investment, actuarial, and statistical sections but does not include the basic financial statements and our auditor's report thereon. Our opinion on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Eide Bailly LLP

Boise, Idaho

October 12, 2023

West Virginia Consolidated Public Retirement Board

Financial Section

Management's Discussion and Analysis

This section presents management's discussion and analysis of the West Virginia Consolidated Public Retirement Board's (WV CPRB) financial status and performance for the year ended June 30, 2023.

WV CPRB is responsible for administering retirement benefits for nine defined benefit pension systems and one defined contribution system. These retirement systems are:

Defined Benefit Systems:

- Public Employees Retirement System (PERS)
- Teachers' Retirement System (TRS)
- State Police Death, Disability and Retirement System (SPDDRS)
- State Police Retirement System (SPRS)
- Deputy Sheriff Retirement System (DSRS)
- Judges' Retirement System (JRS)
- Emergency Medical Service Retirement System (EMSRS)
- Municipal Police Officers & Firefighters Retirement System (MPFRS)
- Natural Resources Police Officers Retirement System (NRPORS)

Defined Contribution System:

- Teachers' Defined Contribution Retirement System (TDCRS)

OVERVIEW OF THE FINANCIAL STATEMENTS

This discussion and analysis is intended to serve as an introduction to the WV CPRB's financial reporting, which is comprised of the following components:

1. Financial Statements, including Notes to the Financial Statements
2. Required Supplementary Information

Collectively, this information presents the net position held in trust for pension benefits for each of the systems administered by WV CPRB as of June 30, 2023. This financial information also summarizes the changes in net position held in trust for pension and defined contribution benefits for the year then ended. The information in each of these components is briefly summarized as follows:

1. Financial Statements. For the fiscal year ended June 30, 2023, financial statements are presented for the retirement systems administered by WV CPRB. Fiduciary funds are used to account for resources held for the benefit of parties outside WV CPRB. These fiduciary funds are comprised of nine defined benefit retirement systems and one defined contribution retirement system.
 - The Statement of Fiduciary Net Position – Pension Funds is presented for the pension funds at June 30, 2023. This financial statement reflects the resources available to pay benefits to members, including retirees and beneficiaries.
 - The Statement of Changes in Fiduciary Net Position – Pension Funds is presented for the pension funds for the year ended June 30, 2023. This financial statement reflects the changes in the resources available to pay benefits to members, including retirees and beneficiaries during the fiscal year.
 - Notes to the Financial Statements. The Notes to the Financial Statements provide additional information that is essential to a full understanding of the data provided in the financial statements.
2. Required Supplementary Information. The required supplementary information consists of management discussion and analysis of schedules concerning the net pension liability and changes therein, schedule of investment returns and actuarially determined contribution requirements for the defined benefit retirement systems.

West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

OVERVIEW OF THE FINANCIAL STATEMENTS (Continued)

PENSION TRUST FUNDS - DEFINED BENEFIT SYSTEMS

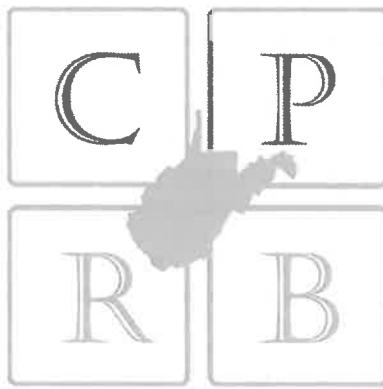
Investment Management

Investments held by the defined benefit retirement systems administered by the WV CPRB are managed, as required by West Virginia Code § 12-6-1, by the West Virginia Investment Management Board (WV IMB). The WV IMB maintains nine commingled investment pools by investment type in which the defined benefit systems are invested. Each defined benefit system owns an equity position in each pool and receives proportionate investment income from each pool in accordance with the system's respective ownership percentage in each pool. The value of each system's investments in each of these investment pools is presented in the Statement of Fiduciary Net Position. Investment gains or losses are reported in the Statement of Changes in Fiduciary Net Position for each system.

At June 30, 2023, the nine defined benefit retirement systems had total investments of approximately \$20.26 billion. The defined benefit retirement systems experienced annual investment returns ranging from 9% to 24.4%, net of fees, compared to the actuarial assumed rate of return of 7.25%, net of fees. Fixed income returns ranged from (0.1%) to 3.7%, net of fees.

Administrative Costs

Administrative expenses are allocated to the retirement systems monthly based on each retirement system proportionately based on total proportionate share of the total invested assets at the beginning of the fiscal year.



West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

PENSION TRUST FUNDS - DEFINED BENEFIT SYSTEMS (continued)

Public Employees' Retirement System (PERS)

The Public Employees' Retirement System (PERS) provides retirement benefits to covered employees of the State of West Virginia and other political subdivisions. Employee and employer contributions and earnings on investments fund benefits of the system.

The net position restricted for pensions (total assets minus liabilities) of PERS on June 30, 2023, was approximately \$8.4 billion, an increase of \$393.7 million [+4.92%] from the plan net position restricted for pensions at June 30, 2022.

Additions to PERS' net position restricted for pensions includes employer and employee contributions, and investments gains or losses. Contribution revenue for fiscal year 2023 totaled approximately \$241.87 million, a decrease of \$7.06 million [2.86%] compared to fiscal year 2022. The decrease in contributions can be attributed to the retirement of covered employees. PERS reported net investment income of approximately \$669.2 million for fiscal year 2023, which was an increase of \$1.21 billion [223.36%] from fiscal year 2022. The system's investment returns were consistent with the overall market returns during the fiscal year.

Deductions from PERS net position restricted for pensions resulted from retirement and beneficiary benefits, administrative expenses, services transfers, and refunds to members terminating service. For fiscal year 2023, benefits were approximately \$507.21 million, an increase of approximately \$17.89 million [3.66%] from the prior year. The increase in benefits is due to the number of members retiring exceeding the number of those who became deceased. For fiscal 2023, the administrative costs of administering the retirement system totaled approximately \$3.74 million, an increase of \$0.22 million [+6.24%], from \$3.52 million in fiscal year 2022. The increase in investments creates higher administrative fees.

Refunds and Transfers are the result of employees leaving public service and requesting the money they contributed, plus interest, into the system to be returned or transferring their service credit to another retirement system in which they are eligible. Refunds and Transfers were approximately \$18.04 million in fiscal year 2023, an increase of approximately \$4.48 million [+33.1%], from the approximately \$13.56 million in fiscal year 2022.

Annually, an actuarial valuation of the system's assets and the net pension liability is performed. The most recent actuarial valuation, the fiduciary net position as a percentage of total pension liability increased from 98.24% on June 30, 2022, to 100.05% on June 30, 2023. The net pension (asset) liability as a percentage of covered payroll was 8.88% and 0.27% as of June 30, 2022, and 2023, respectively. The net pension (asset) liability was (\$4.48) million as of June 30, 2023, compared to \$143.04 million as of June 30, 2022.

Public Employees Retirement System		
Net position June 30, (Dollars in Thousands)		
Assets:	2023	2022
Cash	\$ 1,416	\$ 789
Investments at Fair Value	8,398,436	8,004,836
Receivables	5,129	5,358
Total Assets	8,404,981	8,010,983
 Liabilities:		
Accrued Expenses	3,882	3,654
Total Liabilities	3,882	3,654
Total Net Position	\$ 8,401,099	\$ 8,007,329

Public Employees Retirement System		
Change in Net position Fiscal Year Ended June 30, (Dollars in Thousands)		
Additions:	2023	2022
Employee Contributions	\$ 89,179	\$ 81,165
Employer Contributions	152,675	167,761
Investment Income	669,213	(542,500)
Other Income and Transfers In	11,682	1,420
Total Additions	922,749	(292,154)
 Deductions:		
Benefits	507,209	489,324
Refunds and Transfers Out	18,045	13,557
Administrative Expenses	3,736	3,520
Total Deductions	528,990	506,401
Change in Net Position	393,770	(798,555)
Total Beginning Net Position	\$ 8,007,329	\$ 8,805,884
Total Ending Net Position	\$ 8,401,099	\$ 8,007,329

West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

PENSION TRUST FUNDS - DEFINED BENEFIT SYSTEMS (continued)

Teachers' Retirement System (TRS)

The Teachers' Retirement System (TRS) provides retirement benefits to covered teachers and school service personnel in the State of West Virginia. Employee and employer contributions and earnings on investments fund benefits of the system.

The net position restricted for pensions (total assets minus liabilities) of TRS on June 30, 2023, was approximately \$9.4 billion, an increase of \$398.5 million [4.43%] from the plan net position restricted for pensions at June 30, 2022.

Additions to TRS' net position restricted for pensions include employer and employee contributions and investments gains or losses. Contribution revenue for fiscal year 2023 totaled approximately \$556.95 million, a decrease of \$21.75 million [3.76%] compared to fiscal year 2022. The decrease in contributions is directly related to the retirement of covered employees. TRS reported net investment income of approximately \$739.89 million for fiscal year 2023, which was an increase of \$1.34 billion [223.2%] from fiscal year 2022. The system's investment returns were consistent with the overall market returns during the fiscal year.

Deductions from TRS net position restricted for pensions resulted from retirement and beneficiary benefits, administrative expenses, services transfers, and refunds to members terminating service. For fiscal year 2023, benefits were approximately \$885.27 million, an increase of approximately \$7.5 million [.86%] from the prior year. The increase in benefits is due to the number of members retiring exceeding the number of those who became deceased. For fiscal 2023, the administrative costs of administering the retirement system totaled approximately \$4.19 million, an increase of \$.24 million [6.1%], from \$3.95 million in fiscal year 2022. The increase in investments creates higher administrative fees.

Refunds and Transfers are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be returned or transferring their service credit to another retirement system in which they are eligible. Refunds and Transfers Out were approximately \$12.75 million in fiscal year 2023, a decrease of approximately \$193 thousand [1.5%], from the approximately \$12.94 million in fiscal year 2022.

Annually, an actuarial valuation of the system's assets and the net pension liability is performed. The most recent actuarial valuation, the fiduciary net position as a percentage of total pension liability increased from 77.78% on June 30, 2022, to 80.42% on June 30, 2023. The net pension liability as a percentage of covered payroll changed from 157.18% to 135.74% as of June 30, 2022, and 2023, respectively. The net pension liability was \$2.29 billion as of June 30, 2023, compared to \$2.57 billion as of June 30, 2022.

Teachers' Retirement System		
Net Position		
June 30, (Dollars in Thousands)		
Assets:	2023	2022
Cash	\$ 62,784	\$ 3,369
Investments at Fair Value	9,319,702	8,980,422
Receivables	22,233	22,100
Total Assets	9,404,719	9,005,891
Liabilities:		
Accrued Expenses	4,315	4,034
Total Liabilities	4,315	4,034
Total Net Position	\$ 9,400,404	\$ 9,001,857

Teachers' Retirement System		
Change in Net Position		
Fiscal Year Ended June 30, (Dollars in Thousands)		
Additions:	2023	2022
Employee Contributions	\$ 104,429	\$ 95,694
Employer Contributions	135,050	128,717
Other Contributions	317,471	354,288
Investment Income	739,885	(600,544)
Other Income and Transfers In	3,925	3,573
Total Additions	1,300,760	(18,272)
Deductions:		
Benefits	885,273	877,766
Refunds and Transfers Out	12,748	12,941
Administrative Expenses	4,192	3,951
Total Deductions	902,213	894,658
Change in Net Position	398,547	(912,930)
Total Beginning Net Position	\$ 9,001,857	\$ 9,914,787
Total Ending Net Position	\$ 9,400,404	\$ 9,001,857

West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

PENSION TRUST FUNDS - DEFINED BENEFIT SYSTEMS (Continued)

State Police Death, Disability, and Retirement System (SPDDRS)

The West Virginia State Police Death, Disability and Retirement System (SPDDRS) was established to provide retirement, disability, and death benefits for all state troopers hired before March 12, 1994. Employee and employer contributions and earnings on investments fund benefits of the system. Civilian employees of the West Virginia State Police are members of the Public Employees Retirement System (PERS).

The net position restricted for pensions (total assets minus liabilities) of SPDDRS on June 30, 2023, was approximately \$778.13 million, an increase of \$10.93 million [1.42%] from the plan net position restricted for pensions on June 30, 2022.

Additions to SPDDRS' net position restricted for pensions include employer and employee contributions and investments gains or losses. Contribution revenue for fiscal year 2023 totaled approximately \$61 thousand, a decrease of \$9 thousand [-12.86%] compared to fiscal year 2022. The West Virginia Legislature did not appropriate funds for the plan as they did in the prior fiscal year. SPDDRS reported net investment income of approximately \$62.96 million for fiscal year 2023, which was an increase of \$114.08 million [223.12%] from fiscal year 2022. The system's investment returns were consistent with the overall market returns during the fiscal year.

Deductions from SPDDRS' net position restricted for pensions resulted from retirement and beneficiary benefits, administrative expenses, services transfers, and refunds to members terminating service. For fiscal year 2023, benefits were approximately \$52.4 million, an increase of approximately \$.98 million [1.91%] from the prior year. The increase in benefits is due to the number of members retiring exceeding the number of those who became deceased. For fiscal 2023, the administrative costs of administering the retirement system totaled approximately \$358 thousand, which was an increase of \$18 thousand from fiscal year 2022. The increase in investments creates higher administrative fees.

Annually, an actuarial valuation of the system's assets and the net pension liability is performed. The most recent actuarial valuation, the fiduciary net position as a percentage of total pension liability increased from 94.99% on June 30, 2022, to 96% on June 30, 2023. The net pension liability as a percentage of covered payroll changed from 11,462.04% to 11,180.69% as of June 30, 2022, and 2023, respectively. The net pension liability was \$32.42 million as of June 30, 2023, compared to \$40.46 million as of June 30, 2022.

State Police Death, Disability and Retirement System		
Net Position		
June 30, (Dollars in Thousands)		
Assets:	2023	2022
Cash	\$ 49	\$ 33
Investments at Fair Value	778,440	767,509
Receivables	3	3
Total Assets	778,492	767,545
Liabilities:		
Accrued Expenses	358	340
Total Liabilities	358	340
Total Net Position	\$ 778,134	\$ 767,205

State Police Death, Disability and Retirement System		
Change in Net Position		
Fiscal Year Ended June 30, (Dollars in Thousands)		
Additions:	2023	2022
Employee Contributions	\$ 22	\$ 26
Employer Contributions	40	44
Other Contributions	-	17,798
Investment Income	62,950	(51,130)
Other Income	704	721
Total Additions	63,716	(32,541)
Deductions:		
Benefits	52,429	51,447
Administrative Expenses	358	340
Total Deductions	52,787	51,787
Change in Net Position	10,929	(84,328)
Total Beginning Net Position	\$ 767,205	\$ 851,533
Total Ending Net Position	\$ 778,134	\$ 767,205

West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

PENSION TRUST FUNDS - DEFINED BENEFIT SYSTEMS (Continued)

State Police Retirement System (SPRS)

The West Virginia State Police Retirement System (SPRS) was established to provide retirement, disability, and death benefits for all state troopers hired on or after March 12, 1994. Employee and employer contributions and earnings on investments fund benefits of the system. Civilian employees of the West Virginia State Police are members of the Public Employees Retirement System (PERS).

The net position restricted for pensions (total assets minus liabilities) of SPRS on June 30, 2023, was approximately \$320.04 million, an increase of \$30.74 million [10.63%] from the plan net position restricted for pensions at June 30, 2022.

Additions to SPRS' net position restricted for pensions include employer and employee contributions and investments gains or losses. Contribution revenue for fiscal year 2023 totaled approximately \$12.96 million, a decrease of \$.86 million [6.2%] compared to fiscal year 2022. SPRS reported net investment income of approximately \$24.9 million for fiscal year 2023, which was an increase of \$44.75 million [225.83%] from fiscal year 2022. The system's investment returns were consistent with the overall market returns during the fiscal year.

Deductions from SPRS net position restricted for pensions resulted from retirement and beneficiary benefits, administrative expenses, services transfers, and refunds to members terminating service. For fiscal year 2023, benefits were approximately \$6.8 million, an increase of approximately \$1.54 million [29%] from the prior year. The increase in benefits is due to the number of members retiring exceeding the number of those who became deceased. For fiscal 2023, the administrative costs of administering the retirement system totaled approximately \$135 thousand, which is an increase of \$15 thousand from fiscal year 2022. The increase in investments creates higher administrative fees.

Refunds and Transfers are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be returned or transferring their service credit to another retirement system in which they are eligible. Refunds and Transfers were approximately \$320 thousand in fiscal year 2023, a decrease of approximately \$133 thousand [29.36%], from approximately \$453 thousand in fiscal year 2022.

Annually, an actuarial valuation of the system's assets and the net pension liability is performed. The most recent actuarial valuation, the fiduciary net position as a percentage of total pension liability increased from 87.52% on June 30, 2022, to 88.30% on June 30, 2023. The net pension (asset) liability as a percentage of covered employee payroll changed from 117.41% to 109.25% as of June 30, 2022, and 2023, respectively. The net pension liability was \$42.4 million as of June 30, 2023, compared to \$41.24 million as of June 30, 2022.

State Police Retirement System		
Net Position		
June 30, (Dollars in Thousands)		
Assets:	2023	2022
Cash	\$ 64	\$ 17
Investments at Fair Value	320,096	289,417
Receivables	26	-
Total Assets	320,186	289,434
Liabilities:		
Accrued Expenses	142	131
Total Liabilities	142	131
Total Net Position	\$ 320,044	\$ 289,303

State Police Retirement System		
Change in Net Position		
Fiscal Year Ended June 30, (Dollars in Thousands)		
Additions:	2023	2022
Employee Contributions	\$ 4,860	\$ 4,395
Employer Contributions	8,100	9,428
Other Income	129	-
Investment Income	24,933	(19,815)
Total Additions	38,022	(5,992)
Deductions:		
Benefits	6,826	5,290
Refunds and Transfers	320	453
Administrative Expenses	135	120
Total Deductions	7,281	5,863
Change in Net Position	30,741	(11,855)
Total Beginning Net Position	289,303	301,158
Total Ending Net Position	\$ 320,044	\$ 289,303

West Virginia Consolidated Public Retirement Board

Financial Section

Management's Discussion and Analysis (Continued)

PENSION TRUST FUNDS - DEFINED BENEFIT SYSTEMS (Continued)

Deputy Sheriff Retirement System (DSRS)

The Deputy Sheriff Retirement System (DSRS) provides retirement benefits for all deputy sheriffs hired by all 55 county governments in West Virginia on or after July 1, 1998. Employee and employer contributions and earnings on investments fund benefits of the system.

The net position restricted for pensions (total assets minus liabilities) of DSRS on June 30, 2023, was approximately \$317 million, an increase of \$22.7 million [7.7%] from the plan net position restricted for pensions at June 30, 2022.

Additions to DSRS' net position restricted for pensions include employer and employee contributions and investments gains or losses. Contribution revenue for fiscal year 2023 totaled approximately \$14.59 million, an increase of \$.80 million [5.8%] compared to fiscal year 2022. The increase in contributions is directly related to the increase in wages reported by the participating employers for covered employees. DSRS reported net investment income of approximately \$24.93 million for fiscal year 2023, which was an increase of \$44.9 million [224.79%] from the fiscal year 2022. The system's investment returns were consistent with the overall market returns during the fiscal year.

Deductions from DSRS net position restricted for pensions resulted from retirement and beneficiary benefits, administrative expenses, services transfers, and refunds to members terminating service. For fiscal year 2023, benefits were approximately \$15.74 million, an increase of approximately \$1.25 million [8.62%] from the prior year. The increase in benefits is due to the number of members retiring exceeding the number of those who became deceased. For fiscal 2023, the administrative costs of administering the retirement system totaled approximately \$137 thousand, an increase of \$11 thousand [8.7%], from \$126 thousand in fiscal year 2022. The increase in investments creates higher administrative fees.

Refunds and Transfers are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be returned. Refunds and Transfers Out were approximately \$1.23 million in fiscal year 2023, an increase of approximately \$244 thousand [24.87%], from approximately \$981 thousand in fiscal year 2022.

Annually, an actuarial valuation of the system's assets and the net pension liability is performed. The most recent actuarial valuation, the fiduciary net position as a percentage of total pension liability increased from 88.11% on June 30, 2022, to 89.39% on June 30, 2023. The net pension (asset) liability as a percentage of covered payroll changed from 63.77% to 57.34% as of June 30, 2022, and 2023, respectively. The net pension liability was \$37.64 million as of June 30, 2023, compared to a net pension liability of \$39.72 million as of June 30, 2022.

Deputy Sheriff Retirement System		
Net Position		
June 30, (Dollars in Thousands)		
Assets:	2023	2022
Cash	\$ 170	\$ 142
Investments at Fair Value	316,039	293,315
Receivables	957	958
Total Assets	317,166	294,415
Liabilities:		
Accrued Expenses	143	126
Total Liabilities	143	126
Total Net Position	\$ 317,023	\$ 294,289

Deputy Sheriff Retirement System		
Change in Net Position		
Fiscal Year Ended June 30, (Dollars in Thousands)		
Additions:	2023	2022
Employee Contributions	\$ 5,778	\$ 5,531
Employer Contributions	8,811	8,258
Investment Income	24,926	(19,974)
Other Income and Transfers In	322	404
Total Additions	39,837	(5,781)
Deductions:		
Benefits	15,739	14,491
Refunds and Transfers Out	1,225	981
Administrative Expenses	137	126
Total Deductions	17,101	15,598
Change in Net Position	22,734	(21,379)
Total Beginning Net Position	294,289	315,668
Total Ending Net Position	\$ 317,023	\$ 294,289

West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

PENSION TRUST FUNDS - DEFINED BENEFIT SYSTEMS (Continued)

Judges' Retirement System (JRS)

The Judges' Retirement System (JRS) provides retirement benefits for judges and justices of the State of West Virginia who elect to participate in the retirement system. Employee and employer contributions and earnings on investments fund benefits of the system.

The net position restricted for pensions (total assets minus liabilities) of JRS at June 30, 2023, was approximately \$278.49 million, an increase of \$19.25 million [7.42%] from the plan net position restricted for pensions at June 30, 2022.

Additions to JRS' net position restricted for pensions include employer and employee contributions and investments gains or losses. Contribution revenue for fiscal year 2023 totaled approximately \$1.17 million, a decrease of \$205 thousand [14.95%] compared to fiscal year 2022. JRS reported net investment income of approximately \$22.03 million for fiscal year 2023, which was an increase of \$39.66 million [224.96%] from the fiscal year 2022. The system's investment returns were consistent with the overall market returns during the fiscal year.

Deductions from JRS net position restricted for pensions resulted from retirement and beneficiary benefits, administrative expenses, services transfers, and refunds to members terminating service. For fiscal year 2023, benefits were approximately \$5.13 million, an increase of approximately \$88 thousand [1.74%] from the prior year. The increase in benefits is due to the number of members retiring exceeding the number of those who became deceased. For fiscal 2023, the administrative costs of administering the retirement system totaled approximately \$121 thousand compared to \$112 thousand from fiscal year 2022.

Refunds and Transfers are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be returned or transferring their service credit to/from another retirement system in which they are eligible. Refunds and Transfers were \$0 in fiscal year 2023 and 2022.

Annually, an actuarial valuation of the system's assets and the net pension liability (asset) is performed. The most recent actuarial valuation, the fiduciary net position as a percentage of total pension liability increased from 231.54% on June 30, 2022, to 244.63% on June 30, 2023. The net pension asset as a percentage of covered payroll changed from (1,402.07%) to (1,458.46%) as of June 30, 2022, and 2023, respectively. The net pension asset was \$164.65 million as of June 30, 2023, compared to \$147.28 million as of June 30, 2022.

Judges' Retirement System		
Net Position		
June 30. (Dollars in Thousands)		
Assets:	2023	2022
Cash	\$ 63	\$ 31
Investments at Fair Value	278,545	259,323
Total Assets	278,608	259,354
Liabilities:		
Accrued Expenses	121	112
Total Liabilities	121	112
Total Net Position	\$ 278,487	\$ 259,242

Judges' Retirement System		
Change in Net Position		
Fiscal Year Ended June 30. (Dollars in Thousands)		
Additions:	2023	2022
Employee Contributions	\$ 369	\$ 319
Employer Contributions	797	1,052
Investment Income	22,031	(17,631)
Other Income and Transfers In	1,303	
Total Additions	24,500	(16,260)
Deductions:		
Benefits	5,134	5,046
Refunds and Transfers		
Administrative Expenses	121	112
Total Deductions	5,255	5,158
Change in Net Position	19,245	(21,418)
Total Beginning Net Position	\$ 259,242	\$ 280,660
Total Ending Net Position	\$ 278,487	\$ 259,242

West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

PENSION TRUST FUNDS - DEFINED BENEFIT SYSTEMS (Continued)

Emergency Medical Services Retirement System (EMSRS)

The Emergency Medical Services Retirement System (EMSRS) was established to provide retirement benefits for emergency medical services officers employed by participating public employers who voluntarily elected to participate as of December 31, 2007, and to all emergency medical services officers hired into covered employment by participating public employers of EMSRS on or after January 1, 2008. Employee and employer contributions and earnings on investments fund benefits of the system.

The net position restricted for pensions (total assets minus liabilities) of EMSRS on June 30, 2023, was approximately \$125.9 million, an increase of \$12.97 million [11.48%] from the plan net position restricted for pensions at June 30, 2022.

Additions to EMSRS' net position restricted for pensions include employer and employee contributions and investments gains or losses. Contribution revenue for fiscal year 2023 totaled approximately \$6.93 million, an increase of \$400 thousand [6.12%] compared to fiscal year 2022. The increase in contributions is directly related to the increase in wages reported by the participating employers for covered employees. EMSRS reported net investment income of approximately \$9.62 million for fiscal year 2023, which was an increase of \$17.29 million [225.36%] from the from the fiscal year 2022. The system's investment returns were consistent with the overall market returns during the fiscal year.

Deductions from EMSRS net position restricted for pensions resulted from retirement and beneficiary benefits, administrative expenses, services transfers, and refunds to members terminating service. For fiscal year 2023, benefits were approximately \$4.7 million, an increase of approximately \$502 thousand [12%] from the prior year. The increase in benefits is due to the number of members retiring exceeding the number of those who became deceased. For fiscal 2023, the administrative costs of administering the retirement system totaled approximately \$53 thousand, an increase of \$6 thousand [12.77%], from \$47 thousand in fiscal year 2022.

Refunds are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be returned or transferring their service credit to another retirement system in which they are eligible. Refunds were approximately \$1.07 million in fiscal year 2023, an increase of approximately \$184 thousand [20.65%] from approximately \$891 thousand in fiscal year 2022.

Annually, an actuarial valuation of the system's assets and the net pension liability (asset) is performed. The most recent actuarial valuation, the fiduciary net position as a percentage of total pension liability increased from 100.53% on June 30, 2022, to 106% on June 30, 2023. The net pension asset as a percentage of covered payroll changed from (1.74%) to (21.18%) as of June 30, 2022, and 2023, respectively. The net pension asset was \$7.12 million as of June 30, 2023, compared to an asset of \$594 thousand as of June 30, 2022.

Emergency Medical Services Retirement System		
Net Position		
June 30, (Dollars in Thousands)		
Assets:	2023	2022
Cash	\$ 101	\$ 65
Investments at Fair Value	125,180	112,408
Receivables	703	535
Total Assets	125,984	113,008
 Liabilities:		
Accrued Expenses	53	47
Total Liabilities	53	47
Total Net Position	\$ 125,931	\$ 112,961

Emergency Medical Services Retirement System		
Change in Net Position		
Fiscal Year Ended June 30, (Dollars in Thousands)		
Additions:	2023	2022
Employee Contributions	\$ 3,272	\$ 2,924
Employer Contributions	3,662	3,610
Investment Income	9,618	(7,672)
Other Income and Transfers In	2,232	-
Total Additions	18,784	(1,138)
 Deductions:		
Benefits	4,686	4,184
Refunds	1,075	891
Administrative Expenses	53	47
Total Deductions	5,814	5,122
 Change in Net Position		
Total Beginning Net Position	\$ 112,961	\$ 119,221
Total Ending Net Position	\$ 125,931	\$ 112,961

West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

PENSION TRUST FUNDS - DEFINED BENEFIT SYSTEMS (Continued)

Municipal Police Officers and Firefighters Retirement System (MPFRS)

The Municipal Police Officers and Firefighters Retirement System (MPFRS) was established to provide retirement benefits for all paid police officers and firefighters first employed in covered employment by a participating municipality or municipal subdivision after the date the municipality or municipal subdivision elected to join MPFRS and are required to be members of MPFRS as a condition of employment.

The net position restricted for pensions (total assets minus liabilities) of MPFRS on June 30, 2023, was approximately \$35.48 million, an increase of \$8.28 million [30.45%] from the plan net position restricted for pensions at June 30, 2022.

Additions to MPFRS' net position restricted for pensions include employer and employee contributions and investments gains or losses. Contribution revenue for fiscal year 2023 totaled approximately \$6.34 million, an increase of \$991 thousand [18.54%] compared to fiscal year 2022. The increase in contributions is directly related to the increase in wages reported by the participating employers for covered employees. MPFRS reported net investment income of approximately \$2.5 million for fiscal year 2023, which was an increase of \$4.37 million [238.58%] from fiscal year 2022. The system's investment returns were consistent with the overall market returns during the fiscal year.

Deductions from MPFRS net position restricted for pensions resulted from retirement and beneficiary benefits, administrative expenses, services transfers, and refunds to members terminating service. For fiscal year 2023, benefits were approximately \$39 thousand, a decrease of \$2 thousand dollars [4.8%] from fiscal year 2022. For fiscal 2022, the administrative costs of administering the retirement system totaled approximately \$12 thousand, an increase of \$2 thousand, from \$10 thousand in fiscal year 2022. The increase in the administrative expenses charged is due to an increase in invested assets.

Refunds are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be returned or transferring their service credit to another retirement system in which they are eligible. Refunds were approximately \$559 thousand in fiscal year 2023, an increase of approximately \$194 thousand [53.15%], from approximately \$365 thousand in fiscal year 2022.

Annually, an actuarial valuation of the system's assets and the net pension liability (asset) is performed. The most recent actuarial valuation, the fiduciary net position as a percentage of total pension asset decreased from 156.08% on June 30, 2022, to 144.88% on June 30, 2023. The net pension asset as a percentage of covered payroll changed from (33.95%) to (32.10%) as of June 30, 2022, and 2023, respectively. The net pension asset was \$10.99 million as of June 30, 2023, compared to \$9.77 million as of June 30, 2022.

Municipal Police Officers & Firefighters Retirement System		
Net Position		
June 30, (Dollars in Thousands)		
Assets:	2023	2022
Cash	\$ 148	\$ 41
Investments at Fair Value	34,945	26,795
Receivables	397	371
Total Assets	35,490	27,207
Liabilities:		
Accrued Expenses	12	10
Total Liabilities	12	10
Total Net Position	\$ 35,478	\$ 27,197

Municipal Police Officers & Firefighters Retirement System		
Change in Net Position		
Fiscal Year Ended June 30, (Dollars in Thousands)		
Additions:	2023	2022
Employee Contributions	\$ 3,168	\$ 2,673
Employer Contributions	3,168	2,672
Investment Income	2,535	(1,830)
Other Income	19	-
Total Additions	8,890	3,515
Deductions:		
Benefits	39	41
Refunds	560	365
Administrative Expenses	12	10
Total Deductions	611	416
Change in Net Position	8,279	3,099
Total Beginning Net Position	27,197	24,098
Total Ending Net Position	\$ 35,478	\$ 27,197

West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

PENSION TRUST FUNDS - DEFINED BENEFIT SYSTEMS (Continued)

Natural Resources Police Officers Retirement System (NRPORS)

The Natural Resources Police Officers Retirement System (NRPORS) was established to provide retirement and disability benefits for the Natural Resources Police Officers, who voluntarily elected to participate (i.e., transfer from PERS to NRPORS) as of January 2, 2021, and for all Natural Resources Police Officers hired into covered employment by the State of West Virginia on or after January 2, 2021. Employee and employer contributions and earnings on investments fund the benefits of the system. Approximately 116 Natural Resources Police Officers elected to transfer from PERS and as a result, approximately \$21.43 million of accumulated member and employer contributions and interest were transferred from PERS to NRPORS during fiscal year 2021.

The net position restricted for pensions (total assets minus liabilities) of NRPORS on June 30, 2022, was approximately \$27.6 million, an increase of \$3.17 million [12.96%] from the plan net position restricted for pensions at June 30, 2022.

Additions to NRPORS' net position restricted for pensions include employer and employee contributions, and investments gains or losses. Contribution revenue for fiscal year 2023 totaled approximately \$1.53 million, an increase of \$140 thousand [10.04%] compared to fiscal year 2022. The increase in contributions is directly related to the increase in wages reported by the participating employers for covered employees. NRPORS reported net investment income of approximately \$2.1 million for fiscal year 2022, which was an increase of \$3.79 million [228.12%] from fiscal year 2022. The system's investment returns were consistent with the overall market returns during the fiscal year.

Deductions from NRPORS net position restricted for pensions resulted from retirement and beneficiary benefits, administrative expenses, services transfers, and refunds to members terminating service. For fiscal year 2023, benefits were approximately \$449 thousand, an increase of \$64 thousand [16.62%] from the prior year. The increase in benefits is due to the number of members retiring exceeding the number of those who became deceased. For fiscal 2023, the administrative costs of administering the retirement system were approximately \$11 thousand.

Refunds and Transfers are the result of employees leaving public service and requesting the money they contributed, plus interest, into the system to be returned or transferring their service credit to another retirement system in which they are eligible. Refunds and Transfers were approximately \$31 thousand in fiscal year 2023, a decrease of approximately \$5 thousand, from approximately \$36 thousand in fiscal year 2022.

Annually, an actuarial valuation of the system's assets and the net pension liability is performed. The most recent actuarial valuation, the fiduciary net position as a percentage of total pension liability increased from 78.81% on June 30, 2022, to 83.73% on June 30, 2023. The net pension (asset) liability as a percentage of covered payroll was 105.75% and 81.51% as of June 30, 2022, and 2023, respectively. The net pension liability was \$5.37 million as of June 30, 2023, compared to \$6.58 million as of June 30, 2022.

Natural Resources Police Officers Retirement System		
Net Position June 30. (Dollars in Thousands)		
	2023	2022
Assets:		
Cash	\$ 16	\$ 20
Investments at Fair Value	27,642	24,467
Receivables	-	-
Total Assets	27,658	24,487
Liabilities:		
Accrued Expenses	10	10
Total Liabilities	10	10
Total Net Position	\$ 27,648	\$ 24,477

Natural Resources Police Officers Retirement System		
Change in Net Position Fiscal Year Ended June 30. (Dollars in Thousands)		
	2023	2022
Additions:		
Employee Contributions	\$ 678	\$ 615
Employer Contributions	856	779
Investment Income	2,128	(1,661)
Other Income and Transfers In	-	162
Total Additions	3,662	(105)
Deductions:		
Benefits	449	385
Refunds and Transfers Out	31	36
Administrative Expenses	11	10
Total Deductions	491	431
Change in Net Position	3,171	(536)
Total Beginning Net Position	24,477	25,013
Total Ending Net Position	\$ 27,648	\$ 24,477

West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

PENSION TRUST FUNDS – TEACHERS DEFINED CONTRIBUTION RETIREMENT SYSTEM

The Teachers' Defined Contribution Retirement System (TDC Plan) is a multiple employer governmental defined contribution money purchase pension plan, qualified under section 401(a) and made tax-deferred under section 414(h) of the Internal Revenue Code. The TDC Plan provides retirement benefits to full time employees of the State's 55 county public school systems, the State Department of Education, certain Higher Education employees and the Schools for the Deaf and Blind who were hired between July 1, 1991, and June 30, 2005, when the Plan closed for new membership. TDC Plan members may also include former TRS members, including Higher Education employees, who elected to transfer membership to the TDC Plan.

The net position restricted for pensions (total assets minus liabilities) of the TDC Plan on June 30, 2023, was approximately \$664.54 million, an increase of \$59.42 million [9.82%] from the plan net position restricted for pensions at June 30, 2022.

Additions to TDC Plan's net position restricted for pensions include employer and employee contributions and investments gains or losses. Contribution revenue for fiscal year 2023 totaled approximately \$14.93 million, a decrease of \$313 thousand [2.05%] compared to fiscal year 2022. The TDC Plan reported net investment income (loss) of approximately \$70.64 million for fiscal year 2023, which was an increase of \$153.78 million [185%] from the fiscal year 2022. The system's investment returns were consistent with the overall market returns during the fiscal year.

Deductions from the TDC Plan net position restricted for pensions resulted from distributions to plan participants and administrative expenses. For fiscal year 2023, withdrawals, distributions, and forfeitures were approximately \$26.34 million, a decrease of approximately \$5.57 million [18%] from the prior year. For fiscal 2023, the administrative costs of the TDC Plan totaled approximately \$282 thousand, an increase of \$1 thousand [3.56%], from \$281 thousand in fiscal year 2022. The increase in the administrative expenses charged is due to an increase in invested assets.

The administrative costs of the TDC Plan are paid primarily from an administrative fee charged quarterly to each participant's account and revenue sharing from some investment funds. In addition to administrative fees, participants also pay investment fund operating expenses to the investment fund managers depending on the investment options selected by the participant. The TDC Plan's recordkeeper maintains an individual account for each TDC Plan participant to which employer contributions, employee deferrals, and other changes in value are credited.

Teachers' Defined Contribution Retirement System		
Net Position		
June 30, (Dollars in Thousands)		
Assets:	2023	2022
Cash	\$ 5,556	\$ 10,109
Investments at Fair Value	663,300	603,837
Receivables	1,061	1,201
Total Assets	669,917	615,147
Liabilities:		
Accrued Expenses	5,381	10,029
Total Liabilities	5,381	10,029
Total Net Position	\$ 664,536	\$ 605,118
Teachers' Defined Contribution Retirement System		
Change in Net Position		
Fiscal Year Ended June 30, (Dollars in Thousands)		
Additions:	2023	2022
Employee Contributions	\$ 5,597	\$ 5,703
Employer Contributions	9,329	9,536
Investment Income	70,638	(83,137)
Other Income	471	118
Total Additions	86,035	(67,780)
Deductions:		
Forfeitures	740	1,681
Withdrawals and Distributions	25,595	30,226
Transfers Out		
Administrative Expenses	282	281
Total Deductions	26,617	32,188
Change in Net Position	59,418	(99,968)
Total Beginning Net Position	\$ 605,118	\$ 705,086
Total Ending Net Position	\$ 664,536	\$ 605,118

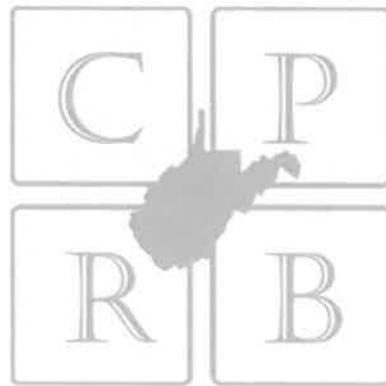
West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)

ECONOMIC FACTORS, FUTURE FUNDING PROVISIONS, OVERALL OUTLOOK

The defined benefit retirement systems are funded with the expectation that they will return 7.25% on the invested assets. When that return is not achieved, there is an increase in the net pension liability.

CONTACTING THE WV CPRB

This report is designed to provide a financial overview of the WV CPRB to state legislators, members of the Board of Trustees of the WV CPRB, state officials, participating employers, and any other interested parties. Questions or requests for additional information regarding the financial information presented in this report may be addressed in writing to the West Virginia Consolidated Public Retirement Board, 601 57th Street, SE, Suite 5, Charleston, West Virginia 25304.



West Virginia Consolidated Public Retirement Board
Financial Section
Management's Discussion and Analysis (Continued)



West Virginia Consolidated Public Retirement Board
Financial Section
Basic Financial Statements

Statements of Fiduciary Net Position - Pension Funds
 (In Thousands) June 30, 2023

The Accompanying Notes Are An Integral Part Of These Financial Statements

West Virginia Consolidated Public Retirement Board
Financial Section
Basic Financial Statements

Statements of Changes in Fiduciary Net Position - Pension Funds
 (In Thousands)
 Year Ended June 30, 2023

	Fiduciary Net Position - Pension Funds																
	Pension Fund Assets					Pension Fund Liabilities											
	Public Employees' Retirement System		State Police Death, Disability and Retirement System		State Police Retirement System	Deputy Sheriff Retirement System		Judicial Retirement System		Emergency Medical Services Retirement System	Municipal Police Officers & Firefighters Retirement System		Natural Resources Officers Retirement System	Teachers' Defined Contribution Retirement System		Teachers' Retirement System	Total
Additions:																	
Contributions:																	
Member contributions	\$ 89,190	\$ 104,432	\$ 21	\$ 3,860	\$ 5,776	\$ 3,640	\$ 3,272	\$ 3,168	\$ 3,168	\$ 678	\$ 5,597	\$ 217,363					
Employer contributions	152,675	135,656	40	8,400	8,811	7,397	3,662			856	9,329	322,488					
Other statutorily required contributions		241,718	-	-	-	-	-	-	-	-	-	241,748					
Other contributions/appropriations	10,800	75,723	-	-	-	-	-	-	-	-	-	86,523					
Total contributions	252,665	156,953	61	12,960	14,587	11,666	6,934	6,336	6,336	1,534	14,926	868,122					
Investment income:																	
Net increase in fair value of investments	668,541	738,719	62,870	24,913	24,907	22,015	9,604	2,522	2,522	2,123	21,353	1,577,567					
Investment income	672	1,166	80	20	19	16	14	14	14	5	19,285	51,291					
Net investment income	669,213	739,885	62,950	24,933	24,926	22,031	9,618	2,536	2,536	2,128	20,638	1,628,358					
Transfers from plans																	
Transfers from plans	186	-	705	-	-	-	714	2,200	2,200	-	-	3,104					
Other income	636	3,922	-	323	-	323	322	19	19	-	-	467	6,882				
Total additions	922,760	1,300,740	63,716	38,022	39,836	24,510	18,784	8,891	8,891	3,662	86,035	2,506,966					
Deductions and transfers:																	
Benefit expenses	507,209	885,273	52,429	13,826	15,740	5,131	4,686	39	449	-	-	1,477,785					
Forfeitures	-	-	-	-	-	-	-	-	-	-	-	740	740				
Refunds of contributions/withdrawals	15,131	12,598	-	320	1,225	-	1,075	359	359	31	35,95	56,494					
Transfers to plans	2,914	190	-	-	-	-	-	-	-	-	-	3,104					
Administrative expenses	3,736	4,192	358	135	137	121	53	12	12	11	282	9,037					
Total deductions and transfers	528,990	912,213	52,787	7,281	17,102	5,250	5,814	610	610	491	26,617	1,547,160					
Net increase (decrease) in plan net position	393,770	398,547	10,929	30,711	22,734	19,346	12,970	8,287	8,287	3,171	59,418	959,806					
Net position restricted for pensions:																	
Beginning of year	8,007,329	9,001,857	767,205	2,943,013	294,289	259,242	112,961	27,187	27,187	24,477	605,118	19,388,978					
End of year	\$ 8,401,099	\$ 9,401,404	\$ 778,134	\$ 39,044	\$ 317,023	\$ 27,847	\$ 125,931	\$ 35,478	\$ 35,478	\$ 27,648	\$ 664,536	\$ 20,346,784					

The Accompanying Notes Are An Integral Part Of These Financial Statements

West Virginia Consolidated Public Retirement Board Notes to the Financial Statements

1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Reporting Entity - During fiscal year 1991, the West Virginia State Legislature created the Consolidated Public Retirement Board (the Board) to administer ten of the State of West Virginia's eleven retirement systems. The ten retirement systems included within these financial statements are: the Public Employees' Retirement System (PERS), the Teachers' Retirement System (TRS), the State Police Death, Disability and Retirement System (SPDDRS), the State Police Retirement System (SPRS), the Deputy Sheriff Retirement System (DSRS), the Judges' Retirement System (JRS), the Emergency Medical Services Retirement System (EMSRS), Municipal Police Officers and Firefighters Retirement System (MPFRS), Natural Resources Police Officers' Retirement System (NRPORS), and the Teachers' Defined Contribution Retirement System (TDCRS).

The Total Pension Funds column included in the statement of fiduciary net position and statement of changes in fiduciary net position is for informational purposes only. The assets of each system are only available to satisfy the obligations of that system. The Board's retirement plans are reported as pension trust funds by the State of West Virginia (the State). The Governmental Employees Deferred Compensation Plan is administered by the West Virginia State Treasurer's Office and has been excluded from these financial statements in accordance with Governmental Accounting Standards Board (GASB) Statement No. 32, *Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans*.

The Board is managed by a Board of Trustees, which consists of, by virtue of their position, the Governor, State Auditor, State Treasurer, and Secretary of the Department of Administration, together with the following gubernatorial appointments that are subject to the advice and consent of the State Senate: four residents of the State who are not participants in the retirement systems, one State and one non-State employee participant in PERS, and one participant each from TRS, SPDDRS, SPRS, DSRS, EMSRS, MPFRS, NRPORS and TDCRS.

Pursuant to the West Virginia Code, the Board submits a detailed budgetary schedule of administrative expenses to the Secretary of the Department of Administration prior to the beginning of each fiscal year. The fundamental purpose of budgetary control is to plan for the expected level of operations and to provide management with a tool to control deviation from such plan but does not constitute a legally adopted budget.

Basis of Accounting - The financial statements of the Board have been prepared in conformity with accounting principles generally accepted in the United States of America (GAAP) as applied to governmental units. The Governmental Accounting Standards Board (GASB) is the accepted standard setting body for establishing governmental accounting and financial reporting principles for governmental units. The accompanying pension fund financial statements have been prepared using the economic resources measurement focus and the accrual basis of accounting. System member contributions are recognized in the period when contributions are due. Employer contributions to the system are recognized when due and the employer has made a formal commitment to provide contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of each system. The Board's assets are held primarily in accounts maintained by the State Treasurer, the West Virginia Investment Management Board (the WVIMB), and the third-party administrator of its defined contribution system (EMPOWER Retirement).

Cash - The State Treasurer has statutory responsibility for the daily cash management activities of the state's agencies, departments, boards, and commissions. The amounts on deposit with the State Treasurer are available for immediate withdrawal and, accordingly, are presented as cash in the accompanying financial statements.

**West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)**

1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (Continued)

Investments - All defined benefit system funds not required to meet disbursement needs are invested in accordance with the West Virginia Code, as well as policies established by the WVIMB. The WVIMB has established various investment pools to provide for the investment of the defined benefit system's assets. These investment pools are structured as multiparticipant variable net asset funds.

Investments in the WVIMB Pools are carried at fair value using the net asset value per share (or its equivalent) as a practical method.

The TDCRS investments are held by an investment company which also serves as the third-party administrator for the system. As prescribed by West Virginia Code, the TDCRS investments are allocated to participant accounts and the participants direct the investment of their individual account balances by selecting from a list of system mutual funds or a long-term fixed investment option.

The TDCRS investments are carried at fair value (except for fully benefit-responsive investment contracts, which are reported at contract value) as determined by a third-party pricing service utilized by an investment management company. For fully benefit-responsive investment contracts, contract value is the relevant measure for the portion of investments attributable to fully benefit-responsive investment contracts because contract value is the amount participants normally would receive if they were to initiate permitted transactions under the terms of the system. Investment income for the TDCRS is determined monthly and distributed to the individual participant accounts.

Fair value is 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. See Note 4 for further discussion regarding the fair value of the Board's investments.

Contributions Receivable - Contributions receivable represent funds owed to the Board from other government employer or non-government employer entities participating in the various retirement systems.

Participant Loans Receivable - TRS and DSRS allow loans to its members, hired prior to July 1, 2005, up to the lesser of one-half of a member's accumulated contributions or \$8,000, at an interest rate indexed to the interest rate used by the Board for determining actuarial contribution levels. TRS and DSRS loans require repayment over varying terms, with a maximum term of five years and a minimum period of six months.

Allowance for Doubtful Accounts - The Board evaluates all receivables for collectability based on historical collectability experience, the ability of payee to perform, and such other factors which, in the Board's judgment, require consideration in estimating doubtful accounts.

Accrued Expenses and Other Payables - For the retirement systems, accrued expenses and other payables primarily represent retirement annuity amounts due to new retirees.

Investment Related Expenses - Investments are invested in multiparticipant pools and investment-related expenses are not readily separable by participant in each pool. Investment income from the pools is reported net of investment expenses.

Accounting Estimates - The preparation of financial statements in accordance with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, and disclosure of actuarial accrued liabilities, contingent assets, and contingent liabilities as of the financial statement date, and the reported amounts of additions and deductions for the reporting period. Actual amounts could differ from those estimates.

The various retirement systems utilize various investment instruments. Investment securities, in general, are exposed to various risks, such as interest rate, credit, and overall market volatility. Due to the level of risk associated with certain investment securities, it is reasonably possible that changes in the value of investment securities will occur in the near term and that such change could materially affect the amounts reported in the statement of fiduciary net position. Changes in the value of investment securities could affect the future funding status of the systems or require additional contributions to maintain the current funding status.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

2 - PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION

Membership in the systems consisted of the following as of July 1, 2022, the date of the annual actuarial valuation:

As of July 1, 2022:

	PERS	TRS	SPDDRS	SPRS	DSRS	JRS	EMSRS	MPFRS	NRPORS
Retirees and beneficiaries currently receiving benefits	29,405	37,097		743	119	517	57	154	1
Terminated members entitled to benefits but not yet receiving them	5,132	3,318		2	23	132	2	94	15
Terminated nonvested members	23,876	6,437		1	148	342	-	403	238
Active members	34,952	34,871		3	590	1,085	81	659	602
Total	93,365	81,728		749	880	2,076	130	1,310	856
									131

Funding policies for all systems have been established by and are changed from time-to-time by action of the State Legislature. While contribution rates are legislatively determined, actuarial valuations are performed to assist the Board and the West Virginia Legislature in determining contribution rates. The following information is provided for general information purposes only. System participants should refer to the respective West Virginia State Code section for more complete information.

Defined Benefit Plans

Public Employees' Retirement System (PERS)

Plan Description - PERS is a multiple employer defined benefit cost sharing public employee retirement system covering substantially all employees of the State and its component units, as well as employees of participating non-State governmental entities who are not participants of another state or municipal retirement system. The numbers of participating employers are as follows:

	June 30, 2023
West Virginia state agencies	132
Cities and towns	122
Counties	55
Special districts	392
Total	701

PERS provides retirement benefits as well as death and disability benefits. The qualification for normal retirement is age 60 with five years of service or at least age 55 with age and service equal to 80 or greater. For all employees hired after July 1, 2015, qualification for normal retirement is age 62 with 10 years of service. The straight life annuity retirement benefit is equivalent to 2% of the final average salary multiplied by years of service. Final average salary is the average annual salary from the highest 36 consecutive months within the last fifteen years of employment. For all employees hired after July 1, 2015, final average salary is the average annual salary of the highest 60 consecutive months within the last fifteen years of employment. Terminated members with at least five years of contributory service who do not withdraw their accumulated contributions may elect to receive their retirement annuity beginning at age 62. For all employees hired after July 1, 2015, this age increases to 64 with 10 years of service.

Chapter 5, Article 10 of the West Virginia State Code assigns the authority to establish and amend the provisions of the system to the West Virginia Legislature. In certain circumstances, this Article also permits members of TRS to transfer accumulated service credit and member contributions into PERS.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

2 - PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION (Continued)

Public Employees' Retirement System (PERS) (continued)

Contributions - Per Chapter 5, Article 10, for periods prior to July 1, 2015, the members contribute 4.5% of annual earnings. Effective July 1, 2016, newly hired members contribute 6% of annual earnings. State and non-state governmental employers' contribution rate was 9% of covered employees' annual earnings for fiscal years ending June 30, 2023. Contributions as a percentage of payroll for members are established by statutes, subject to legislative limitations and are not actuarially determined. Contributions as a percentage of payroll for employers are established by the Board. Employer contributions from State and non-State agencies for the fiscal years ended June 30, 2023, were (in thousands):

	2023
State	\$ 99,421
Non-State	53,254
Total	\$ 152,675

Teachers' Retirement System (TRS)

Plan Description - TRS is a multiple employer defined benefit cost sharing public employee retirement system covering all full-time employees of the 55 county public school systems in the State and certain personnel of the 13 State-supported institutions of higher education, State Department of Education and the Higher Education Policy Commission hired prior to July 1, 1991. Employees of the State-supported institutions of higher education and the Higher Education Policy Commission hired after June 30, 1991, are required to participate in the Higher Education Retirement System. TRS closed membership to new hires effective July 1, 1991. However, effective July 1, 2005, all new employees hired for the first time are required to participate in TRS. There were 80 employers and one non-employer contributing entity, the State of West Virginia, participating in TRS as of June 30, 2023.

During the 2008 First Special Session, the West Virginia Legislature passed House Bill 101 regarding retirement benefits for teachers and educational service personnel which became effective March 16, 2008. The legislation provided an opportunity for members of TDCRS to elect to transfer to TRS. The transfer occurred on July 1, 2008, and a total of 15,152 TDCRS members transferred to TRS.

TRS provides retirement benefits as well as death and disability benefits. All employees hired before July 1, 2015, are eligible for normal retirement at age 60 with five or more years of service, age 55 with 30 or more years of service or any age with 35 or more years of service, or with reduced benefits before age 55 with at least 30 but less than 35 years of service. For all employees hired after July 1, 2015, qualification for normal retirement is age 62 with 10 or more years of service. All members hired after July 1, 2015, may retire with reduced benefits at age 62 with 10 or more years of service, age 57 with 20 or more years of service or age 55 with at least 30 years of service. Terminated members, who were hired before July 1, 2015, with at least five, but less than 20, years of credited service who do not withdraw their accumulated contributions are entitled to a deferred retirement commencing at age 62 or at age 60 with more than 20 years of service. For all employees hired after July 1, 2015, this requirement increases to age 64 with 10 years of service. Retirement benefits are equivalent to 2% of final average annual salary multiplied by years of service. Final average salary is the average of the 5 highest fiscal years of salaries during the last 15 fiscal years of contributing service.

Chapter 18, Article 7A of the West Virginia State Code assigns the authority to establish and amend the provisions of the plan to the West Virginia Legislature.

Contributions - A member who withdraws from service for any cause other than death or retirement may request that the accumulated employee contributions plus interest be refunded.

TRS funding policy provides for member contributions based on 6% of members' gross salary. Contributions as a percentage of payroll for members and employers are established by State law and are not actuarially determined. Employers make the following contributions.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

2 - PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION (Continued)

Teachers' Retirement System (TRS) (continued)

The State, county boards of education, and other employers contribute 15% of gross salary of their TRS members hired prior to July 1, 1991. The State, county boards of education, and other employers contribute 7.5% of the gross salary of their TRS covered employees hired for the first time after July 1, 2005, and for those TDCRS members who elected to transfer to TRS effective July 1, 2008. The State contributes a certain percentage of fire insurance premiums paid by State residents to assist in extinguishing the TRS unfunded liability within 40 years of June 30, 1994. Other statutorily required contributions of \$106,179,211 were made through the State's school aid formula during the year ended June 30, 2023. Certain additional contributions of approximately \$241,748,427 were made during the year ended June 30, 2023, representing extra appropriations to reduce the unfunded liability.

State Police Death, Disability and Retirement System (SPDDRS)

Plan Description - SPDDRS is a single employer defined benefit public employee retirement system covering all West Virginia State Police (State Police) hired on or before March 11, 1994. This plan is closed to new entrants.

SPDDRS provides retirement benefits as well as death and disability benefits. A member is eligible for normal retirement at age 50 after 20 years of contributory service, or at any age upon completion of 25 years of service. There is no vesting in the State's contributions prior to ten years of service. Benefits payable to members retiring prior to age 50 are deferred until the normal retirement date. The annual retirement benefit is 5.5% of the members' aggregate salary, but not less than \$6,000 per year. Total duty-related disability benefits are equal to 8.5% of the member's aggregate salary, but not less than \$15,000 per year. Aggregate salary is the total salary paid to a member during his or her period of service, which may include up to 5 years of active military service credited at the average departmental salary. Aggregate salary for purposes of determining disability benefits may include salary that would have been earned had the participant served at least 25 years notwithstanding the disability. An annual cost-of-living adjustment of 3.75% is granted to retirees and beneficiaries. For service-connected total disability retirees, the adjustment begins at age 65. A member who terminates employment is entitled to a refund of his or her contributions plus interest.

Contributions - SPDDRS funding policy provides for member contributions based on 9% of their annual earnings. The State makes contributions based on 15% of the annual payroll of State Police, as well as contributing all revenue generated by the sale of traffic accident reports, criminal investigation reports and other fees. Contributions, as a percentage of payroll for members and the employer, are established by State law and are not actuarially determined.

State Police Retirement System (SPRS)

Plan Description - SPRS is a single employer defined benefit public employee retirement system that was established for all State Police hired on or after March 12, 1994. SPRS provides retirement, death, and disability benefits. A member is eligible for normal retirement at age 50 with 25 years of service or age 52 with 20 years of credited service. A member is eligible for a reduced benefit with 20 years of credited service and retiring before age 52. The annual regular retirement benefit, paid monthly, is equal to 3% of the final average salary multiplied by the years of service. Final average salary is the average of the five highest calendar years of earnings during the last ten years of earnings. Annual retirement annuity adjustments are 1.0% for regular retirement and are payable on July 1 of each year after the member reaches 63 years of age.

Contributions - Members contribute 12% of annual base salary. The employer contribution rate was 20% of covered employees' annual base salary for fiscal years ending June 30, 2023.

Chapter 15, Article 2 and Article 2A of the West Virginia State Code assigns the authority to establish and amend the provisions of the SPDDRS and SPRS systems to the West Virginia Legislature.

**West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)**

2 - PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION (Continued)

Deputy Sheriff Retirement System (DSRS)

Plan Description - DSRS, a multiple employer defined benefit cost sharing public employee retirement system, was established for all deputy sheriffs hired by all 55 county governments on or after July 1, 1998. The DSRS was also made available to any deputy sheriff employed in covered employment participating in PERS on the effective date so long as he/she made notification in writing before January 31, 1999, to both the County Commission in the county in which he/she was employed and the Board of his/her desire to transfer to the DSRS. Approximately 600 deputy sheriffs elected such transfer and as a result, approximately \$28,638,000 of accumulated member and employer contributions and interest were transferred from PERS to DSRS in fiscal year 1999, in accordance with Chapter 7, Article 14D of the West Virginia State Code. There were 57 employers participating in DSRS as of June 30, 2023.

DSRS provides retirement as well as death and disability benefits. A member is eligible for normal retirement under the following circumstances:

1. Member in covered employment, with attainment of at least age 50 with age plus service equal to 70 or greater
2. Member in covered employment, has attained the age of 60 years, and has completed five or more years of service
3. Member has ceased covered employment has attained the age of 50 and completion of 20 or more years of service
4. Member has ceased covered employment has attained the age of 62 years and has completed five or more years of service

The annual regular retirement benefit is equal to 2.50% of a member's final average salary multiplied by the member's years of credited service. Final average salary refers to the average of the highest annual compensation received for covered employment by the member during any five consecutive plan years within the member's last ten years of service. A member may elect to receive retirement income payments equal to his/her accrued benefit in the normal form or in a variety of annuity options. The normal form signifies a monthly annuity which is 1/12 of the amount of a member's annual retirement benefit which is payable for the member's life.

Benefit payments did not begin prior to January 1, 2000, except benefit payments resulting from disability.

Chapter 7, Article 14D of the West Virginia State Code assigns the authority to establish and amend the provisions of the system to the West Virginia Legislature.

Contributions - Members contribute 8.5% of monthly base salary, and the Sheriff's Office/County Commission of the County in which the member is employed contributed an additional 13% of the member's monthly base salary during the year ended June 30, 2023. In addition, the Sheriff's Office/County Commissions contribute certain fees charged for reports and other services provided by the sheriff's offices.

Judges' Retirement System (JRS)

Plan Description - JRS is a single employer defined benefit public employee retirement system covering State judges and justices who elect to participate. JRS provides retirement as well as death and disability benefits. A member who was appointed or elected to the bench prior to July 2, 2005, is eligible for normal retirement upon the attainment of 24 years of service of which at least 12 years is as a sitting judge or justice, 16 years of service at age 65 of which at least 12 years is as a sitting judge or justice, or 8 full years of service after age 65. A member who was appointed or elected to the bench on or after July 2, 2005, is eligible for normal retirement upon the attainment of 24 years of service of which at least 14 years is as a sitting judge or justice, or 16 years of service at age 65 of which 14 years is as a sitting judge or justice. A member on the bench prior to July 2, 2005, is eligible for a deferred benefit upon termination of service prior to normal retirement provided the member completes 16 years of service of which 12 years of service is as a sitting judge or justice. A member of the bench on or after July 2, 2005, is eligible for a deferred benefit upon termination of service prior to normal retirement provided the member completes 16 years of service of which 14 years of service are as a sitting judge or justice.

The annual benefit paid to judges and justices on the bench prior to July 2, 2005, is 75% of the current annual salary of the office from which the participant retires, with surviving spouse and dependent child benefits. This benefit is proportionally increased upon increase in salary for active sitting judges and justices.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

2 - PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION (Continued)

Judges' Retirement System (JRS) (continued)

The annual benefit paid to judges and justices on the bench on or after July 2, 2005, is 75% of the member's final average salary. Final average salary means the average of the highest thirty-six consecutive months' compensation received as a judge or justice. No increases in benefits are given by virtue of an increase in salary of active sitting judges or justices.

Chapter 51, Article 9 of the West Virginia State Code assigns the authority to establish and amend the provisions of the system to the West Virginia Legislature.

Contributions - JRS funding policy provides for member contributions based on 7% of their annual earnings. This policy also provides for periodic employer contributions at varying amounts appropriated annually by the West Virginia Legislature. However, annual appropriations are determined in consideration of the most recent actuarial valuation. Any participant who terminates before becoming eligible for benefits may elect to withdraw his or her contributions without interest.

Emergency Medical Services Retirement System (EMSRS)

Plan Description - EMSRS is a multiple employer defined benefit cost sharing retirement system. The EMSRS Act was passed by the West Virginia Legislature in March 2007. The legislation provided for a voluntary participation election of eligible emergency medical service officers and mandated that certain participation levels be reached by December 31, 2007, in order for the provisions of the Emergency Medical Services Retirement System to become effective. At the close of the election period, fifteen licensed EMS public employers, consisting of twelve eligible Public Employees Retirement System (PERS) political subdivisions and three eligible non-PERS political subdivisions, passed corporate resolutions to become participating public employers of this retirement system. Statewide, over five hundred eligible Emergency Medical Services Officers elected to opt into this new retirement plan. The Emergency Medical Services Retirement System (EMSRS) became effective January 1, 2008. There were 61 employers participating in EMSRS as of June 30, 2023.

The statute prohibited any payout of benefits from the EMSRS fund prior to January 1, 2011, with the exception of duty disability retirement. An EMSRS member is eligible for "normal" retirement when one of the following occurs:

- Attainment of age 50 and the completion of 20 years of contributory service; or
- Attainment of age 50 when age plus contributory service equals 70 while still in covered employment; or
- Attainment of age 60 and completion of 10 years contributory service while still in covered employment; or
- Attainment of age 62 and completion of 5 years of contributory service.

An EMSRS member is eligible for "early retirement" when they reach age 45 and have completed 20 years of service.

Final Average Salary (FAS) is the average of the highest annual compensation received by the member during covered employment for any 5 consecutive plan years (Jan. 1- Dec. 31) within the last 10 years of service. The accrued benefit on behalf of any member is calculated as follows:

$$\text{Final Average Salary} \times \text{Years of Credited Service} \times \text{Benefit Percentage}$$

Annual Retirement Benefit Formula:

- 2.75% x FAS x Years of Service for years 1 - 20
- 2.0% x FAS x Years of Service for years 21 - 25
- 1.0% x FAS x Years of Service for years 26 - 30

Chapter 16, Article 5V of the West Virginia State Code assigns the authority to establish and amend the provisions of the plan to the West Virginia Legislature.

Contributions - Currently, the EMSRS employee contribution rate is 8.5% of gross monthly salary and the employer contribution rate is 9.5% of gross monthly salary.

**West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)**

2 - PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION (Continued)

Municipal Police Officers and Firefighters Retirement System (MPFRS)

Plan Description - MPFRS is a multiple employer defined benefit cost sharing system. The West Virginia Municipal Police Officers and Firefighters Retirement System Act was passed by the West Virginia Legislature in November 2009 and became effective January 1, 2010. The legislation provided for any municipality or municipal subdivision employing municipal police officers or firefighters to elect to become a participating employer. The MPFRS had 651 participating members as of June 30, 2023. All police officers and firefighters first employed in covered employment after the date the municipality or municipal subdivision elected to join MPFRS are required to be members of MPFRS. There were 45 employers participating in MPFRS as of June 30, 2023.

A MPFRS member is eligible for "normal" retirement when one of the following occurs:

- Attainment of age 50 and the completion of 20 years of contributory service; or
- Attainment of age 50 when age plus contributory service equals 70 while still in covered employment; or
- Attainment of age 60 and completion of 10 years contributory service while still in covered employment; or
- Attainment of age 62 and completion of 5 years of contributory service.

Final Average Salary (FAS) is the average of the highest annual compensation received by the member during covered employment for any 5 consecutive plan years (Jan. 1 - Dec. 31) within the last 10 years of service. The accrued benefit on behalf of any member is calculated as follows, not to exceed 90% of final average salary:

$$\text{Final Average Salary} \times \text{Years of Credited Service} \times \text{Benefit Percentage}$$

Annual Retirement Benefit Formula:

$$\begin{aligned} & 2.75\% \times \text{FAS} \times \text{Years of Credited Service for years 1 - 20} \\ & 2.0\% \times \text{FAS} \times \text{Years of Credited Service for years 21 - 25} \\ & 1.0\% \times \text{FAS} \times \text{Years of Credited Service for years 26 - 30} \end{aligned}$$

Chapter 8, Article 22A of the West Virginia State Code assigns the authority to establish and amend the provisions of the plan to the West Virginia Legislature.

Contributions - Currently, the MPFRS employee and employer contribution rates are both 8.5% of gross monthly salary.

Natural Resources Police Officers Retirement System (NRPORS)

Plan Description - NRPORS, a single employer defined benefit public employee retirement system, was established for all natural resources police officers hired by the West Virginia Division of Natural Resources (DNR) on or after January 2, 2021. The NRPORS was also made available to any natural resources police officers employed in covered employment participating in PERS on the effective date so long as he/she made notification in writing before September 30, 2020, to both the DNR and the Board of his/her desire to transfer to the NRPORS. Approximately 115 natural resources police officers elected such transfer and as a result, approximately \$21,432,000 of accumulated member and employer contributions and interest were transferred from PERS to NRPORS during the fiscal year ended June 30, 2021, in accordance with Chapter 20, Article 18 of the West Virginia State Code.

NRPORS provides retirement as well as death and disability benefits. A member is eligible for normal retirement under the following circumstances:

- Member has attained at least age 55 and completion of 15 years of service; or
- Member in covered employment, has attained the age of 55 years with age plus service equal to 70 or greater; or
- Member has attained the age of 62 and completion of 10 or more years of service.

All members must have a minimum of 10 years of contributory service to qualify for a retirement benefit.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

2 - PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION (Continued)

Natural Resources Police Officers Retirement System (NRPORS) (continued)

The annual regular retirement benefit is equal to 2.25% of a member's final average salary multiplied by the member's years of credited service. Final average salary refers to the average of the highest annual compensation received for covered employment by the member during any five consecutive plan years within the member's last ten years of service. A member may elect to receive retirement income payments equal to his/her accrued benefit in the normal form or in a variety of annuity options. The normal form signifies a monthly annuity which is 1/12 of the amount of a member's accrued benefit which is payable for the member's life.

Chapter 20, Article 18 of the West Virginia State Code assigns the authority to establish and amend the provisions of the system to the West Virginia Legislature.

Contributions - Members contribute 8.5% of monthly base salary, and the DNR as the employer, contribute an additional 9.5% of the member's monthly base salary during the year ended June 30, 2023.

Teachers' Defined Contribution Retirement System (TDCRS)

Plan Description - TDCRS is a multiple employer defined contribution retirement system, which is a money purchase pension plan covering primarily full-time employees of the State's 55 county public school systems, the State Department of Education, the Schools for the Deaf and Blind, and the Marshall University Research Corporation who were hired between July 1, 1991, and June 30, 2005. TDCRS members also include former TRS plan members, including higher education employees, who have elected to transfer into or participate in TDCRS. TDCRS' benefits depend solely on amounts contributed to the plan plus investment earnings. Employees are eligible to participate from the date of employment. TDCRS closed participation to new members effective June 30, 2005.

The TDCRS provides members with a choice of 20 separate investment options made up of fixed income, balanced, large cap, mid cap, small cap, and international mutual funds, a money market fund, and a fixed annuity.

Contributions - State law requires employees to contribute 4.5% of their gross compensation and the employers to contribute 7.5% of covered members' gross compensation. Employer contributions are comprised from amounts allocated to the employers through the State's School Aid Formula, forfeitures allotted from the TDCRS and county contributions. Employer contributions for each employee (and interest allocated to the employee's account) become partially vested after six years and fully vested after 12 complete years of service. If a terminated employee does not return to active participant status within five years, the nonvested employer contributions and earnings thereon are forfeited to reduce the employer's current period contribution requirement. Any such forfeitures arising from contributions, plus earnings thereon, will be used to reduce future employer contributions.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

3 - ACTUARIAL INFORMATION - DEFINED BENEFIT PLANS

The total pension liabilities for financial reporting purposes were determined by actuarial valuations as of July 1, 2022, and rolled forward to June 30, 2023, using the actuarial assumptions and methods described in the *Actuarial Assumptions and Methods* section of this note.

Schedule of Net Pension Liability (Asset)

The schedules of net pension liability (asset) and changes in net pension liability (asset), presented as required supplemental information (RSI) following the notes to the financial statements, present trend information about whether the actuarial values of plan fiduciary net position are increasing or decreasing over time relative to the actuarial values of the total pension liability (asset). Selected information for each plan as of June 30, 2023, were as follows (in thousands):

As of June 30, 2023:	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability (Asset)	Net Position as a Percentage of the Total Pension Liability
PERS	\$ 8,396,617	\$ 8,401,099	\$ (4,482)	100.05%
TRS	11,689,810	9,400,404	2,289,406	80.42%
SPDDRS	810,558	778,134	32,424	96.00%
SPRS	362,443	320,044	42,399	88.30%
DSRS	354,658	317,023	37,635	89.39%
JRS	113,841	278,487	(164,646)	244.63%
EMSRS	118,805	125,931	(7,126)	106.00%
MPFRS	24,488	35,478	(10,990)	144.88%
NRPORS	33,019	27,648	5,371	83.73%

Long-Term Expected Rates of Return

The long-term rates of return on pension plan investments were determined using the building block method in which estimates of expected future real rates of return (expected returns, net of pension plan 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 percentages and by adding expected inflation. Best estimates of long-term geometric rates of return are summarized in the following tables and were used for all defined benefit plans for the year ended June 30, 2023:

Asset Class	Target Allocation	Long-term Expected Rate of Return	Weighted Average Expected Real Rate of Return
Domestic Equity	27.50%	6.5%	1.79%
International Equity	27.50%	9.1%	2.50%
Fixed Income	15.00%	4.3%	0.65%
Real Estate	10.00%	5.8%	0.58%
Private Equity	10.00%	9.2%	0.92%
Hedge Funds	10.00%	4.6%	0.46%
Total	100.00%		6.90%
Inflation (CPD)			2.50%
			9.40%

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

3 - ACTUARIAL INFORMATION - DEFINED BENEFIT PLANS (Continued)

Discount Rate

The discount rate used to measure the total pension liability (asset) was 7.25% for all defined benefit plans for fiscal years 2023. The projections of cash flows used to determine the discount rates assumed that employer contributions will continue to follow the current funding policies. Based on these assumptions, the fiduciary net position of each defined benefit pension plan was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rates of return on pension plan investments were applied to all periods of projected benefit payments to determine the total pension liabilities of each plan.

Regarding the sensitivity of the net pension liability (asset) to changes in the discount rate, the following table presents the plans' net pension liabilities calculated using the current discount rate of 7.25% as well as the plans' net pension liabilities if they were calculated using a discount rate that is one percentage point lower or one percentage point higher as of June 30, 2023 (in thousands):

Total Net Pension Liability (Asset)			
	1% Decrease (6.25%)	Current Discount Rate (7.25%)	1% Increase (8.25%)
As of June 30, 2023:			
PERS	\$ 929,041	\$ (4,482)	\$ (792,205)
TRS	3,515,950	2,289,406	1,248,400
SPDDRS	129,268	32,424	(47,676)
SPRS	101,113	42,399	(4,809)
DSRS	87,079	37,635	(3,076)
JRS	(152,275)	(164,646)	(175,216)
EMSRS	10,126	(7,126)	(21,089)
MPFRS	(4,305)	(10,990)	(16,026)
NRPORS	9,838	5,371	1,645

Annual Money-Weighted Rates of Return

The following table provides the annual money-weighted rates of return, net of investment expenses, for the year ending June 30, 2023, for each defined benefit pension system:

System	
PERS	8.51%
TRS	8.47%
SPDDRS	8.49%
SPRS	8.54%
DSRS	8.53%
JRS	8.54%
EMSRS	8.53%
MPFRS	8.66%
NRPORS	8.55%

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

3 - ACTUARIAL INFORMATION - DEFINED BENEFIT PLANS (Continued)

Actuarial Assumptions and Methods

Significant assumptions used in the actuarial valuations are as follows:

	PERS	TRS	SPDDRS
Actuarial cost method	Individual entry age normal cost with level percentage of payroll	Individual entry age normal cost with level percentage of payroll	Individual entry age normal cost with level percentage of payroll
Asset valuation method	Fair value	Fair value	Fair value
Amortization method	Level dollar, fixed period	Level dollar, fixed period	Level dollar, fixed period
Amortization period	Through Fiscal Year 2035	Through Fiscal Year 2034	Through Fiscal Year 2025
Actuarial assumptions:			
Investment rate of return	7.25%	7.25%	7.25%
Projected salary increases:			
State	2.75% - 5.55%	n/a	4.00%
Nonstate	3.60% - 6.75%	n/a	n/a
Educators	n/a	2.75% - 5.90%	n/a
Non-Educators	n/a	2.75% - 6.50%	n/a
Inflation rate	2.75%	2.75%	2.75%
Discount rate	7.25%	7.25%	7.25%
Mortality rates:			
Actives	100% of Pub-2010 General Employees table, below-median, headcount weighted, projected generationally with scale MP-2018	100% of Pub-2010 General Employees table, headcount weighted, projected generationally with scale MP-2019	100% of Pub-2010 Safety Employee table, amount-weighted, Scale MP-2020 fully generational
Retired healthy males	108% of Pub-2010 General Retiree Male table, below-median, headcount weighted, projected generationally with scale MP-2018	100% of Pub-2010 General Retiree Male table, headcount weighted, projected generationally with scale MP-2019	98% of Pub-2010 Safety Retiree Male table, amount weighted, Projected generationally with Scale MP-2020
Retired healthy females	112% of Pub-2010 General Retiree Female table, below-median, headcount weighted, projected generationally with scale MP-2018	112% of Pub-2010 General Retiree Female table, headcount weighted, projected generationally with scale MP-2019	99% of Pub-2010 Safety Retiree Female table, amount weighted, Projected generationally with Scale MP-2020
Disabled males	118% of Pub-2010 General / Teachers Disabled Male table, headcount weighted, projected generationally with scale MP-2018	107% of Pub-2010 General Teacher Disabled Male table, headcount weighted, projected generationally with scale MP-2019	124% of Pub-2010 Safety Disabled Male table, amount weighted, Projected generationally with Scale MP-2020
Disabled females	117% of Pub-2010 General / Teachers Disabled Female table, headcount weighted, projected generationally with scale MP-2018	113% of Pub-2010 General Teacher Disabled Female table, headcount weighted, projected generationally with scale MP-2019	100% of Pub-2010 Safety Disabled Female table, amount weighted, Projected generationally with Scale MP-2020
Withdrawal rates:			
State	2.28% - 45.63%	n/a	0.08% - 2.67%
Nonstate	2.50% - 35.88%	n/a	n/a
Educators	n/a	1.60% - 35.00%	n/a
Non-Educators	n/a	2.30% - 18.00%	n/a
Disability rates	0.005% - 0.540%	0.001% - 0.563%	0.03% - 0.40%
Retirement rates	12% - 100%	12.5% - 100%	25% - 100%
Date range in most recent experience study	2013-2018	2014-2019	2015 - 2020

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

3 - ACTUARIAL INFORMATION - DEFINED BENEFIT PLANS (Continued)

Actuarial Assumptions and Methods (continued)

	SPRS	DSRS	JRS
Actuarial cost method	Individual entry age normal cost with level percentage of payroll	Individual entry age normal cost with level percentage of payroll	Individual entry age normal cost with level percentage of payroll
Asset valuation method	Fair value	Fair value	Fair value
Amortization method	Level dollar, fixed period	Level dollar, fixed period	Level dollar, fixed period
Amortization period	Through Fiscal Year 2029	Through Fiscal Year 2029	n/a
Actuarial assumptions:			
Investment rate of return	7.25%	7.25%	7.25%
Projected salary increases:			
State	0.04	n/a	4.25% - 5.00%
Nonstate	n/a	3.75% - 5.25%	n/a
Educators	n/a	n/a	n/a
Non-Educators	n/a	n/a	n/a
Inflation rate	2.75%	2.75%	2.75%
Discount rate	7.25%	7.25%	7.25%
Mortality rates:			
Actives	100% of Pub-2010 Safety Employee Table, Amount-weighted, projected generationally with Scale MP-2020	100% of Pub-2010 Safety Employee Table, Amount-weighted, projected generationally with Scale MP-2020	n/a
Retired healthy males	98% of Pub-2010 Safety Retiree Male Table, Amount-weighted, projected generationally with Scale MP-2020	98% of Pub-2010 Safety Retiree Male Table, Amount-weighted, projected generationally with Scale MP-2020	100% of Pub-2010 General Retiree Table, Above-median, amount weighted, Projected generationally with Scale MP-2020
Retired healthy females	99% of Pub-2010 Safety Retiree Female Table, Amount-weighted, projected generationally with Scale MP-2020	99% of Pub-2010 Safety Retiree Female Table, Amount-weighted, projected generationally with Scale MP-2020	100% of Pub-2010 General Retiree Table, Above-median, amount weighted, Projected generationally with Scale MP-2020
Disabled males	124% of Pub-2010 Safety Disabled Male Table, Amount-weighted, projected generationally with Scale MP-2020	124% of Pub-2010 Safety Disabled Male Table, Amount-weighted, projected generationally with Scale MP-2020	100% of Pub-2010 General Teachers Disabled Table, Amount weighted, Projected generationally with Scale MP-2020
Disabled females	100% of Pub-2010 Safety Disabled Female Table, Amount-weighted, projected generationally with Scale MP-2020	100% of Pub-2010 Safety Disabled Female Table, Amount-weighted, projected generationally with Scale MP-2020	100% of Pub-2010 General Teachers Disabled Table, Amount weighted, Projected generationally with Scale MP-2020
Withdrawal rates:			
State	0.28% - 6.84%	n/a	n/a
Nonstate	n/a	4.93% - 12.32%	n/a
Educators	n/a	n/a	n/a
Non-Educators	n/a	n/a	n/a
Disability rates	0.03% - 0.40%	0.03% - 0.40%	n/a
Retirement rates	20% - 100%	16% - 100%	5% - 100%
Date range in most recent experience study	2015 - 2020	2015 - 2020	2015 - 2020

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

3 - ACTUARIAL INFORMATION - DEFINED BENEFIT PLANS (Continued)

Actuarial Assumptions and Methods (continued)

	EMSRS	MPFRS	NRPORS
Actuarial cost method	Individual entry age normal cost with level percentage of payroll	Individual entry age normal cost with level percentage of payroll	Individual entry age normal cost with level percentage of payroll
Asset valuation method	Fair value	Fair value	Fair value
Amortization method	Level dollar, fixed period	Level dollar, fixed period	Level dollar, fixed period
Amortization period	Through Fiscal Year 2038	n/a	n/a
Actuarial assumptions:			
Investment rate of return	7.25%	7.25%	7.25%
Projected salary increases:			
State	n/a	n/a	4.25% - 5.75%
Nonstate	3.00% - 5.00%	3.25% - 4.75%	n/a
Educators	n/a	n/a	n/a
Non-Educators	n/a	n/a	n/a
Inflation rate	2.75%	2.75%	2.75%
Discount rate	7.25%	7.25%	7.25%
Mortality rates:			
Actives	100% of Pub-2010 Safety Employee Table, Amount-weighted, projected generationally with Scale MP-2020	100% of Pub-2010 Safety Employee Table, Amount-weighted, projected generationally with Scale MP-2020	100% of Pub-2010 Safety Employee Table, Amount-weighted, projected generationally with Scale MP-2020
Retired healthy males	98% of Pub-2010 Safety Retiree Male Table, Amount-weighted, projected generationally with Scale MP-2020	98% of Pub-2010 Safety Retiree Male Table, Amount-weighted, projected generationally with Scale MP-2020	98% of Pub-2010 Safety Retiree Male Table, Amount-weighted, projected generationally with Scale MP-2020
Retired healthy females	99% of Pub-2010 Safety Retiree Female Table, Amount-weighted, projected generationally with Scale MP-2020	99% of Pub-2010 Safety Retiree Female Table, Amount-weighted, projected generationally with Scale MP-2020	99% of Pub-2010 Safety Retiree Female Table, Amount-weighted, projected generationally with Scale MP-2020
Disabled males	124% of Pub-2010 Safety Disabled Male Table, Amount-weighted, projected generationally with Scale MP-2020	124% of Pub-2010 Safety Disabled Male Table, Amount-weighted, projected generationally with Scale MP-2020	124% of Pub-2010 Safety Disabled Male Table, Amount-weighted, projected generationally with Scale MP-2020
Disabled females	100% of Pub-2010 Safety Disabled Female Table, Amount-weighted, projected generationally with Scale MP-2020	100% of Pub-2010 Safety Disabled Female Table, Amount-weighted, projected generationally with Scale MP-2020	100% of Pub-2010 Safety Disabled Female Table, Amount-weighted, projected generationally with Scale MP-2020
Withdrawal rates:			
State	n/a	n/a	2.00% - 6.16%
Nonstate	6.00% - 28.00%	3.00% - 21.00%	n/a
Educators	n/a	n/a	n/a
Non-Educators	n/a	n/a	n/a
Disability rates	0.03% - 0.40%	0.03% - 0.40%	0.03% - 0.40%
Retirement rates	25% - 100%	25% - 100%	20% - 100%
Date range in most recent experience study	2015 - 2020	2015 - 2020	2015 - 2020

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

4 - FAIR VALUE MEASUREMENTS

The framework for measuring fair value provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). The three levels of the fair value hierarchy under are described as follows:

- | | |
|---------|--|
| Level 1 | Inputs to the valuation methodology are unadjusted quoted prices in active markets for identical assets or liabilities that the Board can access at the measurement date. |
| Level 2 | Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly, such as: quoted prices for similar assets or liabilities in active markets; quoted prices for identical or similar assets or liabilities in inactive markets; inputs other than quoted prices that are observable for the asset or liability; inputs that are derived principally from or corroborated by observable market data by correlation or other means. |
| Level 3 | Inputs to the valuation methodology are unobservable and significant to the fair value measurement. |

The asset or liabilities fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques maximize the use of observable inputs and minimize the use of unobservable inputs.

The investment risks for the pooled investments in which the Board participates are described in Note 5. Investments are administered by the WVIMB, for the Board administered defined benefit retirement systems, and the WVIMB is responsible for setting investment risk policies.

Following is a description of the valuation methodologies used for assets measured at fair value.

Mutual funds: Valued at the daily closing price as reported by the fund. Mutual funds held by the System are open-end mutual funds that are registered with the Securities and Exchange Commission. These funds are required to publish their daily net asset value (NAV) and to transact at that price. The mutual funds held by the System are deemed to be actively traded.

Collective investment trusts: Valued at the NAV of units of a collective trust. The NAV, as provided by the trustee, is used as a practical expedient to estimate fair value. The NAV is based on the fair value of the underlying investments held by the fund less its liabilities. This practical expedient is not used when it is determined to be probable that the fund will sell the investment for an amount different than the reported NAV. Participant transactions (purchases and sales) may occur daily. Were the Plan to initiate a full redemption of the collective trust, the investment adviser reserves the right to temporarily delay withdrawal from the trust in order to ensure that securities liquidations will be carried out in an orderly business manner.

WVIMB Investment Pools: Valued at the NAV of units of an investment pool. The NAV, as provided by the trustee, is used as a practical expedient to estimate fair value. The NAV is based on the fair value of the underlying investments held by the fund less its liabilities. This practical expedient is not used when it is determined to be probable that the fund will sell the investment for an amount different than the reported NAV. Participant transactions (purchases and sales) may occur daily. Refer to the fair value measurement not disclosures within the WVIMB's annual financial statements for the underlying investments within the fair value hierarchy.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

4 - FAIR VALUE MEASUREMENTS (Continued)

The following is a summary of the investments held by WVIMB for each plan as of June 30, 2023 (in thousands) which are all measured at NAV and not within the fair value hierarchy:

	PERS	TRS	SPDDRS	SPRS	DSRS	JRS	EMRSR	MFRS	NRPORS	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Portable Alpha	\$ 2,063,608	\$ 1,279,342	\$ 192,747	\$ 78,430	\$ 77,535	\$ 66,412	\$ 30,062	\$ 8,364	\$ 6,752	N/A	Daily	Daily
Non-Large Cap												
Domestic equity	881,971	422,941	35,802	14,254	14,251	12,590	5,510	1,492	1,222	N/A	Daily	Daily
International qualified	537,495	503,054	50,016	20,358	20,179	17,891	7,826	2,196	1,745	N/A	Daily	Daily
International equity	1,010,684	1,116,809	92,655	37,984	37,765	38,280	14,622	3,045	3,251	N/A	Daily	Daily
Private markets	2,348,329	2,502,052	218,529	86,504	88,136	17,750	34,182	9,327	7,624	N/A	Daily	Daily
Total return												
fixed income	619,106	479,382	56,514	23,792	28,401	20,594	9,079	2,481	2,018	N/A	Daily	Weekly
Core fixed income	582,903	488,250	58,092	20,126	22,507	19,752	8,829	2,451	1,960	N/A	Daily	Daily
Hedge fund	845,127	902,908	78,649	32,000	31,726	27,987	12,306	3,857	2,744	N/A	Daily	Daily
Short-term												
fixed income	9,213	71,694	436	1,204	539	366	2,764	1,394	826	N/A	Daily	Daily
Total investments (a)	\$ 8,398,436	\$ 9,319,702	\$ 778,440	\$ 320,000	\$ 816,089	\$ 278,546	\$ 125,180	\$ 14,941	\$ 27,642			

(a) - see note 5 for additional information regarding the objective of each pool, commitments, and relevant risks.

The following table sets forth by level, within the fair value hierarchy, the TDC plan's assets at fair value as of June 30, 2023. Classification within the fair value hierarchy table is based on the lowest level of any input that is significant to the fair value measurement (in thousands).

Fair Value at June 30, 2023

	Total	Level 1	Level 2	Level 3
Investments in the fair value hierarchy:				
Mutual funds	\$ 359,698	\$ 359,698	\$ -	\$ -
Total assets in the fair value hierarchy	\$ 359,698	\$ 359,698	\$ -	\$ -
Investments measured at net asset value:				
Collective investment trusts	122,774			
	122,774			
Investments at fair value	\$ 482,472			

INVESTMENTS MEASURED USING NAV PER SHARE AS PRACTICAL EXPEDIENT

The following table summarizes investments for which fair value is measured using the net asset value per share practical expedient as of June 30, 2023 (in thousands). There are no participant redemption restrictions for these investments.

	Fair Value	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Collective investment trusts funds(b)	\$ 122,774	n/a	Daily	Daily

(b) The object of each fund is to seek capital appreciation and income.

5 - INVESTMENTS

The Board has adopted investment guidelines that are consistent with those specified in the West Virginia Code. Those guidelines authorize the Board to invest with WVIMB in obligations of the United States and certain of its agencies, certificates of deposit, direct and general obligations of states, repurchase agreements relating to certain securities, equity securities, real estate, and guaranteed investment contracts. Plan assets of the defined benefit plans are invested by the WVIMB. The WVIMB invests plan assets in accordance with West Virginia Code and policies established by the WVIMB. Individual defined benefit plan assets are invested by the WVIMB in the various WVIMB pools. Investments are managed by a third-party administrator as the trustee for the TDCRS.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

5 - INVESTMENTS (Continued)

The following information presents the disclosures for each pool as of June 30, 2023. For more information see WVIMB's website at www.wvimb.org. The investment risks for the various investments in which the plans participate are described below:

Portable Alpha

The Pool's objective is to exceed, net of external investment management fees, the S&P 500 Index over three- to five-year periods. The Pool has three main components: 1) a domestic large capitalization equity beta replication manager and the related margin account, 2) a portfolio of alternative risk premia funds, and 3) a domestic large capitalization equity index manager. Russell Investments Implementation Services, LLC (Russell) is the equity beta replication manager. Russell primarily trades S&P 500 futures contracts and invests the margin account in fixed income securities and a money market mutual fund. Albourne America, LLC has been retained by the IMB to provide consulting services for the portfolio of alternative risk premia funds. The remainder of the Pool's assets are invested in the BlackRock Equity Index Fund B (BlackRock). BlackRock uses a replication indexing approach to achieve investment results that correspond generally to the price and yield performance, before fees and expenses, of the S&P 500 Stock Index.

Credit Risk

The Pool is exposed to credit risk from its fixed income investments and money market mutual fund investment. The WVIMB limits the exposure to credit risk in the Pool by requiring securities purchased to have a minimum long-term rating of BBB (investment grade) and/or a short-term rating of A-2 (Tier-II) as defined by a nationally recognized statistical rating organization. The WVIMB reviews available ratings from Standard & Poor's, Moody's, and Fitch, and reports the rating indicative of the greatest degree of risk

Concentration of Credit Risk

The Pool is restricted from investing more than 5 percent of the value of the Pool in any one company. At June 30, 2023, the Pool was in compliance with this restriction and is not exposed to concentration of credit risk.

Custodial Credit Risk

At June 30, 2023, the Pool held no securities that were subject to custodial credit risk. Investments in the commingled equity fund and money market mutual fund are not subject to custodial credit risk. All remaining securities are held by the WVIMB's custodian in the name of the WVIMB.

Interest Rate Risk

The Pool is exposed to interest rate risk from its fixed income investments and money market mutual fund investment. As of June 30, 2023, the money market mutual fund has a weighted average maturity (WAM) of 12 days.

Participation Schedule

This pool is participated in by entities other than the retirement systems administered by the WVCPRB. The disclosures for this pool represent the pool, as a whole. The following schedule provides the values of the WVCPRB's administered retirement systems' participation in the Pool at June 30, 2023 (in thousands):

Participant	Account Value	Percentage of Total
Public Employees' Retirement System	\$ 2,063,608	38.97%
Teachers' Retirement System	2,272,242	42.91%
State Police Death, Disability, and Retirement System	192,747	3.64%
State Police Retirement System	78,430	1.48%
Deputy Sheriff's Retirement System	77,535	1.46%
Judges' Retirement System	68,412	1.29%
Emergency Medical Services Retirement System	30,062	0.57%
Municipal Police Officers' and Firefighters' Retirement System	8,364	0.16%
Natural Resources Police Officers's Retirement System	6,752	0.13%
Total of Retirement Systems	4,798,152	90.61%
Other Participants	497,484	9.39%
Total	\$ 5,295,636	100.00%

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

5 - INVESTMENTS (Continued)

Non-Large Cap Domestic Equity

The Pool's objective is to exceed, net of external investment management fees, the Russell 2500 Index over three-to-five-year periods. Assets were managed by Cooper Creek Partners Management, LLC and Westfield Capital Management, LLC.

Credit Risk

The Pool's money market mutual fund investment and the Cash Collateral Account are exposed to credit risk. The money market mutual fund has the highest credit rating. The Cash Collateral Account is not rated.

Concentration of Credit Risk

The Pool is restricted from investing more than 5 percent of the value of the Pool in any one company. At June 30, 2023, the Pool was in compliance with this restriction and is not exposed to concentration of credit risk.

Custodial Credit Risk

At June 30, 2023, the Pool held no securities that were subject to custodial credit risk. Securities on loan are collateralized to a minimum of 102 percent, and the collateral is held by the WVIMB's custodian in the name of the WVIMB. The money market mutual fund, the Cash Collateral Account, and the comingled equity fund are not subject to custodial credit risk. All remaining securities are held by the WVIMB's custodian in the name of the WVIMB.

Interest Rate Risk

The Pool is exposed to interest rate risk from its money market mutual fund investment and from the Cash Collateral Account. As of June 30, 2023, the money market mutual fund's weighted average maturity (WAM) was 12 days. Except for repurchase agreements that can have up to 95 days to maturity, investments in the Cash Collateral Account are limited to overnight investments. As of June 30, 2023, the WAM for the Cash Collateral Account was 3 days.

Foreign Currency Risk

At times during the year the Pool held securities and cash denominated in foreign currencies, but at June 30, 2023, there was no exposure to foreign currency risk.

Participation Schedule

This pool is participated in by entities other than the retirement systems administered by the WVCPRB. The disclosures for this pool represent the pool, as a whole. The following schedule provides the values of the WVCPRB's administered retirement systems' participation in the Pool at June 30, 2023 (in thousands):

Participant	Account Value	Percentage of Total
Public Employees' Retirement System	\$ 381,971	36.72%
Teachers' Retirement System	422,941	40.66%
State Police Death, Disability, and Retirement System	35,802	3.44%
State Police Retirement System	14,294	1.37%
Deputy Sheriff's Retirement System	14,251	1.37%
Judges' Retirement System	12,590	1.21%
Emergency Medical Services Retirement System	5,510	0.53%
Municipal Police Officers' and Firefighters' Retirement System	1,492	0.14%
Natural Resources Police Officers's Retirement System	1,222	0.12%
Total of Retirement Systems	890,073	85.57%
Other Participants	150,055	14.43%
Total	\$ 1,040,128	100.00%

**West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)**

5 - INVESTMENTS (Continued)

International Qualified

The Pool invests in The Silchester International Investors International Value Equity Group Trust (Silchester). The Pool's objective is to produce investment returns that exceed the Morgan Stanley Capital International's Europe Australasia Far East Index (MSCI EAFE) by 200 basis points on an annualized basis over three- to five-year periods, net of external investment management fees. Only "qualified participants" (as defined by the *Internal Revenue Code*) may invest in the Pool. Silchester invests in a diversified portfolio of equity securities of companies incorporated in any country other than the United States, with limited exposure to emerging markets and no unreasonable concentration exposure to any single issuer or country.

The Pool invests in a commingled equity fund that invests in equities denominated in foreign currencies. The value of this investment at June 30, 2023, was \$1,263,171. This investment, although denominated in U.S. dollars, is exposed to foreign currency risk through the underlying investments. The Pool is not exposed to credit risk, interest rate risk, custodial credit risk, or concentration of credit risk.

Participation Schedule

This pool is participated in by entities other than the retirement systems administered by the WVCPRB. The disclosures for this pool represent the pool, as a whole. The following schedule provides the values of the WVCPRB's administered retirement systems' participation in the Pool at June 30, 2023 (in thousands):

Participant	Account Value	Percentage of Total
Public Employees' Retirement System	\$ 537,495	42.55%
Teachers' Retirement System	593,354	46.97%
State Police Death, Disability, and Retirement System	50,016	3.96%
State Police Retirement System	20,358	1.61%
Deputy Sheriff's Retirement System	20,179	1.60%
Judges' Retirement System	17,801	1.41%
Emergency Medical Services Retirement System	7,826	0.62%
Municipal Police Officers' and Firefighters' Retirement System	2,136	0.17%
Natural Resources Police Officers's Retirement System	1,745	0.14%
Total of Retirement Systems	1,250,910	99.03%
Other Participants	12,261	0.97%
Total	\$ 1,263,171	100.00%

International Equity

The Pool invests in the equities of international companies. The objective of the Pool is to outperform the international equity market as measured by the Morgan Stanley Capital International's All Country World Free Ex US Index over a full market cycle (three- to five-years), net of external investment management fees. Assets were managed by Acadian Asset Management, LLC, Axiom International Investors, LLC (Axiom), LSV Asset Management, and Oberweis Asset Management, Inc. for the entire fiscal year. Assets were managed by Brandes Investment Partners, L.P. (Brandes) from July 1, 2021, until May 31, 2022. On June 1, 2022, Russell Investments Implementation Services, LLC (Russell) was hired on a transition basis, with the purpose of trading the Brandes portfolio in line with the target portfolio which will be managed by Numeric Investors LLC (Numeric). In June 2022, the IMB finalized the contract with Numeric, which has an effective date of July 1, 2022. Assets were managed by Allianz Global Investors (Allianz) from July 1, 2021, until June 14, 2022, when the Allianz GI China A Shares LLC Commingled Equity Fund closed. Proceeds were split between the existing managers with emerging market mandates, specifically Axiom and Russell.

Credit Risk

The Pool's money market mutual fund investment and the Cash Collateral Account are exposed to credit risk. The money market mutual fund has the highest credit rating. The Cash Collateral Account is not rated.

Concentration of Credit Risk

The Pool is restricted from investing more than 5 percent of the value of the Pool in any one company. At June 30, 2023, the Pool was in compliance with this restriction and is not exposed to concentration of credit risk.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

5 - INVESTMENTS (Continued)

International Equity (continued)

Custodial Credit Risk

At June 30, 2023, the Pool held no securities that were subject to custodial credit risk. Securities on loan are collateralized to a minimum of 102 percent for U.S. Dollar denominated loans and 105 percent for foreign denominated loans, and the collateral is held by the WVIMB's custodian in the name of the WVIMB. The money market mutual fund and the Cash Collateral Account are not subject to custodial credit risk. All remaining securities are held by the WVIMB's custodian in the name of the WVIMB.

Interest Rate Risk

The Pool is exposed to interest rate risk from its money market mutual fund investment and from the Cash Collateral Account. As of June 30, 2023, the money market mutual fund's weighted average maturity (WAM) was 12 days. Except for repurchase agreements that can have up to 95 days to maturity, investments in the Cash Collateral Account are limited to overnight investments. As of June 30, 2023, the WAM for the Cash Collateral Account was 3 days.

Foreign Currency Risk

The Pool has equity investments, cash, and foreign currency spot contracts that are exposed to foreign currency risks. The amounts at fair value (in U.S. dollars) of equity investments, cash, and foreign currency spot contracts as of June 30, 2023, are as follows (in thousands):

Currency	Equity Investments	Cash	Foreign Currency Spot Contracts	Total
Australian Dollar	\$ 74,474	\$ 40	\$ -	\$ 74,514
Brazil Real	90,245	855	-	91,100
British Pound	183,367	969	-	184,343
Canadian Dollar	115,980	358	-	116,338
Chilean Peso	2,296	-	-	2,296
Chinese Yuan Onshore	-	3	-	3
Chinese Yuan Offshore	75,886	121	(1)	76,006
Danish Krone	24,169	7	-	24,176
Egyptian Pound	19	4	-	23
Emirati Dirham	16,587	23	-	16,610
Euro Currency Unit	382,739	706	1	383,446
Hong Kong Dollar	281,730	1,855	-	283,585
Hungarian Forint	5,326	342	-	5,668
Indian Rupee	138,619	54	-	138,673
Indonesian Rupiah	39,173	84	-	39,257
Israeli Shekel	2,761	47	-	2,808
Japanese Yen	287,680	3,678	1	291,359
Kuwaiti Dinar	2,374	4	-	2,378
Malaysian Ringgit	6,313	9	-	6,322
Mexican Peso	38,024	129	2	38,155
New Taiwan Dollar	172,630	193	-	172,823
New Zealand Dollar	34	-	-	34
Norwegian Krone	20,875	580	-	21,455
Philippine Peso	4,357	17	-	4,374
Polish Zloty	11,996	-	-	11,996
Russian Ruble	-	2,193	-	2,193
Qatari Riyal	1,774	-	-	1,774
Saudi Arabian Riyal	34,136	39	-	34,175
Singapore Dollar	14,854	167	-	15,021
South African Rand	16,149	3	-	16,152
South Korean Won	201,905	74	(4)	201,975
Swedish Krona	55,008	148	-	55,156
Swiss Franc	73,182	34	2	73,218
Thailand Baht	39,670	4	(8)	39,666
Turkish Lira	10,002	43	-	10,045
Total	\$ 2,424,334	\$ 12,783	\$ -	\$ 2,437,117

**West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)**

5 - INVESTMENTS (Continued)

International Equity (continued)

This table excludes investments and cash held by the Pool that are denominated in U.S. dollars. The market value of the U.S. dollar denominated investments and cash is \$265,987.

Participation Schedule

This pool is participated in by entities other than the retirement systems administered by the WVCPRB. The disclosures for this pool represent the pool, as a whole. The following schedule provides the values of the WVCPRB's administered retirement systems' participation in the Pool at June 30, 2023 (in thousands):

Participant	Account Value	Percentage of Total
Public Employees' Retirement System	\$ 1,010,684	36.87%
Teachers' Retirement System	1,116,899	40.74%
State Police Death, Disability, and Retirement System	92,655	3.38%
State Police Retirement System	37,984	1.39%
Deputy Sheriff's Retirement System	37,765	1.38%
Judges' Retirement System	33,290	1.21%
Emergency Medical Services Retirement System	14,622	0.53%
Municipal Police Officers' and Firefighters' Retirement System	3,945	0.14%
Natural Resources Police Officers's Retirement System	3,251	0.12%
Total of Retirement Systems	2,351,095	85.76%
Other Participants	390,236	14.24%
Total	\$ 2,741,331	100.00%

Short-Term Fixed Income

The main objective of the Pool is to maintain sufficient liquidity to meet the daily disbursements requested by participants and to invest any contributions until the time the money is transferred to other WVIMB operated investment pools without sustaining capital losses while earning a small return above inflation. The Pool's benchmark, net of external investment management fees, is the FTSE 3 Month US T-Bill Index. JP Morgan Investment Advisors, Inc. manages the Pool.

Credit Risk

The WVIMB limits the exposure to credit risk in the Pool by requiring all corporate bonds to be rated AA or higher. Commercial paper must be rated A-1 by Standard & Poor's and P-1 by Moody's. Additionally, the Pool must have at least 10 percent of its assets in United States Treasury issues. Repurchase agreements are collateralized by United States Treasury bonds. The WVIMB reviews available ratings from Standard & Poor's, Moody's, and Fitch, and reports the rating indicative of the greatest degree of risk. All of the Pool's investments had the highest credit rating as of June 30, 2023.

Concentration of Credit Risk

The Pool is restricted from investing more than 5 percent of the value of the Pool in any one corporate name. At June 30, 2023, the Pool was in compliance with this restriction and is not exposed to concentration of credit risk.

Custodial Credit Risk

At June 30, 2023, the Pool held no investments that were subject to custodial credit risk. Repurchase agreements are collateralized at 102 percent and the collateral is held in the name of the WVIMB. All remaining investments are held by the WVIMB's custodian in the name of the WVIMB.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

5 - INVESTMENTS (Continued)

Short-Term Fixed Income (continued)

Interest Rate Risk

The Pool is exposed to interest rate risk from its fixed income investments. The WVIMB monitors interest rate risk of the Pool by limiting the weighted average maturity (WAM) of the investments of the Pool to 60 days. The maturity of floating rate notes is assumed to be the next interest rate reset date. The following table provides the WAM for the different asset types in the Pool as of June 30, 2023:

Investment Type	WAM (days)	Carrying Value
Repurchase agreements	3	\$ 22,771
U.S. Government agency bonds	8	94,933
U.S. Treasury bills	13	68,905
Total investments	9	\$ 186,609

Foreign currency risk

The Pool has no investments that are subject to foreign currency risk.

Participation Schedule

This pool is participated in by entities other than the retirement systems administered by the WVCPRB. The disclosures for this pool represent the pool, as a whole. The following schedule provides the values of the WVCPRB's administered retirement systems' participation in the Pool at June 30, 2023 (in thousands):

Participant	Account Value	Percentage of Total
Public Employees' Retirement System	\$ 9,213	4.94%
Teachers' Retirement System	71,694	38.42%
State Police Death, Disability, and Retirement System	436	0.23%
State Police Retirement System	1,204	0.65%
Deputy Sheriff's Retirement System	539	0.29%
Judges' Retirement System	369	0.20%
Emergency Medical Services Retirement System	2,764	1.48%
Municipal Police Officers' and Firefighters' Retirement System	1,394	0.75%
Natural Resources Police Officers's Retirement System	326	0.17%
Total of Retirement Systems	\$ 87,939	47.13%
Other Participants	98,659	52.87%
Total	\$ 186,598	100.00%

Total Return Fixed Income

The main objective of the Pool is to generate investment income, provide stability, and enhance diversification, but not at the expense of total return. The Pool's investment objective, net of external investment management fees, is to outperform the Bloomberg Barclays U.S. Universal Bond Index over three- to five- year periods. Dodge & Cox, Franklin Templeton Investments, and Western Asset Management Company manage the Pool.

**West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)**

INVESTMENTS (Continued)

Total Return Fixed Income (continued)

Credit Risk

The Pool is exposed to credit risk from its fixed income investments, money market mutual fund investment, and Cash Collateral Account investment. The WVIMB limits the exposure to credit risk in the Pool by maintaining at least an average rating of BBB (investment grade) and/or a short-term rating of A-2 (Tier II) as defined by a nationally recognized statistical rating organization. The WVIMB reviews available ratings from Standard & Poor's, Moody's, and Fitch, and reports the rating indicative of the greatest degree of risk. The Pool holds some securities that have not received a rating from the aforementioned rating organizations. These securities have been listed as not rated in the table below. The absence or lack of a rating does not necessarily indicate a greater degree of risk. The money market mutual fund has the highest credit rating. The Cash Collateral Account is not rated. The following table provides credit ratings for the Pool's fixed income investments as of June 30, 2023 (in thousands):

Rating	Fair Value
<i>Long-term</i>	
AAA	\$ 32,765
AA	917,161
A	130,017
BBB	610,127
BB	329,773
B	125,669
CCC	25,396
CC	8,310
D	2,223
Withdrawn	16,811
<i>Short-term</i>	
A-1	4,632
Not rated	49,260
Total fixed income investments	\$ 2,252,144

Concentration of Credit Risk

The Pool is restricted from investing more than 5 percent of the value of the Pool in any one corporate name. At June 30, 2023, the Pool was in compliance with this restriction and is not exposed to concentration of credit risk.

Custodial Credit Risk

At June 30, 2023, except for posted collateral on cleared derivatives and over-the-counter derivative instruments, the Pool held no securities that were subject to custodial credit risk. Repurchase agreements, when held, are collateralized to a minimum of 102 percent and the collateral is held in the name of the WVIMB. Securities on loan are collateralized to a minimum of 102 percent for U.S. Dollar denominated loans and 105 percent for foreign denominated loans, and the collateral is held by the WVIMB's custodian in the name of the WVIMB. Investments in commingled debt funds, money market mutual funds, and the Cash Collateral Account are not subject to custodial credit risk. All remaining securities are held by the WVIMB's custodian in the name of the WVIMB.

Interest Rate Risk

The Pool is exposed to interest rate risk from its fixed income investments, money market mutual fund investment, and Cash Collateral Account investment. As of June 30, 2023, the money market mutual fund has a weighted average maturity (WAM) of 12 days. Except for repurchase agreements that can have up to 95 days to maturity, investments in the Cash Collateral Account are limited to overnight investments. As of June 30, 2023, the WAM for the Cash Collateral Account was 3 days.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

INVESTMENTS (Continued)

Total Return Fixed Income (continued)

The WVIMB monitors interest rate risk of the Pool by evaluating the effective duration of the investments in the Pool. Effective duration is a method of disclosing interest rate risk that measures the expected change in the price of a fixed income security for a 1 percent change in interest rates. The effective duration calculation takes into account the most likely timing of variable cash flows, which is particularly useful for measuring interest rate risk of callable bonds, commercial and residential mortgage-backed securities, asset-backed securities, and collateralized mortgage obligations. The following table provides the weighted average effective duration for the various asset types in the Pool as of June 30, 2023 (in thousands):

Investment Type	Fair Value	Effective Duration (years)
Bank loans	\$ 2,661	2.0
Commingled debt funds	155,511	3.6
Corporate asset-backed issues	53,142	1.3
Corporate CMO	68,964	1.2
Foreign asset-backed issues	70,488	(0.2)
Foreign corporate bonds	320,507	4.7
Foreign government bonds	252,975	5.5
Municipal bonds	20,121	7.6
Repurchase Agreement	4,300	0.0
U.S. corporate bonds	441,684	5.6
U.S. Government agency bonds	3,359	0.1
U.S. Government agency CMO	83,390	0.8
U.S. Government agency CMO interest-only	3,697	2.6
U.S. Government agency MBS	460,235	5.8
U. S. Government agency TBAs	35,738	6.4
U.S. Treasury issues	263,621	14.5
U.S. Treasury inflation protected securities	11,751	8.8
Total fixed income investments	\$ 2,252,144	

The Pool invests in commercial and residential mortgage-backed securities, asset-backed securities, and collateralized mortgage obligations. The cash flows from these securities are based on the payment of the underlying collateral. The effective duration and yield to maturity of these securities are dependent on estimated prepayment assumptions that consider historical experience, market conditions and other criteria. Actual prepayments may vary with changes in interest rates. Rising interest rates often result in a slower rate of prepayments while declining rates tend to lead to faster prepayments. As a result, the fair values of these securities are highly sensitive to interest rate changes. At June 30, 2023, the Pool held \$775,654 of these securities. This represents approximately 34 percent of the value of the Pool's fixed income securities.

Foreign Currency Risk

The Pool has foreign fixed income investments, foreign equity investments, and cash that is denominated in foreign currencies and exposed to foreign currency risk. Foreign denominated derivative investments are disclosed in Note 4. Additionally, the Pool has indirect exposure to foreign currency risk through its ownership interests in certain of the commingled debt funds. Approximately \$35,599, or 23 percent, of the commingled debt funds hold substantially all of their investments in securities denominated in foreign currencies. This represents approximately 2 percent of the value of the Pool's fixed income securities.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

INVESTMENTS (Continued)

Total Return Fixed Income (continued)

The amounts at fair value (in U.S. dollars) of investments and cash denominated in foreign currencies as of June 30, 2023, are as follows (in thousands):

Currency	Foreign Fixed Income	Common Stock	Cash	Cash Due To/From Broker	Total
Argentine Peso	\$ 57	\$ -	\$ 15	\$ 929	72
Australian Dollar	-	-	355	929	1,284
Brazilian Real	64,585	-	757	-	65,342
British Pound	-	620	2,086	(40)	2,666
Canadian Dollar	-	-	1,090	-	1,090
Colombian Peso	3,964	-	-	-	3,964
Dominican Peso	3,849	-	-	-	3,849
Euro Currency Unit	23,734	-	1,035	225	24,994
Georgia Lari	769	-	-	-	769
Hungarian Forint	3,227	-	-	-	3,227
Indonesian Rupiah	22,386	-	2,163	-	24,549
Japanese Yen	2,717	-	1,376	(1,480)	2,613
Kazakhstani Tenge	3,517	-	-	-	3,517
Mexican Peso	43,251	-	1,631	1,650	46,532
New Zealand Dollar	-	-	728	-	728
Peruvian Nuevo Sol	2,486	-	-	-	2,486
Polish Zlody	3,037	-	-	-	3,037
Russian Ruble	5,586	-	772	-	6,358
South African Rand	9,288	-	1,306	-	10,594
Swedish Krona	-	-	405	-	405
Uruguayan Peso	4,933	-	-	-	4,933
Uzbekistan Som	3,202	-	-	-	3,202
Total foreign denominated investments	\$ 200,588	\$ 620	\$ 13,719	\$ 1,284	\$ 216,211

This table excludes investments and cash held by the Pool that are denominated in U.S. dollars. The fair value of the U.S. dollar denominated investments and cash was \$455,964,000.

Participation Schedule

This pool is participated in by entities other than the retirement systems administered by the WVCPRB. The disclosures for this pool represent the pool, as a whole. The following schedule provides the values of the WVCPRB's administered retirement systems' participation in the Pool at June 30, 2023 (in thousands):

Participant	Account Value	Percentage of Total
Public Employees' Retirement System	\$ 619,106	27.08%
Teachers' Retirement System	679,332	29.72%
State Police Death, Disability, and Retirement System	56,514	2.47%
State Police Retirement System	23,792	1.04%
Deputy Sheriff's Retirement System	23,401	1.02%
Judges' Retirement System	20,594	0.90%
Emergency Medical Services Retirement System	9,079	0.40%
Municipal Police Officers' and Firefighters' Retirement System	2,481	0.11%
Natural Resources Police Officers's Retirement System	2,018	0.09%
Total of Retirement Systems	1,436,317	62.83%
Other Participants	849,811	37.17%
Total	\$ 2,286,128	100.00%

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

INVESTMENTS (Continued)

Core Fixed Income

The main objective of the Pool is to generate investment income, provide stability, and enhance diversification but not at the expense of total return. The Pool's investment objective is to outperform the Bloomberg Barclays U.S. Aggregate Bond Index over three- to five-year periods, net of external investment management fees. JP Morgan Investment Advisors, Inc. manages this Pool.

Credit Risk

The Pool is exposed to credit risk from its fixed income investments, money market mutual fund investment, and Cash Collateral Account investment. The WVIMB limits the exposure to credit risk in the Pool by maintaining at least an average rating of BBB (investment grade) as defined by a nationally recognized statistical rating organization. The WVIMB reviews available ratings from Standard & Poor's, Moody's, and Fitch, and reports the rating indicative of the greatest degree of risk. The Pool holds some securities that have not received a rating from the aforementioned rating organizations. These securities have been listed as not rated in the table below. The absence or lack of a rating does not necessarily indicate a greater degree of risk. The money market mutual fund has the highest credit rating. The Cash Collateral Account is not rated. The following table provides credit ratings for the Pool's fixed income investments as of June 30, 2023 (in thousands):

Rating	Fair Value
AAA	\$ 43,966
AA	1,147,027
A	185,813
BBB	277,969
BB	10,142
B	672
CCC	120
CC	-
C	-
Withdrawn	1,516
Not rated	105,782
Total fixed income investments	\$ 1,773,007

Concentration of Credit Risk

The Pool is restricted from investing more than 5 percent of the value of the Pool in any one corporate name. At June 30, 2023, the Pool was in compliance with this restriction and is not exposed to concentration of credit risk.

Custodial Credit Risk

At June 30, 2023, the Pool held no securities that were subject to custodial credit risk. Securities on loan are collateralized to a minimum of 102 percent, and the collateral is held by the WVIMB's custodian in the name of the WVIMB. The money market mutual fund and the Cash Collateral Account are not subject to custodial credit risk. All remaining securities are held by the WVIMB's custodian in the name of the WVIMB.

Interest Rate Risk

The Pool is exposed to interest rate risk from its fixed income investments, money market mutual fund investment, and Cash Collateral Account investment. As of June 30, 2023, the money market mutual fund has a weighted average maturity (WAM) of 12 days. Except for repurchase agreements that can have up to 95 days to maturity, investments in the Cash Collateral Account are limited to overnight investments. As of June 30, 2023, the WAM for the Cash Collateral Account was 3 days.

The WVIMB monitors interest rate risk of the Pool by evaluating the effective duration of the investments in the Pool. Effective duration is a method of disclosing interest rate risk that measures the expected change in the price of a fixed income security for a 1 percent change in interest rates. The effective duration calculation considers the most likely timing of variable cash flows, which is particularly useful for measuring interest rate risk of callable bonds, commercial and residential mortgage-backed securities, asset-backed securities, and collateralized mortgage obligations. The following table provides the weighted average effective duration for the Pool's fixed income investments as of June 30, 2023 (in thousands):

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

5 - INVESTMENTS (Continued)

Core Fixed Income (continued)

Investment Type	Fair Value	Effective Duration (years)
Corporate asset-backed issues	\$ 166,971	2.0
Corporate CMO	77,010	2.2
Corporate CMO interest-only	123	1.7
Corporate CMO principal-only	23	1.7
Foreign asset-backed issues	2,281	(0.1)
Foreign corporate bonds	121,780	4.4
Foreign government bonds	3,213	11.7
Municipal bonds	9,834	9.4
U.S. corporate bonds	278,937	8.0
U.S. Government agency CMO	112,612	5.1
U.S. Government agency CMO interest-only	1,393	7.7
U.S. Government agency CMO principal-only	1,770	5.0
U.S. Government agency MBS	386,105	6.0
U.S. Treasury bonds	610,955	8.2
Total fixed income investments	\$ 1,773,007	

The Pool invests in commercial and residential mortgage-backed securities, asset-backed securities, and collateralized mortgage obligations. The cash flows from these securities are based on the payment of the underlying collateral. The effective duration and yield to maturity of these securities are dependent on estimated prepayment assumptions that consider historical experience, market conditions and other criteria. Actual prepayments may vary with changes in interest rates. Rising interest rates often result in a slower rate of prepayments while declining rates tend to lead to faster prepayments. As a result, the fair values of these securities are highly sensitive to interest rate changes. At June 30, 2023, the Pool held \$748,288 of these securities. This represents approximately 42 percent of the value of the Pool's fixed income securities.

Participation Schedule

This pool is participated in by entities other than the retirement systems administered by the WVCPRB. The disclosures for this pool represent the pool, as a whole. The following schedule provides the values of the WVCPRB's administered retirement systems' participation in the Pool at June 30, 2023 (in thousands):

Core Fixed Income		Percentage of Total
Participant	Account Value	
Public Employees' Retirement System	\$ 582,903	32.47%
Teachers' Retirement System	638,250	35.56%
State Police Death, Disability, and Retirement System	53,092	2.96%
State Police Retirement System	23,125	1.29%
Deputy Sheriff's Retirement System	22,507	1.25%
Judges' Retirement System	19,752	1.10%
Emergency Medical Services Retirement System	8,829	0.49%
Municipal Police Officers' and Firefighters' Retirement System	2,451	0.14%
Natural Resources Police Officers's Retirement System	1,960	0.11%
Total of Retirement Systems	1,352,869	75.37%
Other Participants	442,188	24.63%
Total	\$ 1,795,057	100.00%

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

5 - INVESTMENTS (Continued)

Private Markets Pool

The objective of the Pool is to enhance the diversification and stability of the portfolio, while generating a higher level of income than generally available in the public fixed income markets and to provide for long-term growth of participants' assets and risk-reduction through diversification. The Pool primarily holds the WVIMB's investments in private credit & income funds, private equity funds, real estate investment trusts (REITs), and real estate limited partnerships and funds. Franklin Park, StepStone Group LP, and Verus have been retained by the WVIMB to provide consulting services related to the selection of limited partnerships and funds. Publicly traded assets are managed by CBRE Clarion Securities LLC and Security Capital Research & Management Inc.

Credit Risk

The Pool is exposed to credit risk from its fixed income investments, money market mutual fund investment, investments in unrated private credit & income funds, and the Cash Collateral Account. The WVIMB limits the exposure to credit risk in the Pool by maintaining at least an average rating of investment grade as defined by a nationally recognized statistical rating organization. The WVIMB reviews available ratings from Standard & Poor's and Moody's and reports the rating indicative of the greatest degree of risk. The money market mutual fund has the highest credit rating. The Cash Collateral Account is not rated. Credit risk associated with the unrated private credit & income funds are limited by requiring that underlying fund holdings are at least 90 percent collateralized by one or more assets of the borrower.

The following table provides credit ratings for the Pool's fixed income investments as of June 30, 2023:

Rating	Fair Value
A	\$ 265
BBB	9,348
BB	1,887
B	83
Total fixed income investments	\$ 11,583

Concentration of Credit Risk

The Pool's investments in alternative investment funds might be indirectly exposed to concentration of credit risk.

Custodial Credit Risk

At June 30, 2023, the Pool held no securities that were directly subject to custodial credit risk. Securities on loan are collateralized to a minimum of 102 percent for U.S. Dollar denominated loans and 105 percent for foreign denominated loans, and the collateral is held by the WVIMB's custodian in the name of the WVIMB. All remaining securities, except for the alternative investments, are held by the WVIMB's custodian in the name of the WVIMB.

Interest Rate Risk

The Pool is exposed to interest rate risk through its investments in U.S. corporate bonds, opportunistic income funds and a money market mutual fund. The WVIMB monitors interest rate risk of U.S. corporate bonds by evaluating the effective duration. Effective duration is a method of disclosing interest rate risk that measures the expected change in the price of a fixed income security for a 1 percent change in interest rates. The effective duration calculation takes into account the most likely timing of variable cash flows, which is particularly useful for measuring interest rate risk of callable bonds. As of June 30, 2023, the effective duration for U.S. corporate bonds was 5.4 years. The WVIMB manages interest rate risk of the private credit & income funds by investing primarily in funds that originate or invest in loans that have a variable or floating interest rates, most of these investments have relatively short durations, and final maturities within three- to five-years. As of June 30, 2023, the money market mutual fund has a weighted average maturity (WAM) of 12 days. The WAM for securities lending collateral investments is not to exceed 90 days. As of June 30, 2023, the WAM for securities lending collateral was 3 days.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

5 - INVESTMENTS (Continued)

Private Markets Pool (continued)

Foreign Currency Risk

The Pool holds foreign common stock, real estate limited partnerships and funds, and cash that is denominated in foreign currencies and exposed to foreign currency risks. Investments in private credit & income funds and private equity partnerships might be indirectly exposed to foreign currency risk.

The amounts at fair value (in U.S. dollars) of investments and cash denominated in foreign currencies as of June 30, 2023, are as follows:

Currency	Foreign Common Stock	Real Estate Limited Partnerships and Funds	Cash	Total
Australian Dollar	\$ 3,685	\$ -	\$ -	\$ 3,685
British Pound	3,974	-	-	3,974
Canadian Dollar	1,664	61,089	-	62,753
Euro Currency Unit	5,974	122,566	-	128,540
Hong Kong Dollar	4,620	-	-	4,620
Japanese Yen	8,340	-	28	8,368
Singapore Dollar	2,857	-	-	2,857
Swedish Krona	955	-	-	955
Swiss Franc	1,136	-	-	1,136
Total foreign denominated investments	33,205	183,655	-	216,888
U.S. Dollar	2,006	2,016,618	(18)	2,018,606
Total	\$ 35,211	\$ 2,200,273	\$ (18)	\$ 2,235,494

Participation Schedule

This pool is participated in by entities other than the retirement systems administered by the WVCPRB. The disclosures for this pool represent the pool, as a whole. The following schedule provides the values of the WVCPRB's administered retirement systems' participation in the Pool at June 30, 2023:

Participant	Account Value	Percentage of Total
Public Employees' Retirement System	\$ 2,348,329	39.37%
Teachers' Retirement System	2,592,052	43.46%
State Police Death, Disability, and Retirement System	218,529	3.66%
State Police Retirement System	88,904	1.49%
Deputy Sheriffs Retirement System	88,136	1.48%
Judges' Retirement System	77,750	1.30%
Emergency Medical Services Retirement System	34,182	0.57%
Municipal Police Officers' and Firefighters' Retirement System	9,325	0.16%
Natural Resources Police Officers's Retirement System	7,624	0.13%
Total of Retirement Systems	5,464,831	91.63%
Other Participants	499,430	8.37%
Total	\$ 5,964,261	100.00%

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

5 - INVESTMENTS (Continued)

Hedge Fund

The Pool was established to hold the WVIMB's investments in hedge funds. The objective of the Pool is to reduce risk through diversification of participants' assets. The primary performance benchmark is the Hedge Funds Research, Inc. Fund of Funds Composite Index plus 100 Basis points. The secondary benchmark is the FTSE 3 Month US T-Bill Index plus 500 basis points. Albourne America, LLC has been retained by the WVIMB to provide consulting services for this investment strategy.

The Pool holds shares in hedge funds and shares of a money market mutual fund. As of June 30, 2023, the money market mutual fund has the highest credit rating and has a weighted average maturity of 41 days. Investments in hedge funds might be indirectly exposed to foreign currency risk, credit risk, interest rate risk, and/or custodial credit risk. The Pool is restricted from investing more than 10 percent of the value of the Pool with any single manager. At June 30, 2023, the Pool was in compliance with this restriction and is not exposed to concentration of credit risk.

Participation Schedule

This pool is participated in by entities other than the retirement systems administered by the WVCPRB. The disclosures for this pool represent the pool, as a whole. The following schedule provides the values of the WVCPRB's administered retirement systems' participation in the Pool at June 30, 2023 (in thousands):

Participant	Account Value	Percentage of Total
Public Employees' Retirement System	\$ 845,127	34.06%
Teachers' Retirement System	932,938	37.60%
State Police Death, Disability, and Retirement System	78,649	3.17%
State Police Retirement System	32,005	1.29%
Deputy Sheriff's Retirement System	31,726	1.28%
Judges' Retirement System	27,987	1.13%
Emergency Medical Services Retirement System	12,306	0.50%
Municipal Police Officers' and Firefighters' Retirement System	3,357	0.14%
Natural Resources Police Officers's Retirement System	2,744	0.11%
Total of Retirement Systems	1,966,839	79.28%
Other Participants	514,244	20.72%
Total	\$ 2,481,083	100.00%

Investments and Deposits - TDCRS

Concentration of Credit Risk

As of June 30, 2023, the TDCRS has investment balances with the following issuers which were greater than 5% of the total investment balance of the TDCRS (in thousands):

VALIC Fixed Annuity Option	\$ 180,828
T. Rowe Price Blue Chip Growth	95,272
Vanguard Large Cap Index	67,146
Putnam Large Cap Value Y	60,270
Empower SF Balanced Trust	34,112
Empower Lifetime 2035 Trust	36,222
Other (less than 5% individually)	184,967
	\$ 658,817

Investments and Deposits – TDCRS (continued)

Concentration of Credit Risk - Cash Deposits

At June 30, 2023, TDCRS had \$5,269,694 on deposit with the West Virginia State Treasurer's Office and \$285,948 in depository accounts with financial institutions. The deposits with financial institutions, which had a bank balance of \$285,948 are either insured by the Federal Deposit Insurance Corporation or collateralized with securities held in TDCRS' name by its agent.

Interest Rate Risk

As of June 30, 2023, all of TDCRS' investments had a maturity date of less than one year.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

6 - INVESTMENT CONTRACT WITH INSURANCE COMPANY

The TDCRS maintains an investment contract with Variable Annuity Life Insurance Company (VALIC) which is a benefit-responsive individually allocated investment contract with a guaranteed rate of return. The account is credited with earnings on the underlying investments and charged for participant withdrawals and administrative expenses. The guaranteed investment contract issuer is contractually obligated to repay the principal and a specified interest rate that is guaranteed to the TDCRS. There are no reserves against contract value for credit risk of the contract issuer or otherwise. The crediting interest rate is based on a formula agreed upon with the issuer, but it may not be less than 4.5%. Such interest rates are reviewed quarterly for resetting.

This contract meets the fully-benefit responsive investment contract criteria and is therefore reported at contract value. Contract value is the relevant measurement attribute for that portion of the net assets available for benefits attributable to the guaranteed investment contract because that is the amount received by participants if they were to initiate permitted transactions under the terms of the TDCRS. Contract value, as reported to the Board by VALIC, represents contributions made under the contract, plus earnings, less participant withdrawals, and administrative expenses. Participants may ordinarily direct the withdrawal or transfer of all or a portion of their investment at contract value.

The value of the contract on June 30, 2023, was \$180,828,181.

7 - CONTINGENCIES

The Board is engaged in various legal actions that it considers to be in the ordinary course of business. Some of these cases involve potentially significant amounts for which legal counsel is unable to render an opinion on the outcome. Further, the financial impact of some cases is dependent upon judicial rulings in favor of petitioners and would have to be actuarially determined, inasmuch as the relief sought is an increase in the petitioners' annuity benefit. Accordingly, the financial statement impact of such cases cannot be determined at the present time. As legal actions are resolved, the Board recognizes the liability in its financial statements in the period the amount can be estimated.

8 - RISK MANAGEMENT

The Board is exposed to various risks of loss related to torts; theft or damage to, and destruction of assets; errors and omissions; injuries to, and illnesses of employees; medical liabilities; and natural disasters.

Health insurance coverage for the Board's employees is obtained through its participation in the West Virginia Public Employees Insurance Agency (PEIA). PEIA provides the following basic employee benefit coverage to all participants: hospital, surgical, group major medical, basic group life, accidental death, and prescription drug coverage for active and retired employees of the State of West Virginia and various related State and non-State agencies. Additionally, the Board has obtained coverage for job-related injuries through the purchase of a policy through a commercial carrier. In exchange for the payment of premiums to PEIA and a commercial carrier, the Board has transferred its risks related to health coverage for employees and job-related injuries of employees. Furthermore, the Board is a participant in the self-insured public entity risk pool administered by the Board of Risk and Insurance Management. Coverage is in the amount of \$1,000,000 per occurrence for general liability and property damage.

9 - NEW ACCOUNTING PRONOUNCEMENTS

Recent Statements Issued by the Governmental Accounting Standards Board

The GASB issued Statement No. 94, *Public-Private and Public-Public Partnerships and Availability Payment Arrangements*, to improve financial reporting by addressing issues related to public-private and public-public partnership arrangements. This statement is effective for fiscal year 2023, and there is no financial statement impact of the pronouncement.

The GASB issued Statement No. 96, *Subscription-Based Information Technology Arrangements*, to provide guidance on the accounting and financial reporting for subscription-based information technology arrangements for government end users. This statement is effective for fiscal year 2023, and there is no financial statement impact of the pronouncement.

West Virginia Consolidated Public Retirement Board
Notes to the Financial Statements (Continued)

9 – NEW ACCOUNTING PRONOUNCEMENTS (Continued)

The GASB issued Statement No. 99, *Omnibus 2022*, to enhance comparability in accounting and financial reporting and to improve the consistency of authoritative literature by addressing (1) practice issues that have been identified during implementation and application of certain GASB Statements and (2) accounting and financial reporting for financial guarantees. This statement is effective for fiscal year 2024, and management has not yet determined the financial statement impact of the pronouncement.

The GASB issued Statement No. 100, *Accounting Changes and Error Corrections—An Amendment of GASB Statement No. 62*, to enhance accounting and financial reporting requirements for accounting changes and error corrections to provide more understandable, reliable, relevant, consistent, and comparable information for making decisions or assessing accountability. This statement is effective for fiscal year 2024, and management has not yet determined the financial statement impact of the pronouncement.

The GASB issued Statement No. 101, *Compensated Absences*, to better meet the information needs of financial statement users by updating the recognition and measurement guidance for compensated absences. That objective is achieved by aligning the recognition and measurement guidance under a unified model and by amending certain previously required disclosures. This statement is effective for fiscal year 2025, and management has not yet determined the financial statement impact of the pronouncement.

West Virginia Consolidated Public Retirement Board
Financial Section

REQUIRED SUPPLEMENTAL INFORMATION

West Virginia Consolidated Public Retirement Board
Financial Section



West Virginia Consolidated Public Retirement Board
Financial Section
Required Supplemental Information

SCHEDULES OF NET PENSION LIABILITY AND CHANGES IN NET PENSION LIABILITY (ASSET)
 (In Thousands)
 Fiscal years Ending June 30

	PERS					
	2023	2022	2021	2020	2019	2018
Total pension liability:						
Service cost	\$ 145,632	\$ 142,897	\$ 130,480	\$ 123,401	\$ 121,228	\$ 124,129
Interest	582,635	(361,913)	549,214	527,407	519,350	504,275
Differences between actual and expected experience	31,603	15,700	80,207	104,199	(26,020)	490,075
Change in benefit terms	8,828	-	(20,850)	-	2,500	(1,271)
Assumption changes			236,067		(55,550)	-
Benefit payments	(522,340)	(302,749)	(479,094)	(463,750)	(448,147)	(412,779)
Net change in total pension liability	246,248	(440,421)	496,024	491,457	112,661	200,154
Total pension liability, beginning	8,150,369	7,927,548	7,431,924	7,140,407	7,027,806	6,816,712
Total pension liability, ending (a)	8,396,617	8,140,361	7,927,948	7,431,924	7,140,467	7,027,806
Plan fiduciary net position:						
Contributions - employer	163,475	147,741	159,259	155,210	147,031	152,541
Contributions - member	89,190	93,163	78,762	75,867	70,857	67,156
Net investment income	669,213	(742,700)	2,170,298	215,355	393,179	506,303
Benefit payments	(522,340)	(302,749)	(479,094)	(463,750)	(448,147)	(412,779)
Administrative expense	(3,736)	(3,529)	(6,311)	(6,186)	(6,915)	(6,800)
Other	(2,032)	1,254	(20,278)	1,034	995	1,407
Net change in plan fiduciary net position	393,770	(738,553)	1,902,631	(31,201)	155,900	384,477
Plan fiduciary net position, beginning	8,007,329	8,810,484	6,903,253	6,125,474	6,769,554	6,345,047
Prior period adjustment	-	-	-	-	-	(90)
Plan fiduciary net position, beginning, as restated	8,007,329	8,810,484	6,903,253	6,125,474	6,769,554	6,345,047
Plan fiduciary net position, ending (b)	8,401,099	8,097,329	8,805,834	6,991,553	6,926,654	6,769,554
Net pension liability (asset), ending (a) - (b)	\$ (4,482)	\$ (15,161)	\$ (877,936)	\$ 628,171	\$ 215,013	\$ 208,292
Plan fiduciary net position as a percentage of total pension liability	100.06%	98.24%	111.07%	102.38%	96.99%	91.33%
Covered payroll	1,655,199	1,611,393	1,574,183	1,497,036	1,388,662	1,440,577
Net pension liability (asset) as a percentage of covered payroll	-0.22%	8.88%	-55.77%	35.00%	15.48%	18.05%

See Independent Auditor's Report and Notes to Required Supplementary Information

West Virginia Consolidated Public Retirement Board
Financial Section
Required Supplemental Information

SCHEDULES OF NET PENSION LIABILITY AND CHANGES IN NET PENSION LIABILITY (ASSET)
 (In Thousands)
 Fiscal years Ending June 30

	2023	2024	2021	2020	2019	2018	2017	2016	2015	2014
TRS										
Total pension liability:										
Service cost	\$ 160,164	\$ 156,772	\$ 150,254	\$ 149,739	\$ 141,472	\$ 146,795	\$ 153,006	\$ 149,857	\$ 146,798	\$ 147,149
Interest	818,175	811,208	808,482	794,751	782,389	786,311	780,855	773,118	744,455	730,912
Differences between actual and expected experience	20,180	18,895	96,300	83,112	(69,708)	(19,556)	(52,290)	(52,210)	(36,005)	-
Change in benefit terms	15,200	-	228,777	17,404	5,200	-	-	-	-	-
Assumption changes	(887,831)	(880,514)	(871,516)	(864,467)	(838,309)	(816,102)	(789,058)	(779,303)	(718,838)	(676,210)
Benefit payments										
Net change in total pension liability	115,888	(46,356)	412,297	101,359	31,044	97,132	92,513	384,125	136,410	(261,851)
Total pension liability, beginning	11,573,922	11,477,704	11,065,269	10,873,010	10,842,866	10,745,134	10,652,921	10,268,516	10,132,186	9,930,355
Total pension liability, ending (a)	11,689,810	11,571,922	11,477,566	11,063,269	10,873,910	10,842,866	10,745,434	10,268,596	10,132,186	-
Plan fiduciary net position:										
Contributions - employer	452,521	483,006	417,334	463,840	481,986	471,817	451,447	426,478	490,640	(41,840)
Contributions - member	104,432	(45,634)	97,258	96,511	92,759	89,128	91,503	96,177	94,694	90,612
Other statutorily required contributions	-	-	-	-	-	-	-	-	-	324,583
Other contributions- appropriations	-	-	-	-	-	-	-	-	-	50,855
Net investment income	739,885	(610,051)	2,429,811	(21,501)	444,661	(688,273)	994,989	(18,102)	255,988	1,003,180
Benefit payments	(857,831)	(859,054)	(871,516)	(857,347)	(838,309)	(816,102)	(789,058)	(779,503)	(718,838)	(676,210)
Administrative expense	(4,192)	(3,951)	(5,221)	(5,725)	(6,239)	(6,135)	(4,582)	(4,507)	(4,432)	(4,338)
Other	3,732	2,385	2,733	3,139	3,272	3,044	3,077	3,022	3,197	3,510
Net change in plan fiduciary net position	388,547	(34,243)	2,070,459	(34,411)	178,130	(30,117)	747,376	(230,257)	121,249	930,392
Plan fiduciary net position, beginning	9,001,857	(9,011,787)	7,844,328	(7,898,739)	7,720,609	(7,790,162)	6,543,087	(6,803,342)	6,682,093	(5,751,601)
Prior period adjustment	-	-	-	-	-	-	(1)	-	-	-
Plan fiduciary net position, beginning, as restated	9,001,857	(9,011,787)	7,844,328	(7,898,739)	7,720,609	(7,790,162)	6,543,086	(6,803,342)	6,682,093	(5,751,601)
Plan fiduciary net position, ending (b)	9,400,404	(9,011,857)	9,914,787	(7,844,129)	7,898,739	(7,790,069)	7,290,462	(5,543,087)	6,803,342	(6,682,093)
Net pension liability (asset), ending (a) - (b)	\$ 2,289,406	\$ 2,572,045	\$ 1,552,779	\$ 3,209,944	\$ 2,975,171	\$ 3,122,017	\$ 3,454,972	\$ 4,009,814	\$ 3,465,254	\$ 3,450,001
Plan fiduciary net position as a percentage of total pension liability	80.42%	77.78%	86.38%	70.85%	72.64%	71.20%	67.85%	61.12%	66.25%	65.93%
Covered payroll	1,686,598	1,636,111	1,604,576	1,509,777	1,404,586	1,457,143	1,505,080	1,511,271	1,481,786	1,493,515
Net pension liability (asset) as a percentage of covered payroll	155.74%	157.18%	97.40%	213.36%	211.82%	211.22%	229.55%	221.05%	233.86%	231.00%

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SCHEDULES OF NET PENSION LIABILITY AND CHANGES IN NET PENSION LIABILITY (ASSET)
 (In Thousands)
 Fiscal years Ending June 30
 (Continued)

	SPDDRS						
	2023	2022	2021	2020	2019	2018	2017
Total pension liability:							
Service cost	\$ 66	\$ 46	\$ 89	\$ 136	\$ 540	\$ 981	\$ 1,071
Interest	56,660	74,218	56,154	65,378	54,438	54,904	53,131
Differences between actual and expected experience	(1,405)	1,458	(672)	1,051	6,331	(2218)	47
Assumption changes							1,961
Benefit payments	(52,429)	(61,147)	(50,228)	(41,225)	(47,551)	(46,729)	(43,325)
Net change in total pension liability	2,892	6,017	27,574	10,907	13,758	7,188	12,885
Total pension liability, beginning	807,666	801,819	773,745	763,838	749,060	741,846	729,007
Total pension liability, ending (a)	810,558	807,816	801,319	773,745	762,838	749,080	741,892
Plan fiduciary net position:							
Contributions • employer	40	17,842	16,699	13,246	15,595	24,249	17,156
Contributions • member	21	26	34	30	110	186	362
Net investment income	62,550	(57,301)	208,656	21,125	38,174	60,939	87,793
Benefit payments	(52,329)	(51,447)	(50,228)	(49,225)	(47,551)	(45,529)	(43,325)
Administrative expense	(358)	(340)	(54)	(54)	(63)	(63)	(45)
Other	705	721	822	510	752	591	847
Net change in plan fiduciary net position	10,929	(84,328)	175,929	14,246	7,017	41,055	62,787
Plan fiduciary net position, beginning	767,205	(85,353)	675,604	(689,820)	682,803	641,585	578,798
Prior period adjustment	-	-	-	-	-	166	-
Plan fiduciary net position, beginning, as restated	767,205	(85,353)	675,604	(689,820)	682,803	641,748	578,798
Plan fiduciary net position, ending (b)	778,134	767,305	851,533	(678,611)	689,820	682,803	641,585
Net pension liability (asset), ending (a) • (b)	\$ 32,424	\$ 40,471	\$ (50,214)	\$ 98,141	\$ 73,018	\$ 66,277	\$ 100,307
Plan fiduciary net position as a percentage of total pension liability	96.00%	144.00%	106.27%	87.92%	90.42%	91.15%	86.48%
Covered payroll	290	373	349	514	1,527	2,963	3,181
Net pension liability (asset) as a percentage of covered payroll	11,180.69%	(14,451.41%)	-1,4387.97%	49,983.63%	4781.79%	23,378.84%	3165.32%

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SCHEDULES OF NET PENSION LIABILITY AND CHANGES IN NET PENSION LIABILITY (ASSET)
 (In Thousands)
 Fiscal years Ending June 30
 (Continued)

	SPRS					
	2023	2022	2021	2020	2019	2018
Total pension liability:						
Service cost	\$ 10,019	\$ 9,258	\$ 8,794	\$ 8,533	\$ 7,456	\$ 7,617
Interest	24,431	24,246	19,210	16,918	14,654	13,493
Differences between actual and expected experience	4,660	3,451	513	7,888	(3,513)	(3,610)
Change in benefit terms					12,731	(765)
Assumption changes						11,192
Benefit payments	(7,146)	(5,711)	(3,599)	(2,498)	(1,944)	(1,842)
Net change in total pension liability	31,904	44,031	37,394	30,841	29,384	10,661
Total pension liability, beginning	330,559	286,528	249,134	218,293	188,909	173,248
Total pension liability, ending (a)	362,443	330,559	286,528	249,134	218,293	188,909
Plan fiduciary net position:						
Contributions - employer	8,100	9,128	7,928	4,850	4,556	4,205
Contributions - member	4,860	4,305	4,185	4,168	3,905	3,621
Net investment income	24,933	(19,615)	72,138	7,010	11,730	16,303
Benefit payments	(7,146)	(5,711)	(3,599)	(2,498)	(1,944)	(1,842)
Administrative expense	(135)	(120)	(59)	(67)	(60)	(64)
Other	129	-	-	-	-	(63)
Net change in plan fiduciary net position	30,741	(11,855)	80,593	13,463	18,187	28,119
Plan fiduciary net position, beginning	289,303	301,158	220,565	207,102	188,915	166,688
Plan fiduciary net position, ending (b)	320,044	289,103	301,158	220,565	207,102	188,915
Net pension liability (asset), ending (a) - (b)	\$ 42,339	\$ 11,296	\$ (14,630)	\$ 28,569	\$ 11,191	\$ (6,560)
Plan fiduciary net position as a percentage of total pension liability	88.30%	87.52%	105.11%	88.53%	94.87%	100.00%
Covered payroll	38,809	35,120	34,946	43,904	30,938	32,291
Net pension liability (asset) as a percentage of covered payroll	109.25%	117.11%	.41.86%	84.26%	36.17%	.40.02%

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SCHEDULES OF NET PENSION LIABILITY AND CHANGES IN NET PENSION LIABILITY (ASSET)
 (in Thousands)
 Fiscal years Ending June 30
 (Continued)

	DERS						2014
	2023	2022	2021	2020	2019	2017	
Total pension liability:							
Service cost	\$ 10,010	\$ 9,516	\$ 8,825	\$ 8,569	\$ 7,436	\$ 7,084	\$ 5,887
Interest	24,326	22,578	20,845	19,185	16,246	15,476	13,612
Differences between actual and expected experience	3,282	7,741	(42)	1,935	2,697	(1,370)	1,530
Change in benefit terms					24,170		946
Assumption changes						(3,114)	-
Benefit payments	(16,965)	(15,421)	(13,894)	(12,976)	(11,940)	(10,611)	(8,371)
Net change in total pension liability	20,653	24,303	33,586	22,301	38,609	10,679	(537)
Total pension liability, beginning	334,005	309,642	276,056	263,755	215,146	204,567	205,104
Total pension liability, ending (a)	354,658	334,005	309,642	276,056	253,755	215,146	204,567
Plan fiduciary net position:							
Contributions - employer	8,811	8,258	7,213	6,951	6,705	6,194	5,922
Contributions - member	5,776	5,531	5,177	4,860	4,846	4,416	4,163
Net investment income	24,926	(19,914)	76,547	7,928	13,200	19,361	27,282
Benefit payments	(16,965)	(15,421)	(13,894)	(12,976)	(11,940)	(10,611)	(6,765)
Administrative expense	(137)	(126)	(136)	(133)	(145)	(137)	(102)
Other	323	404	556	404	479	471	403
Net change in plan fiduciary net position	22,734	(21,379)	75,465	6,544	13,145	19,654	27,553
Plan fiduciary net position, beginning	294,299	315,668	240,203	213,639	220,514	200,820	173,288
Prior period adjustment						(1)	-
Plan fiduciary net position, beginning, as restated	294,299	315,668	240,203	213,639	220,514	200,820	173,287
Plan fiduciary net position, ending (b)	317,023	314,259	315,668	240,203	233,659	220,514	200,820
Net pension liability(asset), ending (a) - (b)	\$ 37,635	\$ 38,716	\$ (6,026)	\$ 35,853	\$ 20,096	\$ (5,368)	\$ 3,747
Plan fiduciary net position as a percentage of total pension liability	89.39%	88.11%	101.95%	87.01%	92.08%	102.50%	98.17%
Covered payroll	65,637	62,284	59,289	57,608	53,676	49,916	51,004
Net pension liability(asset) as a percentage of covered payroll	57.34%	63.77%	10.16%	62.14%	37.44%	40.75%	43.99%

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SCHEDULES OF NET PENSION LIABILITY AND CHANGES IN NET PENSION LIABILITY (ASSET)
 (In Thousands)
 Fiscal years Ending June 30
 (Continued)

	JRS					
	2023	2022	2021	2020	2019	2018
Total pension liability:						
Service cost	\$ 2,855	\$ 2,590	\$ 2,358	\$ 2,640	\$ 2,406	\$ 2,557
Interest	8,138	7,903	8,735	8,711	8,608	8,519
Differences between actual and expected experience	(3,984)	(2,157)	(19,046)	(5,885)	(4,969)	(6,054)
Change in benefit terms	-	-	-	-	-	-
Assumption changes	-	-	-	-	-	-
Benefit payments	(5,134)	(5,046)	(4,810)	(4,897)	(4,953)	(4,609)
Net change in total pension liability	1,875	2,192	(7,545)	560	1,122	1,102
Total pension liability, beginning	111,966	108,974	116,519	115,930	114,828	113,726
Total pension liability, ending (a)	113,841	111,966	108,974	116,519	115,950	114,828
Plan fiduciary net position:						
Contributions - employer	797	1,052	886	791	779	735
Contributions - member	369	319	295	391	331	304
Net investment income	22,031	(17,631)	68,611	6,830	12,085	18,373
Benefit payments	(5,134)	(5,046)	(4,810)	(4,897)	(4,933)	(4,609)
Administrative expense	(121)	(112)	(10)	(10)	(11)	(8)
Other	1,303	-	-	-	(86)	-
Net change in plan fiduciary net position	19,245	(21,118)	64,972	3,035	8,165	11,632
Plan fiduciary net position, beginning	259,242	280,660	215,688	212,653	204,488	189,956
Plan fiduciary net position, ending (b)	278,487	259,242	280,660	215,688	212,653	201,188
Net pension liability (asset), ending (a) - (b)	\$ (164,646)	\$ (147,275)	\$ (171,686)	\$ (99,169)	\$ (96,703)	\$ (76,230)
Plan fiduciary net position as a percentage of total pension liability	244.63%	231.54%	257.55%	185.11%	183.40%	178.08%
Covered payroll	11,289	10,504	9,752	9,752	9,374	11,500
Net pension liability (asset) as a percentage of covered payroll	-1458.46%	-1402.04%	-1760.52%	-1016.91%	-1031.61%	-943.79%

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SCHEDULES OF NET PENSION LIABILITY AND CHANGES IN NET PENSION LIABILITY (ASSET)
 (In Thousands)
 Fiscal years Ending June 30
 (Continued)

	EMRSRS					
	2023	2022	2021	2020	2019	2018
Total pension liability:						
Service cost	\$ 4,104	\$ 4,012	\$ 3,431	\$ 3,286	\$ 3,272	\$ 3,189
Interest	8,235	7,417	6,668	6,147	5,911	5,403
Differences between actual and expected experience	(2,513)	4,867	3,073	2,317	(2,208)	1,147
Change in benefit terms	2,463	-	-	-	-	1,545
Assumption changes	(5,761)	(5,075)	(4,714)	(4,317)	(4,176)	(3,651)
Benefit payments						
Net change in total pension liability	6,438	11,261	13,276	7,403	2,799	6,116
Total pension liability, beginning	112,367	101,196	87,830	50,427	77,628	71,382
Total pension liability, ending (a)	118,805	112,367	101,106	57,830	80,427	77,628
Plan fiduciary net position:						
Contributions - employer	3,662	3,610	3,523	3,078	2,844	2,765
Contributions - member	3,272	2,624	2,842	2,531	2,302	2,231
Net investment income	9,618	(7,672)	28,643	2,817	4,774	6,867
Benefit payments	(5,761)	(5,075)	(4,714)	(4,317)	(4,176)	(3,653)
Administrative expense	(53)	(47)	(78)	(73)	(77)	(73)
Other	2,232	-	-	-	-	-
Net change in plan fiduciary net position	12,970	(6,260)	30,216	4,036	5,667	8,137
Plan fiduciary net position, beginning	112,961	119,221	89,005	84,969	79,302	71,165
Prior period adjustment	-	-	-	-	-	-
Plan fiduciary net position, beginning, as restated	112,961	119,221	89,005	84,969	79,302	71,165
Plan fiduciary net position, ending (b)	125,931	112,961	119,221	89,005	84,969	79,302
Net pension liability (asset), ending (a) - (b)	\$ (7,126)	\$ (759)	\$ (18,115)	\$ (11,175)	\$ (4,542)	\$ (1,167)
Plan fiduciary net position as a percentage of total pension liability	106.00%	100.53%	117.92%	101.34%	105.65%	102.06%
Covered payroll	33,642	34,071	29,395	36,536	26,024	27,721
Net pension liability (asset) as a percentage of covered payroll	-21.18%	-1.74%	-31.63%	-1.43%	-17.45%	-6.10%

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SCHEDULES OF NET PENSION LIABILITY AND CHANGES IN NET PENSION LIABILITY (ASSET)
 (In Thousands)
 Fiscal years Ending June 30
 (Continued)

	MPFRS									
	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability:										
Service cost	\$ 3,744	\$ 3,263	\$ 2,343	\$ 1,907	\$ 1,734	\$ 1,086	\$ 984	\$ 487	\$ 485	\$ 237
Interest	1,178	812	617	447	290	(290)	214	111	74	28
Differences between actual and expected experience	907	296	333	(373)	450	411	12	38	49	-
Change in benefit terms	1,497	-	-	-	-	-	-	-	-	-
Assumption changes	(598)	(496)	1,375	(218)	(298)	(105)	(320)	-	-	-
Benefit payments	(314)	(314)	-	-	(298)	(105)	(79)	(144)	(49)	(7)
Net change in total pension liability	7,063	4,241	4,549	1,923	2,333	1,665	811	632	569	265
Total pension liability, beginning	17,426	13,184	8,635	6,712	4,379	2,714	1,903	1,081	522	264
Total pension liability, ending (a)	24,486	17,425	13,184	8,635	6,712	4,379	2,714	1,903	1,081	262
Plan fiduciary net position:										
Contributions - employer	3,168	2,672	2,136	1,721	1,438	1,089	846	614	417	271
Contributions - member	3,168	2,673	2,158	1,717	1,438	1,087	846	614	417	271
Net investment income	2,536	(1,830)	5,202	437	649	547	606	28	66	125
Benefit payments	(598)	(406)	(314)	(248)	(298)	(165)	(79)	(34)	(49)	(7)
Administrative expense	(12)	(10)	(41)	(36)	(35)	(23)	(14)	(11)	(7)	(3)
Other	19	-	68	1	28	-	-	1	-	-
Net change in plan fiduciary net position	8,281	3,019	9,209	3,592	3,220	2,555	2,205	1,272	844	671
Plan fiduciary net position, beginning	27,197	24,018	14,889	11,207	8,077	5,522	3,317	2,016	1,202	529
Prior period adjustment	-	-	-	-	-	-	-	(1)	-	-
Plan fiduciary net position, beginning, as restated	27,197	24,018	14,889	11,207	8,077	5,522	3,317	2,015	1,202	529
Plan fiduciary net position, ending (b)	35,478	27,147	24,098	11,389	11,297	8,077	5,522	3,317	2,046	1,202
Net pension liability (asset), ending (a) - (b)	\$ (10,990)	\$ (11,722)	\$ (10,914)	\$ (6,274)	\$ (4,585)	\$ (1,608)	\$ (2,808)	\$ (1,111)	\$ (965)	\$ (880)
Plan fiduciary net position as a percentage of total pension liability	144.86%	156.08%	182.78%	179.43%	168.31%	184.45%	203.46%	174.10%	189.27%	230.27%
Covered payroll	34,242	28,785	21,972	17,851	15,132	10,418	7,898	5,183	3,784	1,833
Net pension liability (asset) as a percentage of covered payroll	-32.10%	-31.05%	-49.67%	-35.07%	-30.30%	-35.01%	-35.56%	-35.70%	-25.50%	-17.10%

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SCHEDULES OF NET PENSION LIABILITY AND CHANGES IN NET PENSION LIABILITY (ASSET)

(In Thousands)

Fiscal years Ending June 30

(Continued)

	NRPORS		
	2023	2022	2021
Total pension liability:			
Service cost	\$ 1,223	\$ 1,095	\$ 494
Interest	2,323	2,126	18
Differences between actual and expected experience	(1,106)	(622)	-
Change in benefit terms		441	25,978
Assumption changes	-	-	1,960
Benefit payments	(480)	(421)	(10)
Net change in total pension liability	1,960	2,619	28,440
Total pension liability, beginning	31,059	28,440	-
Total pension liability, ending (a)	33,019	31,059	28,440
Plan fiduciary net position:			
Contributions - employer	856	779	332
Contributions - member	678	615	263
Net investment income	2,128	(1,661)	2,996
Benefit payments	(480)	(421)	(10)
Administrative expense	(11)	(10)	-
Other		162	21,432
Net change in plan fiduciary net position	3,171	(536)	25,013
Plan fiduciary net position, beginning	24,477	25,013	-
Prior period adjustment	-	-	-
Plan fiduciary net position, beginning, as restated	24,477	25,013	-
Plan fiduciary net position, ending (b)	27,648	24,477	25,013
Net pension liability (asset), ending (a) - (b)	\$ 5,371	\$ 6,582	\$ 3,427
Plan fiduciary net position as a percentage of total pension liability	83.73%	78.81%	87.95%
Covered payroll	6,589	6,224	6,220
Net pension liability (asset) as a percentage of covered payroll	81.51%	105.75%	55.10%

This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10 the Board will present information for the years for which information is available.

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SCHEDULES OF CONTRIBUTIONS

(In Thousands)

Fiscal Year Ended June 30,

	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contributions as a % of Covered Payroll
PERS					
2023	\$ 98,415	\$ 163,475	\$ (65,060)	\$ 1,655,199	9.88 %
2022	98,477	167,761	(69,284)	1,611,398	10.41
2021	106,467	159,259	(52,792)	1,574,183	10.12
2020	109,904	155,230	(45,326)	1,497,636	10.37
2019	115,775	147,031	(31,256)	1,388,662	10.59
2018	124,363	152,541	(28,178)	1,430,577	10.66
2017	138,663	165,676	(27,013)	1,414,584	11.71
2016	149,481	186,867	(37,386)	1,392,113	13.42
2015	183,658	189,947	(6,289)	1,373,129	13.83
2014	189,303	194,728	(5,425)	1,389,850	14.01
TRS (1)					
2023	\$ 407,183	\$ 452,521	\$ (45,338)	\$ 1,686,598	26.83 %
2022	412,124	483,005	(70,881)	1,636,411	29.52
2021	418,494	417,334	1,160	1,604,576	26.01
2020	413,728	463,840	(50,112)	1,509,477	30.73
2019	433,203	481,986	(48,783)	1,404,586	34.32
2018	443,800	471,837	(28,037)	1,457,143	32.38
2017	413,976	451,447	(37,471)	1,505,080	29.99
2016	387,685	426,678	(38,993)	1,511,271	28.23
2015	454,721	490,640	(35,919)	1,481,786	33.11
2014	488,511	514,248	(25,737)	1,493,515	34.43
SPDDRS (2)					
2023	\$ 47	\$ 40	\$ 7	\$ 290	13.79 %
2022	17,798	17,842	(44)	353	5,054.39
2021	16,648	16,699	(51)	349	4,784.81
2020	13,187	13,246	(59)	514	2,577.04
2019	15,162	15,595	(433)	1,527	1,021.28
2018	24,675	24,829	(154)	2,963	837.97
2017	16,875	17,155	(280)	3,181	539.30
2016	13,209	13,977	(768)	3,713	376.43
2015	20,860	21,668	(808)	5,120	423.20
2014	25,146	26,218	(1,072)	5,988	437.84

See Independent Auditor's Report and Notes to Required Supplementary Information

West Virginia Consolidated Public Retirement Board
Financial Section
Required Supplemental Information

SCHEDULES OF CONTRIBUTIONS

(In Thousands)

Fiscal Year Ended June 30,

	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contributions as a % of Covered Payroll
SPRS					
2023	\$ 12,937	\$ 8,100	\$ 4,837	\$ 38,809	20.87 %
2022	7,094	9,428	(2,334)	35,120	26.85
2021	9,778	7,928	1,850	34,946	22.69
2020	7,716	4,850	2,866	33,904	14.31
2019	4,180	4,556	(376)	30,938	14.73
2018	4,726	4,205	521	32,291	13.02
2017	4,427	3,657	770	31,582	11.58
2016	3,402	3,887	(485)	31,792	12.23
2015	3,183	4,060	(877)	29,574	13.73
2014	3,363	4,049	(686)	27,701	14.62
DSRS (3)					
2023	\$ 10,985	\$ 8,811	\$ 2,174	\$ 65,637	13.42 %
2022	10,185	8,258	1,927	62,284	13.26
2021	7,762	7,213	549	59,289	12.17
2020	6,916	6,861	55	57,698	11.89
2019	5,390	6,705	(1,315)	53,676	12.49
2018	2,681	6,194	(3,513)	49,915	12.41
2017	4,561	5,922	(1,361)	51,004	11.61
2016	3,498	6,071	(2,573)	49,081	12.37
2015	3,681	5,972	(2,291)	46,631	12.81
2014	4,774	5,977	(1,203)	45,106	13.25
JRS					
2023	\$ 797	\$ 797	\$ -	\$ 11,289	7.06 %
2022	742	1,052	(310)	10,504	10.02
2021	838	886	(48)	9,752	9.09
2020	791	791	-	9,752	8.11
2019	779	779	-	9,374	8.31
2018	735	735	-	9,500	7.74
2017	709	739	(30)	9,122	8.10
2016	739	739	-	8,870	8.33
2015	2,845	2,845	-	9,248	30.76
2014	2,456	2,456	-	8,870	27.69

See Independent Auditor's Report and Notes to Required Supplementary Information

West Virginia Consolidated Public Retirement Board

Financial Section

Required Supplemental Information

SCHEDULES OF CONTRIBUTIONS

(In Thousands)

Fiscal Year Ended June 30,

	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contributions as a % of Covered Payroll
EMRSRS					
2023	\$ 1,428	\$ 3,662	\$ (2,234)	\$ 33,642	10.89 %
2022	1,306	3,610	(2,304)	34,071	10.60
2021	1,310	3,523	(2,213)	29,395	11.99
2020	1,167	3,078	(1,911)	26,536	11.60
2019	1,190	2,844	(1,654)	26,024	10.93
2018	1,053	2,765	(1,712)	27,421	10.08
2017	1,870	2,859	(989)	26,992	10.59
2016	1,311	2,744	(1,433)	25,963	10.57
2015	1,198	2,607	(1,409)	24,145	10.80
2014	1,561	2,442	(881)	22,548	10.83
MPFRS					
2023	\$ 1,294	\$ 3,168	\$ (1,874)	\$ 34,242	9.25 %
2022	1,002	2,672	(1,670)	28,785	9.28
2021	706	2,136	(1,430)	21,972	9.72
2020	588	1,721	(1,133)	17,831	9.65
2019	510	1,438	(928)	15,132	9.50
2018	324	1,089	(765)	10,448	10.42
2017	349	846	(497)	7,898	10.71
2016	239	644	(405)	5,483	11.75
2015	178	417	(239)	3,784	11.02
2014	88	279	(191)	1,833	15.22
NRPORS					
2023	\$ 829	\$ 856	\$ (27)	\$ 6,589	12.99 %
2022	751	779	(28)	6,224	12.52
2021	356	332	24	6,220	5.34

Notes:

- (1) Contributions for the Teachers Retirement System include employer contributions and interest from out-of-state services and surcharges on fire and casualty insurance policies which specifically identified to fund the plan per West Virginia State Code Section 33-3-14d and 33-33-33.
- (2) Contributions for SPDDRS include employer contributions and other payments designated by WV Code Section 15-2-26 – Payments to members for court attendance and mileage; rewards for apprehending wanted persons; fees for traffic accidents reports and photographs; fees from criminal history record reviews and challenges; or from any other sources designated by the superintendent.
- (3) Contributions for DSRS include employer contributions and various other fees designated for the fund from charges and fees per WV State Code Section 7-14E-2 and 17A-3-17 – Charges for obtaining reports (i.e., accident reports); fees from performing certain services (adult private employer finger printing for federal firearm permits, motor vehicle number identification, adult identification card, and photo-identification card); fees for nongovernmental background investigation reports; and fees for renewal of a Class A or G vehicle registration.

West Virginia Consolidated Public Retirement Board
Financial Section
Required Supplemental Information

SCHEDULES OF INVESTMENT RETURNS (1)

Fiscal Years Ended June 30,

Retirement System (2):	2023	2022	2021	2020	2019	2018	2017	2016	2015
PERS	8.51%	-6.25%	32.02%	3.16%	5.94%	9.75%	15.82%	-0.12%	3.93%
TRS	8.47%	-6.20%	31.93%	3.14%	5.93%	9.74%	15.70%	-0.28%	3.92%
SPDDRS	8.49%	-6.17%	31.99%	3.18%	5.78%	9.83%	15.71%	-0.21%	3.92%
SPRS	8.54%	-6.50%	32.13%	3.32%	6.11%	9.61%	15.86%	-0.07%	4.03%
DSRS	8.53%	-6.37%	32.07%	3.22%	6.01%	9.69%	15.83%	-0.04%	3.97%
JRS	8.54%	-6.33%	32.09%	3.24%	5.97%	9.77%	15.88%	0.10%	3.97%
EMSRS	8.53%	-6.43%	32.05%	3.30%	6.03%	9.64%	15.87%	0.30%	4.04%
MPFRS	8.66%	-7.03%	31.86%	3.49%	6.72%	8.86%	15.72%	1.13%	4.37%
NRPORS	8.55%	-6.51%	13.91%	n/a	n/a	n/a	n/a	n/a	n/a

(1) This schedule is presented to illustrate the requirement to show information for 10 years. However, until a full 10-year trend is compiled, WV CPRB will present information for those years for which information is available.

(2) Annual money-weighted rate of return, net of investment expenses

Notes To Required Supplementary Information - Pension

1 – ACTUARIAL ASSUMPTIONS AND METHODS

The information presented in the Schedules of Net Pension Liability and Changes in Net Pension Liability (Asset) and Schedules of Investment Returns was based on the actuarial valuations as of July 1, 2022, and rolled forward to June 30, 2023, using the actuarial assumptions and methods described in Note 3 to the Financial Statements, Actuarial Valuations - Defined Benefit Plans.

2 – HISTORICAL TREND INFORMATION

Generally accepted accounting principles require 10 years of historical trend information to be included in the various schedules of RSI that are presented. Due to changes in actuarial methods and assumptions related to the implementation of new accounting standards during fiscal years ending June 30, 2015, and 2014, historical trend information is not readily available for fiscal years ending prior to June 30, 2014, and is not presented.

3 – CHANGE IN ACTUARIAL ASSUMPTIONS

The actuarial assumptions for mortality, withdrawal rates, disability rates, salary scales, and non-contributory service loads that were used in the total pension liability (asset) calculation were changed from June 30, 2019, to June 30, 2020, to reflect the most recent experience study for July 1, 2013, through June 30, 2018.

The actuarial assumptions for the discount rate and salary scales that were used in the total pension liability (asset) calculations were changed from June 30, 2023, to June 30, 2021, to reflect the most recent assumptions experience study for July 1, 2015, through June 30, 2020.

See Independent Auditor's Report

West Virginia Consolidated Public Retirement Board
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SUPPLEMENTARY INFORMATION

West Virginia Consolidated Public Retirement Board
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Supplementary Information



West Virginia Consolidated Public Retirement Board
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Schedule of Administrative Expenses

(In Thousands)

Year ended June 30, 2023

Salaries	\$ 4,630
Employee Benefits	530
Occupancy	378
Computer Services	665
Legal	214
External Actuarial Services	268
Accounting, Auditing, and other consultants	600
Third Party Administrator's Fees*	83
Disability Exams	85
Office Expense	408
Postage	167
Insurance	37
Travel	19
Miscellaneous and other	5
Total Administrative Expenses	\$ 8,089

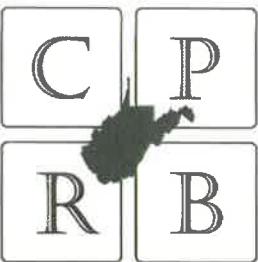
* Third Party Administrative fees relate to the Teacher's Defined Contribution Retirement System only

West Virginia Consolidated Public Retirement Board
Financial Section
Supplementary Information

The following were the payments to consultants for the year ended June 30, 2023:

Legal Services:	
Bowles Rice, LLP	\$ 76,271
Actuarial Services:	
Buck Consulting	\$ 267,798
Auditing Services:	
Eide Bailly, LLP	\$ 211,000

Investment Section



2023 ANNUAL COMPREHENSIVE FINANCIAL REPORT
For the Fiscal Year Ended June 30, 2023

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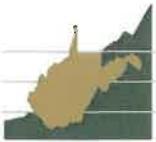
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West Virginia Investment Management Board
500 Virginia Street, East – Suite 200
Charleston, West Virginia 25301

Phone: (304) 345-2672
Fax: (304) 345-5939
Website: www.wvimb.org

December 18, 2023

Consolidated Public Retirement Board
601 57th Street, SE
Charleston, WV 25304

On behalf of the West Virginia Investment Management Board (WVIMB), it is with great pleasure that I submit the investment section of the West Virginia Consolidated Public Retirement Board's (WV CPRB) annual comprehensive financial report for the fiscal year ended June 30, 2023.

As described in more detail herein, the WVIMB is a public body corporate, an independent organization statutorily charged with the responsibility for investing all long-term assets of the State of West Virginia. Included in these assets are all nine of the defined benefit pension plans administered by the WV CPRB. As an investment fiduciary, the WVIMB's only focus is to invest the assets entrusted to it in the best interest of the beneficiaries. The WVIMB has established investment pools structured by specific asset classes. The WV CPRB's investments in the WVIMB's investment pools are carried at fair value using the net asset value per share as a practical expedient. Note that in this section, the defined benefit pension plans as a group are generally referred to as "Participant Plans." To a large extent, each participant plan's performance is a function of the asset classes in which it invests. As such, a review of asset class performance for the year may be helpful.

As the fiscal year ending June 30, 2023, unfolded it was initially unclear how markets would respond to an aggressive tightening cycle engineered by the U.S. Federal Reserve to bring inflation under control. After the first quarter, headline inflation had moderated but was still at a very high level of 8.2 percent. Following the lead of the U.S. Federal Reserve, central banks across the globe engaged in their own tightening campaigns to fight inflation. Tightenings invariably lead to recessions. With the looming prospect of a significant recession, all major markets were down through the first quarter of the fiscal year. As the fall transitioned to winter, however, inflation continued to moderate while GDP came in above expectations and unemployment remained low. Meanwhile, emerging markets were uplifted by China's decision to lift COVID restrictions and Europe's winter turned out to be milder than usual alleviating concerns over energy capacity. Capital markets, in general, responded with positive returns as the odds of only a mild recession, or none at all, improved. As spring unfolded the trend in inflation, growth and unemployment continued. The only hiccup in the flow of positive developments was the collapse of Silicon Valley Bank, a regional bank overly concentrated in the venture capital space. This development raised concerns about the banking sector, but it was quickly ameliorated when the Federal Reserve stepped in to backstop deposits. Importantly, no large money center banks were implicated as the GFC banking reforms proved effective. As the fiscal year came to a close, headline inflation had fallen to 3.0 percent and core inflation had also moderated to 4.8 percent. The unemployment rate remained low at 3.6 percent, while growth remained positive, although at a lower rate. Stock market returns continued their upward trajectory, ending the year on a positive note. U.S. stocks were up 19.0 percent (Russell 3000), and international stocks were up 13.1 percent (MSCI ACWI ex U.S. IMI). Fixed income was essentially flat, only down (4) basis points (Bloomberg U.S. Universal), but the outlook had improved significantly.

The WVIMB's performance relative to respective benchmarks was, generally, as expected or better. The WVIMB large-cap U.S. public stock portfolio returned 17.8 percent, underperforming its benchmark (S&P 500) by 1.8 percent. The non-large cap U.S. stock portfolio returned 24.5 percent, outperforming its benchmark (Russell 2500) by 10.9 percent. The WVIMB's international public stock portfolio returned 11.7 percent, underperforming its benchmark (MSCI ACWI ex U.S. IMI) by 1.4 percent. The fixed income portfolio generated a positive return of 1.6 percent, beating the benchmark (Bloomberg U.S. Universal) by 1.7 percent. Performance measurement of private market assets, which includes private equity, private real estate, and private credit, is fraught with measurement issues, so it is less meaningful over shorter time periods. Private equity returned 5.2 percent and real estate returned (5.4) percent. The private credit portfolio returned 3.5 percent for the year. The hedge fund portfolio, which is intended to be a diversifying component of the entire portfolio, returned 5.2 percent, which bettered its benchmark (HFRI FOF plus 1 percent) by 0.5 percent.

For general comparison purposes, the WVIMB uses the Public Employees' Retirement System (PERS) as a proxy for the other pension plans because of its similarity to other statewide public pension plans across the nation. As of June 30, 2023,

The West Virginia Investment Management Board is dedicated to providing prudent, efficient and professional investment management on behalf of and in the best interest of the beneficiaries of the assets it is entrusted with.

West Virginia Consolidated Public Retirement Board
Investment Section
Investment Pool Objectives, Financial Highlights, and Performance

the return for PERS was 8.6 percent, net of expenses, for the fiscal year. Of greater significance is the longer-term performance. In that regard, over the ten-year period ending June 30, 2023, the WVIMB's annualized return was 8.6 percent versus the base portfolio benchmark of 6.4 percent. This difference represents millions of dollars in value, added by Trustees and staff. The other defined benefit pension plans' returns for the fiscal year ending June 30, 2023, were essentially identical to PERS. Since asset allocations are virtually the same for each plan, any differences in the returns for the various pension plans are a function of the differences in the timing of cash flows into and out of each plan and relative levels of cash equivalent securities necessary to make benefit payments.

As an investor, the WVIMB's capacity to generate a return on assets is largely a function of growth in the world capital markets. Diversification helps reduce short-term volatility in the capital markets (commonly referred to as risk), but it is generally at the expense of long-term growth. Growth is the engine of returns. The WVIMB's asset allocation is tilted towards long-term growth for those assets with long time horizons, such as defined benefit pension plans. These plans are structured to spread risk and cost over multiple generations. The ideal target rate of return is one that fairly does this. While the WVIMB does not set that rate, it has an obligation to advise those that do. The WVIMB believes that the current target is attainable over very long time periods. In the meantime, the world can be a difficult, volatile place to navigate. While the U.S. capital markets have remained resilient in the face of inflation and central bank tightening, a recession of some degree is inevitable. In essence, a tightening of monetary policy is intended to recalibrate excess. Recessions do that. It is all part of the normal economic cycle. Also, natural, but less frequent, are changes in geopolitical structure. For many years, the U.S. was accepted as the dominant power in the world. With the growth of China, however, there is now much talk about what many call a "multi-polar" world, as China can in many ways, rival the U.S. as a dominant power. Countries tend to align themselves with the dominant compatible power, thus, dividing the world into multiple spheres of influence. Implicit in such a geopolitical structure, is a reduction in global trade and interaction. Last year I suggested that the global growth rate of GDP would suffer as a result. Nothing in the last year would cause me to recant.

There is much to be concerned about. Nevertheless, the future is unknowable. The WVIMB's portfolio is built for the long-term, seeking return from risky assets while diversifying to reduce risk. The WVIMB will continue to monitor its portfolio, moderate the structure on the margins to accommodate what we believe the markets are offering, but not so much as to compromise the portfolio's ability to take advantage of long-term growth. The staff looks forward to helping Trustees meet these challenges as fiscal year 2024 unfolds.

Respectfully Submitted,



Craig Slaughter, JD, CFA
Executive Director/Chief Investment Officer
West Virginia Investment Management Board

The West Virginia Investment Management Board is dedicated to providing prudent, efficient and professional investment management on behalf of and in the best interest of the beneficiaries of the assets it is entrusted with.

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Background, Philosophy, and Objectives

West Virginia Investment Management Board – Organizational History

The West Virginia Investment Management Board came into existence in the spring of 1997 after years of hard work modernizing the State's investment management structure. This structural modernization was widely acknowledged as a necessary precursor to the passage of a constitutional referendum to allow investment in stocks. The risks were perceived to be too great to be managed by anything but a modern, professional entity.

Although the West Virginia Investment Management Board's predecessors, the West Virginia State Board of Investments and the West Virginia Trust Fund, Inc., brought about vast improvements, each had significant shortcomings. However, with the creation of the West Virginia Investment Management Board, the State achieved a balance between control and independence that helps foster efficient and prudent investment management of long-term assets well into the future.

The beginning of the modern era in investment management by the State goes back to the late 1970s with the consolidation of the investment authority for the State's defined benefit plans, employment security plans, and other assets into a newly created West Virginia State Board of Investments. One of the goals of the legislation was to achieve economies of scale by commingling like assets.

Significantly, this newly created West Virginia Board of Investments was staffed by the State Treasury and the board itself was made up of the State's Governor, Treasurer, and Auditor.

Although a step in the right direction, the initial West Virginia State Board of Investments lacked proper or sufficient control features. After a few problems in the 1980s, principally involving its short-term pool, the Consolidated Fund, the board was expanded to seven members, adding four members from the private sector including an attorney experienced in financial matters and a Certified Public Accountant.

In the fall of 1990, the Legislature took a huge leap forward by creating a staff for the West Virginia State Board of Investments separate from the staff of the Treasury. This provided clear accountability to the Board of Investments – something that did not exist previously. Other very important control features included: (1) a statutory requirement for an Internal Auditor, (2) an annual external audit by a certified public accounting firm, and (3) monthly reporting requirements to government leaders in accordance with generally accepted accounting principles. This last feature dictated that all pools with a weighted average maturity in excess of 90 days must be marked-to-market (carried at market value), something that had not been done in the 1980s.

At the same time, the West Virginia Board of Investments made its first tepid step towards a diversified portfolio to be invested in stocks domiciled in the United States. Although it made some initial stock purchases in 1993, which were subsequently liquidated at a gain, the statute was challenged and the West Virginia Supreme Court ruled that investing in equities was unconstitutional.

In 1996, in an effort to satisfy the constitutional strictures, the Legislature carved out the pension and employment security funds with long time horizons and placed them in a trust to be managed by a new entity called the West Virginia Trust Fund, Inc. The creation of the trust as a vehicle to allow investment in stocks was also challenged and was struck down, failing to satisfy the constitutional concerns of the Supreme Court. It did, however, bring about three very important changes. The Legislature, demonstrating impeccable managerial foresight, granted the West Virginia Trust Fund, Inc. control over its own budget. With the same foresight, the Legislature imposed personal fiduciary liability on the board and staff of the West Virginia Trust Fund, Inc. Of no less importance was the creation of representative roles for members of the retirement systems and employment security systems.

With the failure of the West Virginia Trust Fund, Inc., it and the West Virginia State Board of Investments were replaced in 1997 by a new entity, the present day West Virginia Investment Management Board. The basic modernization process was complete. All of the improvements made in the Board of Investments and the West Virginia Trust Fund, Inc. were incorporated into the new entity.

The Legislature, for policy reasons, transferred the Consolidated Fund on July 8, 2005 to a newly created West Virginia Board of Treasury Investments, chaired by the State Treasurer. This was widely perceived as a policy move to ensure direct governmental oversight of State general and special revenue funds. The West Virginia Investment Management Board continues to manage the retirement funds, the employment security funds, and other assets with long time horizons.

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Background, Philosophy, and Objectives

West Virginia Investment Management Board – Organizational History (continued)

In 2007, the Legislature expanded the investable universe of assets, increasing the allowable allocation to public equity and international securities, while also providing for a significant allocation to “alternative investments,” loosely defined as hedge funds and private equity. Then, in 2014, the Legislature eliminated the percentage limitations on allowable asset classes or securities, joining most of its peers in recognizing the prudent investor standard of care is the most effective control on investor behavior for institutions.

West Virginia Investment Management Board – Statutory Mandate

The bill creating the West Virginia Investment Management Board passed during the 1997 legislative session and is cited as the *West Virginia Investment Management Board Act* (the Act). The legislative findings of the Act make it clear that the West Virginia Investment Management Board was intended to be a professional, apolitical, financial management organization dedicated to the interests of the State’s teachers, public employees and workers in general. The Act was intended to give the West Virginia Investment Management Board “...*the authority to develop, implement and maintain an efficient and modern system for the investment and management of the State’s money.*” In order to accomplish this purpose, the Act further stated that the West Virginia Investment Management Board must “...*operate as an independent board with its own full-time staff of financial professionals immune to changing political climates....*” [West Virginia Code §12-6-1(a)(b)] The Act also mandates that the assets contributed by the public employee and employer to the 401(a) Plans and the assets of the Workers’ Compensation Fund and the Coal Workers’ Pneumoconiosis Fund, are “*declared to be irrevocable trusts, available for no use or purpose other than for the benefit of those public employees...workers, miners and their beneficiaries....*” [West Virginia Code §12-6-1(c)(d)] The West Virginia Investment Management Board is further “*empowered by this Article to act as Trustee of the irrevocable trusts created by this Article, and to manage and invest other state funds.*” [West Virginia Code §12-6-1a(f)]

The standard of care mandated by the Statute is that codified in the “Uniform Prudent Investor Act,” Article 6C of Chapter 44 of the *West Virginia Code*. The West Virginia Investment Management Board is further subject to the following requirements:

- (a) Trustees shall discharge their duties with respect to the 401(a) Plans for the exclusive purpose of providing benefits to participants and their beneficiaries;
- (b) Trustees shall diversify fund investments so as to minimize the risk of large losses unless, under the circumstances, it is clearly prudent not to do so;
- (c) Trustees shall defray reasonable expenses of investing and operating the funds under management;
- (d) Trustees shall discharge their duties in accordance with the trust documents and instruments governing the trusts or other funds under the management insofar as the documents and instruments are consistent with provisions of this Article; and
- (e) The duties of the Board apply only with respect to those assets deposited with or otherwise held by it. [West Virginia Code §12-6-11]

West Virginia Investment Management Board – Administrative Mandate

Governance of the West Virginia Investment Management Board is vested, by statute, in a thirteen-member Board of Trustees. Three members of the Board serve by virtue of their office: the Governor, the Auditor, and the Treasurer. The other ten are appointed by the Governor and confirmed by the Senate. All appointees must have experience in pension management, institutional management or financial markets. In addition, one must be an attorney experienced in finance and investment matters and another must be a Certified Public Accountant. Only six of the ten appointed Trustees may be from the same political party. The Governor serves as Chairman of the Board. A Vice-Chairman is elected by the Trustees. A Secretary, who need not be a member of the Board, is also elected by the Trustees to keep a record of the proceedings of the Board.

A member of each defined benefit retirement plan is designated by the Consolidated Public Retirement Board to represent the Participant Plans’ interests. Likewise, the West Virginia Insurance Commission designates a representative for the Coal Workers’ Pneumoconiosis Fund and the Workers’ Compensation Old Fund. Each of the Representatives may designate up to three persons to comprise a committee representing their respective plan’s beneficiaries. The Representatives and Committee

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Background, Philosophy, and Objectives

West Virginia Investment Management Board – Administrative Mandate (continued)

Members do not have a vote but have the right to be heard at the annual meetings of the Board and are subject to the same code of conduct and requirements of confidentiality that apply to the Trustees.

The day-to-day management of the West Virginia Investment Management Board is delegated to the Executive Director who is appointed by the Board and serves at its will and pleasure. The Executive Director acts as an advisor to the Board on all matters.

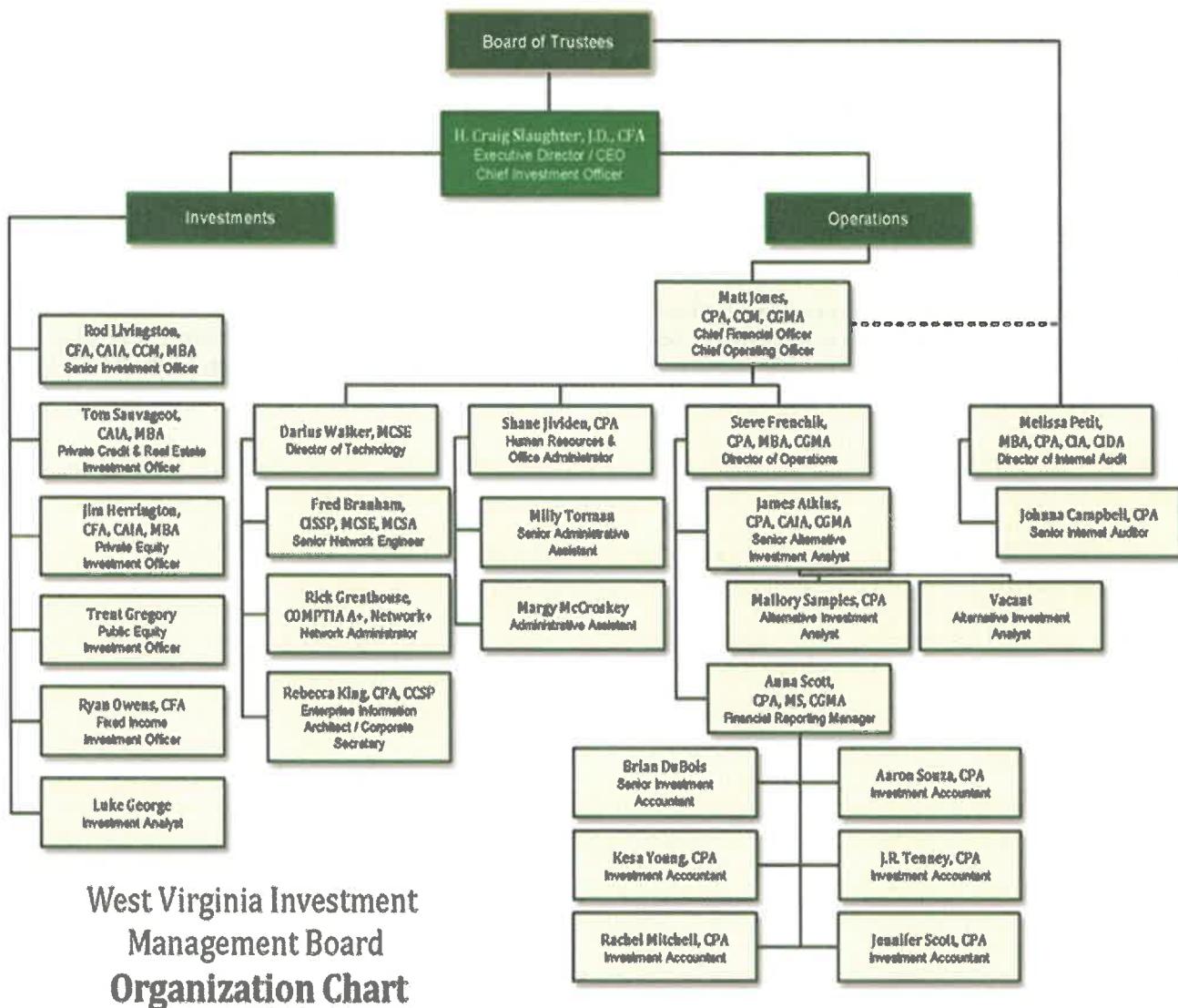
The staff of the West Virginia Investment Management Board is divided into two principal divisions—Investments and Operations.

The Operations Division is focused on providing the back office support necessary for the organization to function on a day-to-day basis. The Investments Division is structured to devote its time and resources to staying current with new developments and research in the investment field and being prepared to apply this knowledge to the investment of assets for the West Virginia Investment Management Board. See the organization chart on the next page.

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Background, Philosophy, and Objectives



**West Virginia Investment
Management Board
Organization Chart**

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Background, Philosophy, and Objectives

West Virginia Investment Management Board – Investment Philosophy

The primary objective of the investment pools is to provide benefits to its participants and beneficiaries. Based on general beliefs about the investment return available from a well-diversified, prudently invested portfolio, the Board has adopted specific investment objectives for each Participant Plan.

In order to achieve the investment objectives for each Participant Plan, the WVIMB relies on prevailing financial theory. This is a philosophy that is generally characterized by prudent diversification across different asset classes (stocks, bonds, cash, non-traditional, etc.) to reduce risk, taking into account each Participant Plan's time horizon, liquidity needs, financial condition (funded status), and return objectives in determining each Participant Plan's appropriate allocation to various assets. Diversification is not just limited to asset classes although it is, generally, considered the most significant factor. Other factors, including, but not limited to, geography/country, industry, maturity, and cash flow projections, are also considered from the Participant Plan's perspective. These factors may also dictate the extent to which the Participant Plan may be impacted by general business conditions. Importantly, the factors mentioned here are not intended to be limiting; rather, they are outlined as a general indication of the importance of diversification and customization to proper asset allocation. The Board determines the proper allocation among asset classes and managers, based on advice and analysis provided by the WVIMB and an external general investment consultant.

The Board recognizes that even though its investments may be subject to short-term volatility, it is critical that the WVIMB maintain a focus on longer time horizons for most Participant Plans, during which time the impact of short-term market volatility generally averages out. Impulsive reactions to short-term market events are not conducive to achieving long-term investment objectives. The strategies employed for each Participant Plan factor in an acceptable level of expected volatility given the relevant time horizon and liquidity needs for that Participant Plan. This prevents ad-hoc revisions to its philosophy and policies in reaction to either speculation or short-term market fluctuations. It is important to note that the Board recognizes that markets may become dislocated due to behavioral or other factors. When major dislocations occur, the Board has allowed for minor adjustments to the asset allocation for each Participant Plan through its Allocation Committee. In order to preserve a longer-term perspective generally, however, the Board of Trustees has adopted the following formal review schedule:

Agenda Item	Review Schedule
Investment Performance	Quarterly
Investment Policy	Every Year
Allocation Ranges	Every Three Years
Asset Allocation Review for Each Participant Plan	At Least Every Three Years

The Board may hire investment managers to implement its objectives. These managers will be given specific tactical roles within the overall strategic investment plan. Depending on their assignments, the managers may be judged on some or all of the following: (1) consistency of philosophy, style and key personnel, (2) performance relative to an appropriate index or proxy group, and (3) ability to add incremental value after costs. The Board and staff shall monitor performance and supervise all fund managers. In determining the appropriate level of risk, the Board considers, in addition to its fiduciary obligations and statutory requirements, each entity's purpose and characteristics, financial condition, liquidity needs, sources and level of contributions, income and general business conditions. Based upon these many factors, the Board identifies where either a more aggressive or more conservative investment approach is warranted, on an individual plan-by-plan basis.

INVESTMENT OBJECTIVES

"Trustees, at the annual meeting...shall review, establish and modify, if necessary, the investment objectives of the individual participant plans, as incorporated in the investment policy statements of the respective trusts so as to provide for the financial security of the trust funds giving consideration to the following: (1) Preservation of Capital; (2) Diversification; (3) Risk Tolerance; (4) Rate of Return; (5) Stability; (6) Turnover; (7) Liquidity; and (8) Reasonable Costs of Fees." [West Virginia Code §12-6-11(a)(5)]

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Background, Philosophy, and Objectives

PARTICIPANT PLANS

The Board's objective is to manage the Participant Plans' moneys in an efficient and economical manner, managing risk as it seeks to achieve the specific goals set out in each Participant Plan's investment program.

BASIS of PRESENTATION

The retirement systems' investments reported in the investment section are presented in the same basis of accounting as described in Note 1 of the financial statements and prepared using a time-weighted rate of return based on the market rate of return.

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

EQUITY POOL

OBJECTIVES

The main objective for the Equity Pool is to provide for long-term growth for all participants. The Equity Pool is comprised of sub-components that enable adequate diversification when taken in aggregate. Separate investment pools have been established for each investment style or to comply with specific legal and accounting requirements.

Each Participant invested in the Equity Pool has its own Equity Strategic Allocation, set out in each Participant Plan Description within Appendix A of the WVIMB's Investment Policy Statement. The Allocation Committee has the authority to adjust a Participant's Equity Strategic Allocation 10 percent of the approved allocation. As an example, if a Participant has a 50 percent Strategic Allocation to Equity, the Strategic Range would be 45 to 55 percent.

The Allocation Committee also has the authority to adjust strategic asset class sub-components of the Equity Pool, as outlined below:

Strategic Asset Class Sub-Components	Neutral Target*	Allocation Range
Domestic vs. International	Domestic vs. International Percentage in MSCI ACWI (IMI)	0.5 to 2.5 times benchmark weight Sum must equal 100% of Equity allocation
U.S. Large Cap vs. U.S. Non-Large Cap	Large = 1 minus Non-Large Non-Large = Russell 2500/Russell 3000	0.5 to 2.5 times benchmark weight Sum must equal 100% of Domestic Equity allocation
U.S. Non-Large Value vs. U.S. Non-Large Growth	Value vs. Growth Percentage in Russell 2500	0.5 to 2.5 times benchmark weight Sum must equal 100% of Non-Large Cap Domestic Equity allocation
International Large Cap vs. International Small Cap vs. Emerging Markets	Large vs. Small vs. Emerging Percentage in MSCI ACWI ex U.S. (IMI)	0.5 to 2.5 times benchmark weight Sum must equal 100% of International Equity allocation

* The Neutral Target is established based on these index weights every June 30.

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

EQUITY POOL (Continued)

MANAGEMENT STRUCTURE

The equity pools are managed by the following firms, in accordance with a particular investment style.

Manager	Style
Portable Alpha Pool <i>U.S. Large Capitalization</i> BlackRock Institutional Trust Company Russell Investments Implementation Services Hedge Fund Committee/Albourne America (consultant)	Index Core Equity Beta Replication (including margin accounts) Alternative Risk Premia
Large Cap Domestic Equity Pool BlackRock Institutional Trust Company	Index Core
Non-Large Domestic Equity Pool Cooper Creek Partners Management Westfield Capital Management Company	Value Growth at a Reasonable Price
International Qualified and International Nonqualified Pools	
<i>International Large Capitalization</i> Silchester International Investors	All Country, Value
International Equity Pool <i>International Large Capitalization</i> LSV Asset Management	All Country, Relative Value
<i>International Small Capitalization</i> Acadian Asset Management Oberweis Asset Management	All Country, Quantitative Value All Country, Growth
<i>Emerging Markets</i> Axiom International Investors Numeric Investors	Emerging Market, Growth at a Reasonable Price Emerging Market, Quantitative Value

FINANCIAL HIGHLIGHTS (in \$000s)

Audited financial statements are prepared for each of the equity pools and are available at www.wvimb.org. Financial Highlights for each pool are presented below:

Condensed Statement of Net Position

	Portable Alpha	Large Cap Domestic Equity	Non-Large Cap Domestic Equity
Investments	\$ 5,072,107	\$ 317,028	\$ 1,155,544
Investment derivatives	102,127	-	-
Payable upon return of securities loaned	-	-	(112,669)
Cash	-	-	519
Cash due to broker for futures contracts	(51,165)	-	-
Receivable for investments sold	175,000	-	10,281
Payable for investments purchased	(7,350)	-	(11,740)
Other assets and liabilities, net	4,917	(15)	(1,807)
Net position - June 30, 2023	\$ 5,295,636	\$ 317,013	\$ 1,040,128

West Virginia Consolidated Public Retirement Board
Investment Section
Investment Pool Objectives, Financial Highlights, and Performance

EQUITY POOL (Continued)

FINANCIAL HIGHLIGHTS (continued in \$000s)

Condensed Statement of Net Position

	International Qualified	International Nonqualified	International Equity
Investments	\$ 1,263,214	\$ 203,149	\$ 2,819,438
Payable upon return of securities loaned	-	-	(108,807)
Cash	-	-	12,984
Receivable for investments sold	-	-	9,990
Payable for investments purchased	-	-	(9,878)
Other assets and liabilities, net	(43)	(7)	17,604
Net position - June 30, 2023	\$ 1,263,171	\$ 203,142	\$ 2,741,331

Investments

Portable Alpha

	Fair Value	Percent of Securities
Notional value of S&P 500 derivatives	\$ 3,253,096	62.9%
S&P 500 index fund	1,679,958	32.4
Total S&P 500 exposure	4,933,054	95.3

Margin accounts:

Money market mutual fund	618,400	12.0
Enhanced cash collateral	344,305	6.7
Downside protection (U.S. TIPS and Treasuries)	429,327	8.3
Total available margin	1,392,032	27.0
Alternative risk premia funds	1,932,117	37.3
Money market mutual fund	68,000	1.3
Total investment exposure	8,325,203	160.9

Reconciliation to total investments:

Less: Notional value of S&P 500 derivatives	(3,253,096)	(62.9)
Add: Unrealized appreciation of S&P 500 derivatives	102,127	2.0
Total	\$ 5,174,234	100.0%

Investments

Large Cap Domestic Equity

	Fair Value	Percent of Securities
S&P 500 index fund	\$ 313,924	99.0%
Money market mutual fund	3,104	1.0
	317,028	100.0%

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

EQUITY POOL (Continued)

FINANCIAL HIGHLIGHTS (continued in \$000s)

Investments

	Non-Large Cap Domestic Equity	
	Fair Value	Percent of Securities
Equity sector exposure:		
Basic Materials	\$ 50,808	4.4%
Communications Services	13,656	1.2
Consumer Discretionary	290,245	25.1
Consumer Staples	29,380	2.5
Energy	43,257	3.7
Financial Services	42,862	3.7
Health Care	119,349	10.3
Industrials	178,728	15.5
Real Estate	9,134	0.8
Technology	171,606	14.9
Utilities	17,638	1.5
Total equities	966,663	83.6
Money market mutual funds	76,212	6.6
Investments made with cash collateral for securities loaned	112,669	9.8
Total	\$ 1,155,544	100.0%

Investments

	International Qualified		International Nonqualified	
	Fair Value	Percent of Securities	Fair Value	Percent of Securities
MSCI EAFE commingled fund	\$ 1,263,214	100.0%	\$ 203,149	100.0%

Investments

	International Equity	
	Fair Value	Percent of Securities
International equities country exposure:		

International equities country exposure:

Australia	\$ 73,474	2.6%
Brazil	112,215	4.0
Canada	116,201	4.1
China	365,715	13.0
France	137,598	4.9
Germany	88,514	3.1
Hong Kong	46,087	1.6
India	199,289	7.1
Japan	287,698	10.2
Korea	202,487	7.2
Sweden	55,009	2.0
Switzerland	73,418	2.6
Taiwan	214,790	7.6
United Kingdom	187,001	6.6
All others (none greater than 2%)	530,624	18.8
Total international equities	2,690,120	95.4
Money market mutual fund	20,511	0.7
Securities lending collateral	108,807	3.9
Total	\$ 2,819,438	100.0%

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

EQUITY POOL (Continued)

FINANCIAL HIGHLIGHTS (continued in \$000s)

Progression of Net Position

	Portable Alpha	Large Cap Domestic Equity	Non-Large Cap Domestic Equity
Net position - June 30, 2022	\$ 4,750,413	\$ 308,818	\$ 853,803
Net investment income	856,445	53,782	213,044
Net decrease from unit transactions	(311,222)	(45,587)	(26,719)
Net position - June 30, 2023	\$ 5,295,636	\$ 317,013	\$ 1,040,128

Progression of Net Position

	International Qualified	International Nonqualified	International Equity
Net position - June 30, 2022	\$ 1,185,860	\$ 183,575	\$ 2,794,160
Net investment income	196,955	29,512	282,984
Net decrease from unit transactions	(119,644)	(9,945)	(335,813)
Net position - June 30, 2023	\$ 1,263,171	\$ 203,142	\$ 2,741,331

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of investment advisor fees.

Period	Portable Alpha		Large Cap Domestic Equity		Non-Large Cap Domestic Equity	
	Actual	S&P 500	Actual	S&P 500	Actual	Russell 2500
One-year	17.7%	19.6%	19.5%	19.6%	24.5%	13.6%
Three-year	14.5%	14.6%	14.5%	14.6%	15.1%	12.3%
Five-year	N/A	N/A	12.1%	12.3%	7.3%	6.5%
Ten-year	N/A	N/A	12.8%	12.9%	9.9%	9.4%
Twenty-year	N/A	N/A	10.1%	10.1%	10.4%	9.9%

Period	International Qualified		International Nonqualified		International Equity	
	Actual	MSCI EAFE	Actual	MSCI EAFE	Actual	MSCI ACWI ex U.S.(IMI)*
One-year	17.6%	19.4%	17.0%	19.4%	9.1%	13.1%
Three-year	11.7%	9.5%	11.5%	9.5%	7.4%	7.9%
Five-year	4.3%	4.9%	4.0%	4.9%	3.7%	3.9%
Ten-year	6.7%	5.9%	6.5%	5.9%	5.5%	5.3%
Twenty-year	9.3%	7.0%	9.0%	7.0%	7.2%	7.2%

*Prior to January 2014, the International Equity Pool index was the MSCI ACWI ex U.S. (Standard).

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

EQUITY POOL (Continued)

EXPENSES

The WVIMB charges each investment pool for its direct investment-related expenses, such as investment advisor fees, custodian bank fees, and certain professional service fees, and an allocated share of other expenses. Expense ratios and trading costs do not reflect the pool's proportionate share of expenses of the underlying investee funds. The Equity Pool's expenses for the year, divided by the average net position, are as follows:

Expense Ratios (in basis points)	Portable Alpha	Large Cap Domestic Equity	Non-Large Cap Domestic Equity	International Qualified	International Nonqualified	International Equity
Investment advisor fees	2.2	0.8	89.5	51.5	59.6	49.8
Trustee fees	0.0*	0.0*	0.0*	0.0*	0.0*	0.0*
Custodian bank fees	0.0*	0.0*	0.4	N/A	N/A	4.5
Management fees	2.4	2.4	2.4	2.4	2.4	2.4
Fiduciary bond fees	0.0*	0.0*	0.0*	0.0*	0.0*	0.0*
Professional service fees	0.9	0.6	0.5	0.5	0.5	0.6
Total	5.5	3.8	92.8	54.4	62.5	57.3

* Expense Ratio rounds to less than 0.1 basis points.

Trading Costs (in \$000s)	Portable Alpha	Large Cap Domestic Equity	Non-Large Cap Domestic Equity	International Qualified	International Nonqualified	International Equity
Net commission costs	\$ 297	N/A	\$ 1,888	N/A	N/A	\$ 3,179

West Virginia Consolidated Public Retirement Board
Investment Section
Investment Pool Objectives, Financial Highlights, and Performance

Short-Term Fixed Income Pool

OBJECTIVES

The Short-Term Fixed Income Pool was created to maintain sufficient liquidity to meet the daily disbursements requested by the Participants and to invest any contributions until the time the money is transferred to other asset classes without sustaining capital losses and while earning a small return above inflation. The Short-Term Fixed Income Pool is structured as a money market fund where the goal is a stable dollar value per share, thus preserving principal. The pool's risk factor is low and managed through numerous maturity restrictions, diversification guidelines, and credit limits. The participants are paid on an income basis that includes interest income net of expenses.

MANAGEMENT STRUCTURE

The Short-Term Fixed Income Pool is managed by JPMorgan Investment Advisors.

FINANCIAL HIGHLIGHTS (in \$000s)

Audited financial statements for the Short-Term Fixed Income Pool are available at www.wvimb.org. Financial Highlights are presented below.

Condensed Statement of Net Position

Investments	\$ 186,609
Other assets and liabilities, net	(11)
Net position - June 30, 2023	<u><u>\$ 186,598</u></u>

Investments

	Fair Value	Percent of Securities
Repurchase agreement	\$ 22,771	12.2%
U.S. Government agency bonds	94,933	50.9
U.S. Treasury bonds	69,905	36.9
Total	<u><u>\$ 187,609</u></u>	100.0%

Progression of Net Position

Net position - June 30, 2022	\$ 145,419
Net investment income	5,743
Distributions to unitholders	(5,743)
Net increase from unit transactions	41,179
Net position - June 30, 2023	<u><u>\$ 186,598</u></u>

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

Short-Term Fixed Income Pool (Continued)

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of investment advisor fees.

Period	Actual	FTSE 3 Month T-Bill*
One-year	3.7%	3.8%
Three-year	1.3%	1.3%
Five-year	1.5%	1.6%
Ten-year	1.0%	1.0%
Twenty-year	1.4%	1.4%

**Prior to January 2014, the Short-Term Fixed Income Pool index was the FTSE 3 Month T-Bill plus 15 basis points.*

EXPENSES

The WVIMB charges the pool for its direct investment-related expenses, such as investment advisor fees and custodian bank fees. Expense ratios do not reflect the pool's proportionate share of expenses of the underlying investee funds. The Short-Term Fixed Income Pool's expenses for the year, divided by the average net position, are as follows:

Expense Ratios (in basis points)

Investment advisor fees	5.0
Custodian bank fees	0.5
Total	5.5

West Virginia Consolidated Public Retirement Board
Investment Section
Investment Pool Objectives, Financial Highlights, and Performance

FIXED INCOME POOL

OBJECTIVES

The main objectives for the Fixed Income Pool are to generate investment income, provide stability, and enhance diversification but not at the expense of total return. Separate investment pools have been established for particular investment styles or to comply with specific accounting requirements. The strategic asset class, the Neutral Target allocation to the sub-component of the strategic asset class, as well as the approved Allocation Ranges within which the Allocation Committee can operate, are outlined below:

Category	Strategic Allocation	Allocation Range
Core Fixed Income	--	--
Total Return Fixed Income	--	--
Fixed Income Pool	20.0%	+/- 5% (15% to 25%)

Note: Each Participant has its own unique Strategic Allocation. The above example is for clarification purposes only.

Neutral Target	Allocation Range
30% Core Fixed Income	Minimum 20% to Maximum 70%
70% Total Return Fixed Income	Minimum 30% to Maximum 80%
	Sum must equal 100% of the Fixed Income allocation

MANAGEMENT STRUCTURE

The fixed income pools are managed by the following firms, in accordance with a particular investment style.

Manager	Style
Total Return Fixed Income Pool	
Western Asset Management Company	Core Plus Fixed Income
Dodge & Cox	Core Plus Fixed Income
Franklin Templeton Investments	Emerging Markets Fixed Income
Core Fixed Income Pool	
JPMorgan Investment Advisors	Core Fixed Income

FINANCIAL HIGHLIGHTS (in \$000s)

Audited financial statements are prepared for each of the fixed income pools and are available at www.wvimb.org. Financial Highlights for each pool are presented below.

Condensed Statement of Net Position

	Total Return Fixed Income	Core Fixed Income
Investments	\$ 2,382,426	\$ 1,899,125
Investment derivatives	(9,863)	-
Payable upon return of securities loaned	(91,316)	(85,912)
Cash	24,924	12
Receivable for investments sold	2,779	1,563
Payable for investments purchased	(40,650)	(32,425)
Other assets and liabilities, net	17,828	12,694
Net position – June 30, 2023	\$ 2,286,128	\$ 1,795,057

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

FIXED INCOME POOL (Continued)

FINANCIAL HIGHLIGHTS (continued in \$000s)

Investments

	Total Return Fixed Income		Core Fixed Income	
	Fair Value	Percentage of Securities	Fair Value	Percentage of Securities
Bank loan	\$ 2,661	0.1%	\$ -	0.0%
Commingled debt funds	155,511	6.6	-	0.0
Corporate asset backed issues	54,378	2.3	166,971	8.8
Corporate CMO	68,964	2.9	77,156	4.1
Corporate preferred security	11,069	0.5	-	0.0
Foreign asset backed issues	70,488	3.0	2,281	0.1
Foreign corporate bonds	320,507	13.5	121,780	6.4
Foreign currency forward contracts	(1,705)	(0.1)	-	0.0
Foreign equity investments	620	0.0	-	0.0
Foreign government bonds	252,975	10.7	3,213	0.2
Futures contracts	(207)	0.0	-	0.0
Money market mutual fund	26,041	1.1	40,206	2.1
Municipal bonds	20,121	0.8	9,834	0.5
Option contracts purchased	2,295	0.1	-	0.0
Option contracts written	(6,037)	(0.3)	-	0.0
Repurchase agreement	4,300	0.2	-	0.0
Securities lending collateral	91,316	3.8	85,912	4.5
Swaps	(4,209)	(0.2)	-	0.0
U.S. corporate bonds	441,684	18.6	278,937	14.7
U.S. government agency bonds	3,359	0.1	-	0.0
U.S. government agency CMO	87,087	3.7	115,775	6.1
U.S. government agency MBS	495,973	21.0	386,105	20.3
U.S. Treasury issues	275,372	11.6	610,955	32.2
Total	\$ 2,372,563	100.0%	\$ 1,899,125	100.0%

Progression of Net Position

	Total Return Fixed Income	Core Fixed Income
Net position - June 30, 2022	\$ 2,755,235	\$ 1,188,645
Net investment income (loss)	42,428	(2,139)
Net increase (decrease) from unit transactions	(511,535)	608,551
Net position - June 30, 2023	\$ 2,286,128	\$ 1,795,057

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of investment advisor fees.

Period	Total Return Fixed Income		Core Fixed Income	
	Actual	Bloomberg U.S. Universal Bond*	Actual	Bloomberg U.S. Aggregate Bond
One-year	2.6%	(0.0)%	(0.1)%	(0.9)%
Three-year	(1.2)%	(3.4)%	(2.8)%	(4.0)%
Five-year	1.8%	1.0%	1.6%	0.8%
Ten-year	2.6%	1.8%	2.1%	1.5%
Twenty-year	4.0%	3.4%	N/A	N/A

* Prior to April 2008, the Total Return Fixed Income Pool index was a custom index.

West Virginia Consolidated Public Retirement Board
Investment Section
Investment Pool Objectives, Financial Highlights, and Performance

FIXED INCOME POOL (Continued)

EXPENSES

The WVIMB charges each investment pool for its direct investment-related expenses, such as investment advisor fees, custodian bank fees, and certain professional service fees, and an allocated share of other expenses. Expense ratios and trading costs do not reflect the pool's proportionate share of expenses of the underlying investee funds. The Fixed Income Pools' expenses for the operating period, divided by the average net position, are as follows:

Expense Ratios (in basis points)	Total Return Fixed Income	Core Fixed Income
Investment advisor fees	21.9	15.0
Trustee fees	0.0*	0.0*
Custodian bank fees	0.5	0.3
Management fees	2.4	2.4
Fiduciary bond fees	0.0*	0.0*
Professional service fees	0.5	0.5
Total	25.3	18.2

* Expense Ratio rounds to less than 0.1 basis points.

Trading Costs (in \$000s)	Total Return Fixed Income	Core Fixed Income
Commission costs	\$ 1,527	N/A

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

TIPS POOL

OBJECTIVES

The TIPS Pool was established to offer an additional level of diversification over and above nominal fixed income securities in an attempt to mitigate the risk of inflation. The main objective for the pool is to generate a return that exceeds the rate of inflation over a market cycle, to provide investment income and stability of principal, and to diversify interest rate exposure.

MANAGEMENT STRUCTURE

The TIPS Pool was managed by BlackRock Institutional Trust Company through May 24, 2023. Effective May 25, 2023, assets are managed by Northern Trust Investments.

FINANCIAL HIGHLIGHTS (in \$000s)

Audited financial statements for the TIPS Pool are available at www.wvimb.org. Financial Highlights are presented below.

Condensed Statement of Net Position

Investments	\$ 396,328
Receivable for investments sold	11,150
Payable for investments purchased	(6,702)
Other liabilities	1,012
Net position - June 30, 2023	<u>\$ 401,788</u>

Investments

	Fair Value	Percent of Securities
Money market mutual fund	\$ 128	0.0%
U.S. Treasury inflation protected securities	396,200	100.0
Total	<u>\$ 396,328</u>	100.0%

Progression of Net Position

Net position - June 30, 2022	\$ 440,728
Net investment loss	(6,840)
Net decrease from unit transactions	(32,100)
Net position - June 30, 2023	<u>\$ 401,788</u>

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of investment advisor fees.

Period	Actual	Bloomberg 1-10 Year U.S. TIPS
One-year	(1.4)%	(1.4)%
Three-year	(0.1)%	(0.1)%
Five-year	2.6%	2.5%
Ten-year	2.1%	2.1%

**Prior to June 2023, the TIPS index was the Bloomberg U.S. Treasury Inflation Protection Index.*

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

TIPS POOL (Continued)

EXPENSES

The WVIMB charges the pool for its direct investment-related expenses, such as investment advisor fees, custodian bank fees, and certain professional service fees, and an allocated share of other expenses. Expense ratios do not reflect the pool's proportionate share of expenses of the underlying investee funds. The TIPS Pool's expenses for the operating period, divided by the average net position, are as follows:

Expense Ratios (in basis points)

Investment advisor fees	1.7
Trustee fees	0.0*
Custodian bank fees	0.0*
Management fees	2.4
Fiduciary bond fees	0.0*
Professional service fees	0.8
Total	4.9

* Expense Ratio rounds to less than 0.1 basis points.

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

PRIVATE MARKETS POOL

OBJECTIVES

The objective of the Private Markets Pool is to enhance the diversification and stability of the portfolio, while generating a higher level of income than generally available in the public fixed income markets and to provide for long-term growth of participants' assets and risk-reduction through diversification. The Private Markets Pool is comprised of the private credit & income, private equity, and real estate strategies. Prior to July 1, 2017, each of these strategies were operated as individual investment pools. For operational efficiencies, the three pools were combined on July 1, 2017 to form the Private Markets Pool. Investment performance for the Private Markets Pool and each of these strategies is presented on the following page.

The private credit & income strategy is comprised of the following categories and target range allocations:

Category	Target	Target Range
Core Private Credit	55%	Minimum 45% to Maximum 75%
Specialty Credit	35%	Minimum 25% to Maximum 45%
Opportunistic	10%	Minimum 0% to Maximum 20%

The private equity strategy is comprised of the following categories and target range allocations:

Category	Target Range
Corporate Finance	90-100%
Venture Capital	0-10%
U.S.	80-100%
Non-U.S.	0-20%

The real estate strategy is comprised of the following categories and target range allocations:

Category	Target	Target Range
Core	50%	+/- 20% (30% to 70%)
Value-Added	30%	+/- 20% (10% to 50%)
Opportunistic	20%	+/- 10% (10% to 30%)

MANAGEMENT STRUCTURE

Franklin Park, StepStone Group, and Verus provide consulting services related to the selection of limited partnerships and funds. The selection of investments are approved by the Private Equity or Real Estate Committees.

FINANCIAL HIGHLIGHTS (in \$000s)

Audited financial statements for the Private Markets Pool are available at www.wvimb.org. Financial Highlights are presented below.

Condensed Statement of Net Position

Investments	\$ 6,206,428
Payable upon return of securities loaned	(12,799)
Fund distributions receivable	13,694
Other assets and liabilities, net	907
Net position - June 30, 2023	\$ 6,208,230

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PRIVATE MARKETS POOL (Continued)

FINANCIAL HIGHLIGHTS (in \$000s) (continued)

Investments	Fair Value	Percent of Securities
Corporate bonds	\$ 11,583	0.2%
Equity investments	210,973	3.4
Money market mutual fund	102,222	1.6
Private credit & income funds	905,767	14.6
Private equity partnerships	2,762,811	44.5
Private real estate partnerships and funds	2,200,273	35.5
Securities lending collateral	12,799	0.2
Total	<u>\$ 6,206,428</u>	<u>100.0%</u>

Progression of Net Position

Net position - June 30, 2022	<u>\$ 6,088,775</u>
Net investment income	32,722
Net increase from unit transactions	86,733
Total	<u>\$ 6,208,230</u>

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of external investment management and/or partnership fees and expenses.

Period	Private Credit & Income		Private Equity	
	Actual	SOFR plus 400 basis points*	Actual	Russell 3000 plus 300 basis points**
One-year	3.5%	10.3%	5.2%	22.0%
Three-year	7.7%	7.6%	22.0%	16.9%
Five-year	6.4%	5.7%	20.8%	14.4%
Ten-year	N/A	N/A	18.6%	15.4%

*Prior to June 2023, the Private Credit & Income index was the Credit Suisse Leveraged Loan plus 200 basis points. Prior to April 2017, it was the Credit Suisse Leveraged Loan plus 250 basis points.

**Prior to January 2014, the Private Equity index was the S&P 500 plus 500 basis points.

Period	Real Estate		Private Markets Pool*
	Actual	NCREIF plus 100 basis points	Actual
One-year	(5.4)%	(0.6)%	0.6%
Three-year	7.0%	8.2%	13.9%
Five-year	5.7%	7.7%	12.4%
Ten-year	7.8%	9.3%	N/A

*The Private Markets Pool does not have a benchmark.

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PRIVATE MARKETS POOL (Continued)

EXPENSES

The WVIMB charges the pool for its direct investment-related expenses, such as investment advisor fees, custodian bank fees, and certain professional service fees, and an allocated share of other expenses. Expense ratios and trading costs do not reflect the pool's proportionate share of expenses of the underlying investee funds. Commission trading costs were \$137,000 for the year ended June 30, 2023. The Private Market Pool's expenses for the year, divided by the average net position, are as follows:

Expense Ratio (in basis points)

Investment advisor fees	2.0
Trustee fees	0.0*
Custodian bank fees	0.1
Management fees	2.4
Fiduciary bond fees	0.0*
External fees/Fund closing costs	19.5
Professional service fees	3.1
Total	27.1

* Expense Ratio rounds to less than 0.1 basis points.

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HEDGE FUND POOL

OBJECTIVES

The main objective for the Hedge Fund Pool is to reduce risk through diversification of participants' assets. Secondarily, the Hedge Fund Pool should provide for long-term growth.

The Hedge Funds are comprised of the following strategic categories and target range allocations:

Category	Target Range	Allocation Range
Core		
Relative Value	25-35%	20-50%
Event Driven	20-30%	15-35%
Long-Short Equity	20-30%	15-35%
Directional	10-20%	5-25%
Supplemental		
Long Biased	3-15%	0-20%
Private Equity	0-3%	0-5%
Private Credit	0-3%	0-5%
Real Assets	0-3%	0-5%

MANAGEMENT STRUCTURE

Aubourne America has been retained by the WVIMB to provide consulting services for this investment strategy. The selection of investments are approved by the Hedge Fund Committee.

FINANCIAL HIGHLIGHTS (in \$000s)

Audited financial statements for the Hedge Fund Pool are available at www.wvimb.org. Financial Highlights are presented below.

Condensed Statement of Net Position

Investments	\$ 2,477,593
Investment funds redeemed	3,512
Other assets and liabilities, net	(22)
Net position - June 30, 2023	<u><u>\$ 2,481,083</u></u>

Investments

Fair Value	Percent of Securities
\$ 2,471,798	99.8%
5,795	0.2
<u><u>\$ 2,477,593</u></u>	100.0%

Progression of Net Position

Net position - June 30, 2022	\$ 2,296,411
Net investment income	122,921
Net increase from unit transactions	61,751
Net position - June 30, 2023	<u><u>\$ 2,481,083</u></u>

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HEDGE FUND POOL (Continued)

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of external investment management and/or partnership fees and expenses.

Period	Actual	HFRI FOF plus 100 basis points*
One-year	5.2%	4.6%
Three-year	8.2%	6.0%
Five-year	5.4%	4.3%
Ten-year	4.9%	4.0%

* Prior to January 2014, the Hedge Fund index was LIBOR plus 400 basis points.

EXPENSES

The WVIMB charges the pool for its direct investment-related expenses, such as custodian bank fees and certain professional service fees, and an allocated share of other expenses. Expense ratios do not reflect the pool's proportionate share of expenses of the underlying investee funds. The Hedge Fund Pool's expenses for the year, divided by the average net position, are as follows:

Expense Ratio (in basis points)

Trustee fees	0.0*
Custodian bank fees	0.0*
Management fees	2.4
Fiduciary bond fees	0.0*
Professional service fees	2.5
Total	4.9

* Expense Ratio rounds to less than 0.1 basis points.

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PUBLIC EMPLOYEES' RETIREMENT SYSTEM

HISTORY

The Public Employees' Retirement System (PERS) was created in 1961.

LIQUIDITY NEEDS

PERS is expected to have modest liquidity needs of approximately 1 to 2 percent per year for the foreseeable future.

INVESTMENT OBJECTIVES

The investment objectives are as follows:

- Exceed the actuarial interest rate assumption of 7.25 percent per annum, net of fees.
- Reduce the unfunded liability while maintaining adequate liquidity to satisfy benefit payments and not subjecting PERS to an undue level of risk.

ASSET ALLOCATION

Based upon a determination of the appropriate risk tolerance, the Board adopted the following broad asset allocation guidelines for the assets managed for PERS. Base and Strategic Allocations are established on a market value basis. The Allocation Committee has the authority to change the allocation within an established range around the Strategic Allocation for the public equity and fixed income asset classes. The range authority for public equities and fixed income is defined in the WVIMB's Investment Policy Statement for the Equity and Fixed Income Pools, respectively Appendix C. The domestic large capitalization allocation to Equity will be implemented through the use of the Portable Alpha Pool described in Appendix C. WVIMB Staff, in consultation with the appropriate representative(s) from PERS will from time to time set a target for transactional cash needs. The Board will receive a report on the target level annually.

Asset Class	Base Allocation	Strategic Allocation
Equity (including Portable Alpha)	60.0%	45.0%
Fixed Income	40.0%	15.0%
Private Markets		
Private Credit and Income	0.0%	6.0%
Private Equity	0.0%	12.0%
Real Estate	0.0%	12.0%
Hedge Funds	0.0%	10.0%

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PUBLIC EMPLOYEES' RETIREMENT SYSTEM (Continued)

FINANCIAL HIGHLIGHTS (in \$000s)

Progression of Plan Balance

June 30, 2022	\$ 8,004,835
Contributions	99,230
Withdrawals	(374,844)
Net	(275,614)
Investment income	672
Net appreciation	668,541
June 30, 2023	<u>\$ 8,398,434</u>

Asset Allocation

	Amount	Percent of Total
Portable Alpha	\$ 2,063,608	24.6%
Non-Large Cap Domestic Equity	381,971	4.5
International Qualified	537,494	6.4
International Equity	1,010,684	12.0
Short-Term Fixed Income	9,213	0.1
Total Return Fixed Income	619,106	7.4
Core Fixed Income	582,903	6.9
Private Markets	2,348,329	28.0
Hedge Fund	845,126	10.1
Total	<u>\$ 8,398,434</u>	100.0%

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of fees.

Period	Actual	Target
One-year	8.6%	7.25%
Three-year	10.3%	7.25%
Five-year	8.0%	7.25%
Ten-year	8.6%	7.25%
Twenty-year	8.1%	7.25%

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TEACHERS' RETIREMENT SYSTEM

HISTORY

The Teachers' Retirement System (TRS) was created in 1941. It was closed to new members in 1991, but reopened to first-time hires as of July 1, 2005. Employees hired from 1991 through June 30, 2005, joined the Teachers' Defined Contribution Plan (TDC). In the spring of 2008, more than 78 percent of the participants in the Teachers' Defined Contribution Plan elected to transfer their TDC account balance to TRS and become participants in TRS. This transfer occurred in July 2008.

LIQUIDITY NEEDS

TRS has a net negative cash flow position and will likely continue to have substantial liquidity needs of at least 10 percent per year.

INVESTMENT OBJECTIVES

The investment objectives are as follows:

- Exceed the actuarial interest rate assumption of 7.25 percent per annum, net of fees.
- Reduce the unfunded liability while maintaining adequate liquidity to satisfy benefit payments and not subjecting TRS to an undue level of risk.

ASSET ALLOCATION

Based upon a determination of the appropriate risk tolerance, the Board adopted the following broad asset allocation guidelines for the assets managed for TRS. Base and Strategic Allocations are established on a market value basis. The Allocation Committee has the authority to change the allocation within an established range around the Strategic Allocation for the public equity and fixed income asset classes. The range authority for public equities and fixed income is defined in the WVIMB's Investment Policy Statement for the Equity and Fixed Income Pools, respectively Appendix C. The domestic large capitalization allocation to Equity will be implemented through the use of the Portable Alpha Pool described in Appendix C. WVIMB Staff, in consultation with the appropriate representative(s) from TRS will from time to time set a target for transactional cash needs. The Board will receive a report on the target level annually.

Asset Class	Base Allocation	Strategic Allocation
Equity (including Portable Alpha)	60.0%	45.0%
Fixed Income	40.0%	15.0%
Private Markets		
Private Credit and Income	0.0%	6.0%
Private Equity	0.0%	12.0%
Real Estate	0.0%	12.0%
Hedge Funds	0.0%	10.0%

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TEACHERS' RETIREMENT SYSTEM (Continued)

FINANCIAL HIGHLIGHTS (in \$000s)

Progression of Plan Balance

June 30, 2022	\$ 8,980,424
Contributions	214,600
Withdrawals	(615,205)
Net	(400,605)
Investment income	1,165
Net appreciation	738,719
June 30, 2023	<u>\$ 9,319,703</u>

Asset Allocation	Amount	Percent of Total
Portable Alpha	\$ 2,272,242	24.4%
Non-Large Cap Domestic Equity	422,941	4.5
International Qualified	593,354	6.4
International Equity	1,116,899	12.0
Short-Term Fixed Income	71,694	0.8
Total Return Fixed Income	679,332	7.3
Core Fixed Income	638,250	6.8
Private Markets	2,592,053	27.8
Hedge Fund	932,938	10.0
Total	<u>\$ 9,319,703</u>	100.0%

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of fees.

Period	Actual	Target
One-year	8.5%	7.25%
Three-year	10.3%	7.25%
Five-year	8.0%	7.25%
Ten-year	8.6%	7.25%
Twenty-year	7.9%	7.25%

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STATE POLICE DEATH, DISABILITY AND RETIREMENT FUND

HISTORY

The State Police Death, Disability and Retirement Fund (SPDDRF) was created in 1925.

LIQUIDITY NEEDS

SPDDRF is now a closed plan and is expected to experience an increasingly negative cash flow position in the near future.

INVESTMENT OBJECTIVES

The investment objectives are as follows:

- Exceed the actuarial interest rate assumption of 7.25 percent per annum, net of fees.
- Reduce the unfunded liability while maintaining adequate liquidity to satisfy benefit payments and not subjecting SPDDRF to an undue level of risk.

ASSET ALLOCATION

Based upon a determination of the appropriate risk tolerance, the Board adopted the following broad asset allocation guidelines for the assets managed for SPDDRF. Base and Strategic Allocations are established on a market value basis. The Allocation Committee has the authority to change the allocation within an established range around the Strategic Allocation for the public equity and fixed income asset classes. The range authority for public equities and fixed income is defined in the WVIMB's Investment Policy Statement for the Equity and Fixed Income Pools, respectively Appendix C. The domestic large capitalization allocation to Equity will be implemented through the use of the Portable Alpha Pool described in Appendix C. WVIMB Staff, in consultation with the appropriate representative(s) from SPDDRF will from time to time set a target for transactional cash needs. The Board will receive a report on the target level annually.

Asset Class	Base Allocation	Strategic Allocation
Equity (including Portable Alpha)	60.0%	45.0%
Fixed Income	40.0%	15.0%
Private Markets		
Private Credit and Income	0.0%	6.0%
Private Equity	0.0%	12.0%
Real Estate	0.0%	12.0%
Hedge Funds	0.0%	10.0%

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STATE POLICE DEATH, DISABILITY AND RETIREMENT FUND (Continued)

FINANCIAL HIGHLIGHTS (in \$000s)

Progression of Plan Balance

June 30, 2022	\$ 767,508
Contributions	251
Withdrawals	(52,270)
Net	(52,019)
Investment income	80
Net appreciation	62,870
June 30, 2023	\$ 778,439

Asset Allocation

	Amount	Percent of Total
Portable Alpha	\$ 192,747	24.7%
Non-Large Cap Domestic Equity	35,802	4.6
International Qualified	50,016	6.4
International Equity	92,655	11.9
Short-Term Fixed Income	436	0.1
Total Return Fixed Income	56,513	7.3
Core Fixed Income	53,092	6.8
Private Markets	218,529	28.1
Hedge Fund	78,649	10.1
Total	\$ 778,439	100.0%

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of fees.

Period	Actual	Target
One-year	8.6%	7.25%
Three-year	10.4%	7.25%
Five-year	8.0%	7.25%
Ten-year	8.6%	7.25%
Twenty-year	8.1%	7.25%

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STATE POLICE RETIREMENT SYSTEM

HISTORY

The State Police Retirement System (SPRS) was created in 1994.

LIQUIDITY NEEDS

SPRS is expected to be in a positive net cash flow position for the foreseeable future.

INVESTMENT OBJECTIVES

The investment objectives are as follows:

- Exceed the actuarial interest rate assumption of 7.25 percent per annum, net of fees.
- Reduce the unfunded liability while maintaining adequate liquidity to satisfy benefit payments and not subjecting SPRS to an undue level of risk.

ASSET ALLOCATION

Based upon a determination of the appropriate risk tolerance, the Board adopted the following broad asset allocation guidelines for the assets managed for SPRS. Base and Strategic Allocations are established on a market value basis. The Allocation Committee has the authority to change the allocation within an established range around the Strategic Allocation for the public equity and fixed income asset classes. The range authority for public equities and fixed income is defined in the WVIMB's Investment Policy Statement for the Equity and Fixed Income Pools, respectively Appendix C. The domestic large capitalization allocation to Equity will be implemented through the use of the Portable Alpha Pool described in Appendix C. WVIMB Staff, in consultation with the appropriate representative(s) from SPRS will from time to time set a target for transactional cash needs. The Board will receive a report on the target level annually.

Asset Class	Base Allocation	Strategic Allocation
Equity (including Portable Alpha)	60.0%	45.0%
Fixed Income	40.0%	15.0%
Private Markets		
Private Credit and Income	0.0%	6.0%
Private Equity	0.0%	12.0%
Real Estate	0.0%	12.0%
Hedge Funds	0.0%	10.0%

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STATE POLICE RETIREMENT SYSTEM (Continued)

FINANCIAL HIGHLIGHTS (in \$000s)

Progression of Plan Balance

June 30, 2022	\$ 289,417
Contributions	6,820
Withdrawals	(1,075)
Net	5,745
Investment income	20
Net appreciation	24,912
June 30, 2023	<u>\$ 320,094</u>

Asset Allocation

	Amount	Percent of Total
Portable Alpha	\$ 78,430	24.4%
Non-Large Cap Domestic Equity	14,294	4.5
International Qualified	20,357	6.4
International Equity	37,984	11.9
Short-Term Fixed Income	1,204	0.4
Total Return Fixed Income	23,792	7.4
Core Fixed Income	23,125	7.2
Private Markets	88,903	27.8
Hedge Fund	32,005	10.0
Total	<u>\$ 320,094</u>	100.0%

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of fees.

Period	Actual	Target
One-year	8.5%	7.25%
Three-year	10.3%	7.25%
Five-year	8.0%	7.25%
Ten-year	8.6%	7.25%
Twenty-year	8.1%	7.25%

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DEPUTY SHERIFFS' RETIREMENT SYSTEM

HISTORY

The Deputy Sheriff's Retirement System (DSRS) was created in 1998.

LIQUIDITY NEEDS

DSRS currently has positive net cash flows.

INVESTMENT OBJECTIVES

The investment objectives are as follows:

- Exceed the actuarial interest rate assumption of 7.25 percent per annum, net of fees.
- Preserve the current well-funded position while not subjecting DSRS to an undue level of risk.

ASSET ALLOCATION

Based upon a determination of the appropriate risk tolerance, the Board adopted the following broad asset allocation guidelines for the assets managed for DSRS. Base and Strategic Allocations are established on a market value basis. The Allocation Committee has the authority to change the allocation within an established range around the Strategic Allocation for the public equity and fixed income asset classes. The range authority for public equities and fixed income is defined in the WVIMB's Investment Policy Statement for the Equity and Fixed Income Pools, respectively Appendix C. The domestic large capitalization allocation to Equity will be implemented through the use of the Portable Alpha Pool described in Appendix C. WVIMB Staff, in consultation with the appropriate representative(s) from DSRS will from time to time set a target for transactional cash needs. The Board will receive a report on the target level annually.

Asset Class	Base Allocation	Strategic Allocation
Equity (including Portable Alpha)	60.0%	45.0%
Fixed Income	40.0%	15.0%
Private Markets		
Private Credit and Income	0.0%	6.0%
Private Equity	0.0%	12.0%
Real Estate	0.0%	12.0%
Hedge Funds	0.0%	10.0%

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DEPUTY SHERIFFS' RETIREMENT SYSTEM (Continued)

FINANCIAL HIGHLIGHTS (in \$000s)

Progression of Plan Balance

June 30, 2022	\$ 293,315
Contributions	4,675
Withdrawals	(6,866)
Net	(2,191)
Investment income	20
Net appreciation	24,895
June 30, 2023	<u>\$ 316,039</u>

Asset Allocation

	Amount	Percent of Total
Portable Alpha	\$ 77,535	24.6%
Non-Large Cap Domestic Equity	14,251	4.5
International Qualified	20,179	6.4
International Equity	37,765	11.9
Short-Term Fixed Income	539	0.2
Total Return Fixed Income	23,401	7.4
Core Fixed Income	22,507	7.1
Private Markets	88,136	27.9
Hedge Fund	31,726	10.0
Total	<u>\$ 316,039</u>	100.0%

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of fees.

Period	Actual	Target
One-year	8.5%	7.25%
Three-year	10.3%	7.25%
Five-year	8.0%	7.25%
Ten-year	8.6%	7.25%
Twenty-year	8.1%	7.25%

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Investment Pool Objectives, Financial Highlights, and Performance

JUDGES' RETIREMENT SYSTEM

HISTORY

The Judges' Retirement System (JRS) was created in 1949.

LIQUIDITY NEEDS

JRS currently has slightly negative net cash flows.

INVESTMENT OBJECTIVES

The investment objectives are as follows:

- Exceed the actuarial interest rate assumption of 7.25 percent per annum, net of fees.
- Reduce the unfunded liability while maintaining adequate liquidity to satisfy benefit payments but not subjecting JRS to an undue level of risk.

ASSET ALLOCATION

Based upon a determination of the appropriate risk tolerance, the Board adopted the following broad asset allocation guidelines for the assets managed for JRS. Base and Strategic Allocations are established on a market value basis. The Allocation Committee has the authority to change the allocation within an established range around the Strategic Allocation for the public equity and fixed income asset classes. The range authority for public equities and fixed income is defined in the WVIMB's Investment Policy Statement for the Equity and Fixed Income Pools, respectively Appendix C. The domestic large capitalization allocation to Equity will be implemented through the use of the Portable Alpha Pool described in Appendix C. WVIMB Staff, in consultation with the appropriate representative(s) from JRS will from time to time set a target for transactional cash needs. The Board will receive a report on the target level annually.

Asset Class	Base Allocation	Strategic Allocation
Equity (including Portable Alpha)	60.0%	45.0%
Fixed Income	40.0%	15.0%
Private Markets		
Private Credit and Income	0.0%	6.0%
Private Equity	0.0%	12.0%
Real Estate	0.0%	12.0%
Hedge Funds	0.0%	10.0%

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JUDGES' RETIREMENT SYSTEM (Continued)

FINANCIAL HIGHLIGHTS (in \$000s)

Progression of Plan Balance

June 30, 2022	\$ 259,323
Contributions	1,250
Withdrawals	(4,060)
Net	(2,810)
Investment income	16
Net appreciation	22,016
June 30, 2023	<u>\$ 278,545</u>

Asset Allocation

	Amount	Percent of Total
Portable Alpha	\$ 68,412	24.6%
Non-Large Cap Domestic Equity	12,590	4.5
International Qualified	17,801	6.4
International Equity	33,290	12.0
Short-Term Fixed Income	369	0.1
Total Return Fixed Income	20,594	7.4
Core Fixed Income	19,752	7.1
Private Markets	77,750	27.9
Hedge Fund	27,987	10.0
Total	<u>\$ 278,545</u>	100.0%

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of fees.

Period	Actual	Target
One-year	8.5%	7.25%
Three-year	10.3%	7.25%
Five-year	8.0%	7.25%
Ten-year	8.6%	7.25%
Twenty-year	8.1%	7.25%

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EMERGENCY MEDICAL SERVICES RETIREMENT SYSTEM

HISTORY

The Emergency Medical Services Retirement System (EMSRS) was created by the *Emergency Medical Services Retirement System Act* effective January 1, 2008, under *West Virginia Code §16-5V-4*. EMSRS members with benefits earned in the Public Employees' Retirement System (PERS) transferred their full membership and benefits under PERS to EMSRS on the effective date.

LIQUIDITY NEEDS

EMSRS is expected to be in a positive net cash flow position for the foreseeable future.

INVESTMENT OBJECTIVES

The investment objectives are as follows:

- Exceed the actuarial interest rate assumption of 7.25 percent per annum, net of fees.
- Maintain adequate liquidity to satisfy benefit payments and not subject EMSRS to an undue level of risk.

ASSET ALLOCATION

Based upon a determination of the appropriate risk tolerance, the Board adopted the following broad asset allocation guidelines for the assets managed for EMSRS. Base and Strategic Allocations are established on a market value basis. The Allocation Committee has the authority to change the allocation within an established range around the Strategic Allocation for the public equity and fixed income asset classes. The range authority for public equities and fixed income is defined in the WVIMB's Investment Policy Statement for the Equity and Fixed Income Pools, respectively Appendix C. The domestic large capitalization allocation to Equity will be implemented through the use of the Portable Alpha Pool described in Appendix C. WVIMB Staff, in consultation with the appropriate representative(s) from EMSRS will from time to time set a target for transactional cash needs. The Board will receive a report on the target level annually.

Asset Class	Base Allocation	Strategic Allocation
Equity (including Portable Alpha)	60.0%	45.0%
Fixed Income	40.0%	15.0%
Private Markets		
Private Credit and Income	0.0%	6.0%
Private Equity	0.0%	12.0%
Real Estate	0.0%	12.0%
Hedge Funds	0.0%	10.0%

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

EMERGENCY MEDICAL SERVICES RETIREMENT SYSTEM (Continued)

FINANCIAL HIGHLIGHTS (in \$000s)

Progression of Plan Balance

June 30, 2022	\$ 112,407
Contributions	4,260
Withdrawals	(1,107)
Net	3,153
Investment income	15
Net appreciation	9,605
June 30, 2023	<u>\$ 125,180</u>

Asset Allocation

	Amount	Percent of Total
Portable Alpha	\$ 30,062	23.9%
Non-Large Cap Domestic Equity	5,510	4.4
International Qualified	7,826	6.3
International Equity	14,622	11.7
Short-Term Fixed Income	2,764	2.2
Total Return Fixed Income	9,079	7.3
Core Fixed Income	8,829	7.1
Private Markets	34,182	27.3
Hedge Fund	12,306	9.8
Total	<u>\$ 125,180</u>	100.0%

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of fees.

Period	Actual	Target
One-year	8.5%	7.25%
Three-year	10.3%	7.25%
Five-year	8.0%	7.25%
Ten-year	8.6%	7.25%

West Virginia Consolidated Public Retirement Board
Investment Section
Investment Pool Objectives, Financial Highlights, and Performance

MUNICIPAL POLICE OFFICERS' AND FIREFIGHTERS' RETIREMENT SYSTEM

HISTORY

Municipal Police Officers' and Firefighters' Retirement System (MPFRS) was created in 2010.

LIQUIDITY NEEDS

There are no anticipated liquidity needs at this time.

INVESTMENT OBJECTIVES

The investment objectives are as follows:

- Exceed the actuarial interest rate assumption of 7.25 percent per annum, net of fees.
- Maintain adequate liquidity to satisfy benefit payments and not subject MPFRS to an undue level of risk.

ASSET ALLOCATION

Based upon a determination of the appropriate risk tolerance, the Board adopted the following broad asset allocation guidelines for the assets managed for MPFRS. Base and Strategic Allocations are established on a market value basis. The Allocation Committee has the authority to change the allocation within an established range around the Strategic Allocation for the public equity and fixed income asset classes. The range authority for public equities and fixed income is defined in the WVIMB's Investment Policy Statement for the Equity and Fixed Income Pools, respectively Appendix C. The domestic large capitalization allocation to Equity will be implemented through the use of the Portable Alpha Pool described in Appendix C. WVIMB Staff, in consultation with the appropriate representative(s) from MPFRS will from time to time set a target for transactional cash needs. The Board will receive a report on the target level annually.

Asset Class	Base Allocation	Strategic Allocation
Equity (including Portable Alpha)	60.0%	45.0%
Fixed Income	40.0%	15.0%
Private Markets		
Private Credit and Income	0.0%	6.0%
Private Equity	0.0%	12.0%
Real Estate	0.0%	12.0%
Hedge Funds	0.0%	10.0%

West Virginia Consolidated Public Retirement Board

Investment Section

Investment Pool Objectives, Financial Highlights, and Performance

MUNICIPAL POLICE OFFICERS' AND FIREFIGHTERS' RETIREMENT SYSTEM (Continued)

FINANCIAL HIGHLIGHTS (in \$000s)

Progression of Plan Balance

June 30, 2022	\$ 26,796
Contributions	5,625
Withdrawals	(10)
Net	5,615
Investment income	14
Net appreciation	2,520
June 30, 2023	\$ 34,945

Asset Allocation

	Amount	Percent of Total
Portable Alpha	\$ 8,364	23.9%
Non-Large Cap Domestic Equity	1,492	4.3
International Qualified	2,136	6.1
International Equity	3,945	11.3
Short-Term Fixed Income	1,394	4.0
Total Return Fixed Income	2,481	7.1
Core Fixed Income	2,451	7.0
Private Markets	9,325	26.7
Hedge Fund	3,357	9.6
Total	\$ 34,945	100.0%

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of fees.

Period	Actual	Target
One-year	8.4%	7.25%
Three-year	10.1%	7.25%
Five-year	7.9%	7.25%
Ten-year	8.4%	7.25%

NATURAL RESOURCES POLICE OFFICERS' RETIREMENT SYSTEM

HISTORY

The Natural Resources Police Officers' Retirement System (NRPORS) was created under the Natural Resources Police Officers' Retirement System Act effective January 2, 2021, under West Virginia Code §20-18-4. NRPORS members with benefits earned in the Public Employees' Retirement System (PERS) transferred their full membership and benefits under PERS to NRPORS on the effective date January 2, 2021.

LIQUIDITY NEEDS

NRPORS is expected to be in a positive net cash flow position through fiscal year 2024.

INVESTMENT OBJECTIVES

The investment objectives are as follows:

- Exceed the actuarial interest rate assumption of 7.25 percent per annum, net of fees.
- Maintain adequate liquidity to satisfy benefit payments and not subject NRPORS to an undue level of risk.

ASSET ALLOCATION

Based upon a determination of the appropriate risk tolerance, the Board adopted the following broad asset allocation guidelines for the assets managed for NRPORS. Base and Strategic Allocations are established on a market value basis. The Allocation Committee has the authority to change the allocation within an established range around the Strategic Allocation for the public equity and fixed income asset classes. The range authority for public equities and fixed income is defined in the WVIMB's Investment Policy Statement for the Equity and Fixed Income Pools, respectively Appendix C. The domestic large capitalization allocation to Equity will be implemented through the use of the Portable Alpha Pool described in Appendix C. WVIMB Staff, in consultation with the appropriate representative(s) from NRPORS will from time to time set a target for transactional cash needs. The Board will receive a report on the target level annually.

Asset Class	Base Allocation	Strategic Allocation
Equity (including Portable Alpha)	60.0%	45.0%
Fixed Income	40.0%	15.0%
Private Markets		
Private Credit and Income	0.0%	6.0%
Private Equity	0.0%	12.0%
Real Estate	0.0%	12.0%
Hedge Funds	0.0%	10.0%

NATURAL RESOURCES POLICE OFFICERS' RETIREMENT SYSTEM

(Continued)

FINANCIAL HIGHLIGHTS (in \$000s)

Progression of Plan Balance

June 30, 2022	\$ 24,467
Contributions	1,163
Withdrawals	<u>(115)</u>
Net	1,048
Investment income	5
Net appreciation	2,123
June 30, 2023	\$ 27,643

Asset Allocation

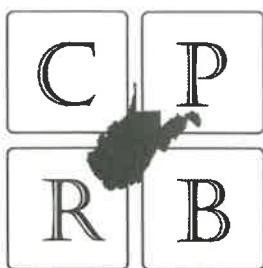
	Amount	Percent of Total
Portable Alpha	\$ 6,753	24.4%
Non-Large Cap Domestic Equity	1,223	4.4
International Qualified	1,745	6.3
International Equity	3,251	11.8
Short-Term Fixed Income	326	1.2
Total Return Fixed Income	2,017	7.3
Core Fixed Income	1,960	7.1
Private Markets	7,624	27.6
Hedge Fund	2,744	9.9
Total	\$ 27,643	100.0%

INVESTMENT PERFORMANCE

The WVIMB calculates total rates of return using the time-weighted rate of return methodology. The time-weighted method determines the rate of return exclusive of the effects of participant contributions or withdrawals. Actual rates of return are net of fees.

Period	Actual	Target
One-year	8.5%	7.25%

Actuarial Section



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West Virginia Consolidated Public Retirement Board
Actuarial Section

OVERVIEW

The Actuarial Section of the annual comprehensive financial report provides information related to the actuarial valuations prepared for each of the pension plans for funding purposes. Other schedules provide information regarding the required contributions, benefits, and funded status of the plans.

Effective with the adoption of GASB 67 for the fiscal year ended June 30, 2014, each of the pension plans has an actuarial valuation prepared for funding purposes and a separate actuarial valuation prepared for financial reporting purposes. The actuarial valuations included in this section of the annual comprehensive financial report have been prepared for funding purposes and have been prepared as of July 1, 2022, the beginning of the plan year. The actuarial valuations prepared for financial reporting purposes have been prepared as of June 30, 2023, the end of the plan year, and were the source of much of the actuarial information in the Financial Section.

The actuarial methods and assumptions used to prepare the actuarial valuations for funding purposes and for financial reporting purposes are nearly identical. The primary difference is in the asset valuation method for the Public Employees Retirement System (PERS), the Teachers' Retirement System (TRS), the Deputy Sheriff Retirement System (DSRS), and the Natural Resources Police Officers Retirement System (NRPORS). For financial reporting purposes, the fair value of the PERS, TRS, DSRS, and NRPORS assets as of the end of the fiscal year is used. For funding purposes, a four-year smoothing of the actuarial gain or loss on PERS, TRS, DSRS, and NRPORS asset returns each year is used.



December 18, 2023

West Virginia Consolidated Public Retirement Board
West Virginia Public Employees' Retirement System
601 57th Street SE, Suite 5
Charleston, WV 25304

Dear Board Members,

We performed the annual actuarial valuation of the West Virginia Public Employees' Retirement System (PERS) as of July 1, 2022. The purpose of the actuarial valuation is to determine the actuarial liabilities of the System for funding purposes and to determine whether expected contributions will be sufficient to fulfill the System's long-term funding policy.

The valuation was based on membership data as of June 30, 2022, maintained by the West Virginia Consolidated Public Retirement Board, and financial information received from the West Virginia Investment Management Board. Buck reviewed the data for reasonableness and consistency with data provided for prior valuations but did not audit the data. The accuracy of the results of the valuation is dependent on the accuracy of the data.

The tables presented for PERS in the actuarial section of this Annual Comprehensive Financial Report are based on information contained in our July 1, 2022, valuation report dated March 31, 2023. These tables include:

Actuarial Section

- Summary of Actuarial Methods and Assumptions
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Solvency Test
- Schedule of Retirees and Beneficiaries Added and Removed
- Changes in Unfunded Actuarial Liability

Financial Section

- Schedules of Contributions

All schedules in the Actuarial Section above were completed by the West Virginia Consolidated Public Retirement Board. Buck has reviewed these schedules for accuracy and consistency with the information provided in our July 1, 2022, valuation report.

The report presents fairly the actuarial position of PERS as of July 1, 2022, in accordance with Actuarial Standards of Practice (ASOP) applied on a basis consistent with that of the preceding valuation. In our opinion, the assumptions used in preparing the liabilities and costs are individually reasonable with respect to PERS experience and represent our best estimate of anticipated future experience of PERS. The assumptions were developed in accordance with the guidance set forth in applicable Actuarial Standards of Practice, including ASOPs 27 and 35. The mortality assumptions were developed in accordance with the recommendation that an appropriate margin for future improvement in mortality beyond the measurement date be included.

Future actuarial measurements may differ significantly from current measurements due to system experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in system provisions, or applicable law or regulations. An analysis of the potential range of such future differences was beyond the scope of the valuation.

Where presented, the “funded ratio” and “unfunded accrued liability” are typically measured using the actuarial value of assets. Use of the market value of assets instead would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but does not represent the funded status of the plan if the plan were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities.

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses the following:

- third-party software to calculate the liabilities associated with the provisions of the plan using data, assumptions, and funding methods as specified in our report, and
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to generate the exhibits found in our report.

Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed.

The results presented herewith were prepared solely for the Consolidated Public Retirement Board for the purposes herein stated and may not be appropriate to use for other purposes. Buck does not intend to benefit and assumes no duty or liability to other parties who receive this work. Use of this report for any other purposes or by anyone other than the Consolidated Public Retirement Board and its auditors may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck's prior written consent.

We are Fellows of the Society of Actuaries and Members of the American Academy of Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

Buck Global, LLC (Buck)

David L. Driscoll

David L. Driscoll, FSA, EA, MAAA, FCA
Principal, Consulting Actuary

Elizabeth A. Wiley

Elizabeth A. Wiley, FSA, EA, MAAA, FCA
Senior Consultant, Retirement Actuary



West Virginia Consolidated Public Retirement Board
Actuarial Section
Public Employees Retirement System

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Valuation Date: July 1, 2022

Funding Method and Basis for Assumptions

The valuation is prepared under the Entry Age Normal Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate. Entry is based on date of hire.

Experience studies are performed at least once in every 5-year period. This valuation was prepared on the basis of assumptions that were recommended to and adopted by the Board based on the experience study covering the period from July 1, 2013, to June 30, 2018. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised demographic assumptions.

The valuation reflects economic assumptions, which include a rate of investment return of 7.25% per annum, as adopted by the Board, and assumed future salary increases, which were based on the findings presented in the July 1, 2015 – June 30, 2020, Experience Study. These assumptions will remain in effect for valuation purposes until the Board adopts revised economic assumptions.

Interest Rate and Expenses

The valuation interest assumption is 7.25% per annum, with no loading for system expenses.

Salary Scales

Salary scales are used for the assumed increase in salary. The Valuation results reflect the \$2,550 annual pay increase effective July 1, 2022 for all active members of PERS. This flat-dollar increase was used in the valuation in place of the assumed salary scales for FY 2023. Projected salary increases for State employees range from 2.75% to 5.55% per year and Nonstate employees range from 3.60% to 6.75% per year. Assumed increases in salary for sample ages are as follows:

Salary Scales		
Age	State	Nonstate
30	5.05%	4.85%
40	4.55%	4.35%
50	4.20%	4.10%
60	3.35%	3.60%

Mortality

The mortality tables are as follows:

- Pre-retirement males: 100% of Pub-2010 General Employee male table, below-median, headcount-weighted, projected generationally with scale MP-2018
- Pre-retirement females: 100% of Pub-2010 General Employee female table, below-median, headcount-weighted, projected generationally with scale MP-2018
- Post-retirement healthy males: 108% of Pub-2010 General Retiree male table, below-median, headcount-weighted, projected generationally with scale MP-2018
- Post-retirement healthy females: 122% of Pub-2010 General Retiree female table, below-median, headcount-weighted, projected generationally with scale MP-2018
- Disabled males: 118% of Pub-2010 General/Teachers Disabled male table, headcount-weighted, projected generationally with scale MP-2018
- Disabled females: 117% of Pub-2010 General/Teachers Disabled female table, headcount-weighted, projected generationally with scale MP-2018
- Beneficiary males: * 112% of Pub-2010 Contingent Survivor male table, below-median, headcount-weighted, projected generationally with scale MP-2018
- Beneficiary females: * 115% of Pub-2010 Contingent Survivor female table, below-median, headcount-weighted, projected generationally with scale MP-2018

* The credibility-weighted Pub-2010 Contingent Survivor mortality tables are also applied to spouses and designated beneficiaries while the member is alive.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Public Employees Retirement System

Withdrawal from Service

Specific tables have been created to reflect withdrawal rates. All withdrawals are assumed to result in refund of contributions if non-vested or a deferred annuity if vested. The liability for a refund of contributions for nonactive non-vested members as of the valuation date is assumed to be 60% of the total employee contribution balance of such members. Sample withdrawal rates are as follows:

State (less than 1 year)		
Age	Male	Female
30	0.35068	0.29227
40	0.27209	0.23023
50	0.21294	0.19734
60	0.19520	0.16445

State (1 to 2 years)		
Age	Male	Female
30	0.27720	0.24200
40	0.20160	0.18000
50	0.16706	0.15000
60	0.15188	0.13500

State (2 to 3 years)		
Age	Male	Female
30	0.20930	0.20016
40	0.14950	0.16046
50	0.11100	0.13750
60	0.08250	0.10313

State (3 to 4 years)		
Age	Male	Female
30	0.17160	0.18144
40	0.11440	0.12600
50	0.08580	0.10584
60	0.05720	0.07560

State (4 to 5 years)		
Age	Male	Female
30	0.13230	0.14625
40	0.10500	0.11375
50	0.07700	0.08626
60	0.04025	0.06000

State (greater than 5 years)		
Age	Male	Female
30	0.10080	0.11000
40	0.06000	0.05850
50	0.03900	0.04550
60	0.03000	0.02275

Nonstate (less than 1 year)		
Age	Male	Female
30	0.30360	0.27577
40	0.24840	0.24035
50	0.19320	0.18975
60	0.15180	0.15180

Nonstate (1 to 2 years)		
Age	Male	Female
30	0.24480	0.21850
40	0.18720	0.18975
50	0.13200	0.13000
60	0.12000	0.11000

Nonstate (2 to 3 years)		
Age	Male	Female
30	0.19360	0.19542
40	0.15180	0.13965
50	0.10800	0.12564
60	0.09600	0.10379

Nonstate (3 to 4 years)		
Age	Male	Female
30	0.16940	0.15500
40	0.11000	0.13000
50	0.08800	0.10000
60	0.06600	0.08000

Nonstate (4 to 5 years)		
Age	Male	Female
30	0.12000	0.14820
40	0.10800	0.10260
50	0.07920	0.07980
60	0.05040	0.05700

Nonstate (greater than 5 years)		
Age	Male	Female
30	0.10247	0.09000
40	0.06210	0.06435
50	0.04600	0.04200
60	0.02500	0.02600

West Virginia Consolidated Public Retirement Board
Actuarial Section
Public Employees Retirement System

Disablement Rates

Sample rates of disablement are as follows:

State and Nonstate		
Age	Male	Female
30	0.00022	0.00039
40	0.00082	0.00073
50	0.00351	0.00225
60	0.00540	0.00488

Retirement Rates

The retirement rates are as follows:

State and Nonstate	
Age	Rates
55	0.30
56	0.18
57	0.15
58	0.15
59	0.15
60	0.12
61	0.15
62	0.22
63	0.15
64	0.18
65	0.25
66	0.20
67	0.20
68	0.20
69	0.20
70+	1.00

Family Composition

It is assumed that 85% of males and 80% of females are married, with husbands 3 years older than wives. Remarriage rates are not used.

Accrual of Future Service

It is assumed that active members will accrue 1 year of service for each future year of employment.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Public Employees Retirement System

Noncontributory Service Loadings

Noncontributory service for active members is estimated from member's contributory service by adjusting the present value of benefits projected from contributory service alone. The assumed service loads are as follows:

Group	Tier 1	Tier 2
Male - State	10.10%	0.00%
Male - Nonstate	8.80%	0.00%
Female - State	3.20%	0.00%
Female - Nonstate	2.80%	0.00%

Asset Valuation Method

4-year 25% level smoothing of actuarial gain or (loss) on trust fund return:

- Implemented over 4 years, prospectively commencing July 1, 2009 for the experience for the trust year ending June 30, 2009.
- Actuarial gain or (loss) on assets is calculated as the difference between the expected return under valuation assumptions based on the smoothed Actuarial Value of Assets and the actual trust fund return.
- Actuarial gain or (loss) is recognized at 25% of the original amount each year until fully recognized in the fourth year.
- Total accumulated deferred gain or (loss) amounts are used to adjust the reported Market Value of Assets to determine the Actuarial Value of Assets.

System Contributions

Both employee and employer contributions to the System are assumed to be paid in the middle of the year.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Public Employees Retirement System

Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Change in Average Pay	Number of Employers
6/30/2022	34,952	\$ 1,656,685,000	\$ 47,399	4.6%	520
6/30/2021	35,576	1,611,398,000	45,295	2.8%	517
6/30/2020	35,781	1,577,290,000	44,082	4.5%	516
6/30/2019	35,508	1,497,636,000	42,177	5.6%	517
6/30/2018	34,765	1,388,662,000	39,944	0.8%	519
6/30/2017	36,094	1,430,578,000	39,635	1.3%	523
6/30/2016	36,150	1,414,585,000	39,131	1.5%	513
6/30/2015	36,122	1,392,113,000	38,539	1.0%	512
6/30/2014	36,413	1,389,089,000	38,148	0.6%	513
6/30/2013	36,637	1,389,850,000	37,936	0.3%	511

Schedule of Funding Progress (in thousands)

Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
	(a)	(b)	(b-a)	(a/b)	(c)	((b-a)/c)
7/1/2022	\$ 8,084,685	\$ 8,179,835	\$ 95,150	98.8%	\$ 1,656,685	5.7%
7/1/2021	7,745,853	7,942,242	196,389	97.5%	1,611,398	12.2%
7/1/2020	7,129,022	7,506,535	377,513	95.0%	1,577,290	23.9%
7/1/2019	6,792,291	7,237,396	445,105	93.9%	1,497,636	29.7%
7/1/2018	6,508,771	7,003,602	494,831	92.9%	1,388,662	35.6%
7/1/2017	6,248,413	6,832,513	584,100	91.5%	1,430,578	40.8%
7/1/2016	5,888,558	6,615,406	726,848	89.0%	1,414,585	51.4%
7/1/2015	5,565,081	6,412,587	847,506	86.8%	1,392,113	60.9%
7/1/2014	5,208,828	6,271,827	1,062,999	83.1%	1,389,089	76.5%
7/1/2013	4,709,530	5,911,263	1,201,733	79.7%	1,389,850	86.5%

Solvency Test (in thousands)

Valuation Date	Active Member Contributions			Active Members Terms, Retirees, and Beneficiaries		Valuation of Assets	% of Accrued Liabilities Covered by Valuation Assets			
	(1)		(2)		(3)					
	(Member Contributions)	(Employer Financed Portion)	(Beneficiaries)	(Employer Financed Portion)	(Assets)		(1)	(2)	(3)	
6/30/2022	\$ 835,994	\$ 2,525,460	\$ 4,818,381	\$ 8,084,685	100.0%	100.0%	100.0%	100.0%	96.2%	
6/30/2021	827,629	2,482,366	4,632,247	7,745,853	100.0%	100.0%	100.0%	100.0%	92.1%	
6/30/2020	810,953	2,314,447	4,381,135	7,129,022	100.0%	100.0%	100.0%	100.0%	83.7%	
6/30/2019	781,469	2,205,833	4,250,094	6,792,291	100.0%	100.0%	100.0%	100.0%	79.8%	
6/30/2018	761,779	2,099,893	4,141,930	6,508,771	100.0%	100.0%	100.0%	100.0%	76.4%	
6/30/2017	782,548	2,046,679	4,003,286	6,248,413	100.0%	100.0%	100.0%	100.0%	71.5%	
6/30/2016	777,734	2,031,327	3,806,345	5,888,558	100.0%	100.0%	100.0%	100.0%	64.2%	
6/30/2015	763,823	2,012,507	3,636,257	5,565,081	100.0%	100.0%	100.0%	100.0%	57.9%	
6/30/2014	759,854	2,212,100	3,299,873	5,208,828	100.0%	100.0%	100.0%	100.0%	51.9%	
6/30/2013	744,416	2,029,370	3,137,477	4,709,530	100.0%	100.0%	100.0%	100.0%	40.8%	

West Virginia Consolidated Public Retirement Board
Actuarial Section
Public Employees Retirement System

Schedule of Retirees and Beneficiaries Added and Removed

Fiscal Year Ended	Added		Removed		Year End		% Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
2022	1,857	\$ 21,711,657	(1,461)	\$ 1,545,820	29,405	\$ 489,325,853	4.3%	\$ 16,641
2021	1,839	28,717,613	(1,280)	12,558,810	29,009	469,160,016	3.6%	16,173
2020	1,533	17,437,818	(1,116)	1,401,904	28,450	453,001,213	3.7%	15,923
2019	1,587	15,953,248	(1,122)	923,665	28,033	436,965,299	3.6%	15,588
2018	1,307	24,156,218	(792)	4,433,612	27,568	421,935,716	4.9%	15,305
2017	1,758	24,722,798	(998)	5,086,662	27,053	402,213,110	5.1%	14,868
2016	1,687	21,059,900	(1,073)	11,122,718	26,293	382,576,974	2.7%	14,551
2015	1,806	34,274,051	(1,058)	12,142,200	25,679	372,639,792	6.0%	14,511
2014	1,664	31,294,049	(938)	9,203,018	24,931	351,455,484	5.6%	14,097
2013	1,725	31,593,996	(980)	9,613,212	24,205	332,761,008	6.6%	13,748

Changes in Unfunded Actuarial Liability

Unfunded Actuarial Liability, June 30, 2021	\$ 196,389,000
Interest	16,507,000
Normal cost	153,579,000
Contributions	(248,926,000)
Assumption changes	-
Liability (Gain)/Loss	17,670,000
Actuarial Asset (Gain)/Loss	(40,069,000)
Unfunded Actuarial Liability, June 30, 2022	\$ 95,150,000

Schedule of Contributions

The Schedule of Contributions is included in the Required Supplementary Information provided in the Financial Section of this Annual Comprehensive Financial Report.

Plan Provisions

A discussion of plan provisions is included in Note 2 to the financial statements included in the Financial Section.

December 18, 2023

West Virginia Consolidated Public Retirement Board
West Virginia Teachers' Retirement System
601 57th Street SE, Suite 5
Charleston, WV 25304

Dear Board Members,

We performed the annual actuarial valuation of the West Virginia Teachers' Retirement System (TRS) as of July 1, 2022. The purpose of the actuarial valuation is to determine the actuarial liabilities of the System for funding purposes and to determine whether expected contributions will be sufficient to fulfill the System's long-term funding policy.

The valuation was based on membership data as of June 30, 2022, maintained by the West Virginia Consolidated Public Retirement Board, and financial information received from the West Virginia Investment Management Board. Buck reviewed the data for reasonableness and consistency with data provided for prior valuations but did not audit the data. The accuracy of the results of the valuation is dependent on the accuracy of the data.

The tables presented for TRS in the actuarial section of this Annual Comprehensive Financial Report are based on information contained in our July 1, 2022, valuation report dated March 31, 2023. These tables include:

Actuarial Section

- Summary of Actuarial Methods and Assumptions
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Solvency Test
- Schedule of Retirees and Beneficiaries Added and Removed
- Changes in Unfunded Actuarial Liability

Financial Section

- Schedules of Contributions

All schedules in the Actuarial Section above were completed by the West Virginia Consolidated Public Retirement Board. Buck has reviewed these schedules for accuracy and consistency with the information provided in our July 1, 2022, valuation report.

The report presents fairly the actuarial position of TRS as of July 1, 2022, in accordance with Actuarial Standards of Practice (ASOP) applied on a basis consistent with that of the preceding valuation. In our opinion, the assumptions used in preparing the liabilities and costs are individually reasonable with respect to TRS experience and represent our best estimate of anticipated future experience of TRS. The assumptions were developed in accordance with the guidance set forth in applicable Actuarial Standards of Practice, including ASOPs 27 and 35. The mortality assumptions were developed in accordance with the recommendation that an appropriate margin for future improvement in mortality beyond the measurement date be included.

Future actuarial measurements may differ significantly from current measurements due to system experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in system provisions, or applicable law or regulations. An analysis of the potential range of such future differences was beyond the scope of the valuation.

Where presented, the “funded ratio” and “unfunded accrued liability” are typically measured using the actuarial value of assets. Use of the market value of assets instead would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but does not represent the funded status of the plan if the plan were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities.

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses the following:

- third-party software to calculate the liabilities associated with the provisions of the plan using data, assumptions, and funding methods as specified in our report, and
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to generate the exhibits found in our report.

Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed.

The results presented herewith were prepared solely for the Consolidated Public Retirement Board for the purposes herein stated and may not be appropriate to use for other purposes. Buck does not intend to benefit and assumes no duty or liability to other parties who receive this work. Use of this report for any other purposes or by anyone other than the Consolidated Public Retirement Board and its auditors may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck's prior written consent.

We are Fellows of the Society of Actuaries and Members of the American Academy of Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

Buck Global, LLC (Buck)

David L. Driscoll

David L. Driscoll, FSA, EA, MAAA, FCA
Principal, Consulting Actuary

Elizabeth A. Wiley

Elizabeth A. Wiley, FSA, EA, MAAA, FCA
Senior Consultant, Retirement Actuary



West Virginia Consolidated Public Retirement Board
Actuarial Section
Teachers' Retirement System
SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Valuation Date: July 1, 2022

Funding Method and Basis for Assumptions

The valuation is prepared under the Entry Age Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate. Entry is based on adjusted date of hire (i.e. valuation date minus known past service).

Experience studies are performed at least once in every five-year period. The valuation was prepared using demographic assumptions that were recommended to and adopted by the Board based on the experience study covering the period from July 1, 2014, to June 30, 2019. The valuation reflects economic assumptions, which include a rate of investment return of 7.25% per annum, as adopted by the Board, and assumed future salary increases, which were based on the findings presented in the July 1, 2015, to June 30, 2020 Experience Study. These assumptions will remain in effect for valuation purposes until the Board adopts revised assumptions.

Interest Rate and Expenses

The valuation interest assumption is 7.25% per annum, with no loading for plan expenses.

Salary Scales

Projected salary increases are in the following ranges by group, with an underlying inflation rate of 2.75%:

Group	Range of Projected Salary Increases
Teachers	2.75% - 5.90%
Non-Teachers	2.75% - 6.50%

A sample of salaries from the salary scales is as follows:

Age	Non-Teachers and State	
	Teachers	State
30	5.468%	5.580%
40	4.618%	4.844%
50	3.760%	4.110%
60	3.218%	3.373%

The valuation results reflect the pay increase of \$1,464 per year for Service Personnel and \$2,240 per year for teachers. This flat-dollar increase was used in the valuation in the place of the assumed salary scales for FY 2023.

Pre-Retirement Mortality

Pub-2010 General Employee table, headcount-weighted, projected generationally with scale MP-2019.

Post-Retirement Mortality

The mortality tables used are as follows:

- Retired Males: 100% of Pub-2010 General Retiree male table, headcount-weighted, projected generationally with scale MP-2019
- Retired Females: 112% of Pub-2010 General Retiree female table, headcount-weighted, projected generationally with scale MP-2019
- Disabled Males: 107% of Pub-2010 General/Teachers Disabled male table, headcount-weighted, projected generationally with scale MP-2019
- Disabled Females: 113% of Pub-2010 General/Teachers Disabled female table, headcount-weighted, projected generationally with scale MP-2019
- Beneficiary Males: 101% of Pub-2010 Contingent Survivor male table, headcount-weighted, projected generationally with scale MP-2019
- Beneficiary Females: 113% of Pub-2010 Contingent Survivor female table, headcount-weighted, projected generationally with scale MP-2019

* The credibility-weighted Pub-2010 Contingent Survivor mortality tables are also applied to spouses and designated beneficiaries while the member is alive

West Virginia Consolidated Public Retirement Board
Actuarial Section
Teachers' Retirement System

Withdrawal from Service

Withdrawal rates are assumed to cease upon eligibility for retirement. All withdrawal is assumed to result in refund of contributions if non-vested or a deferred annuity if vested. Sample withdrawal rates are as follows:

Teachers (less than 1 year)		
Age	Male	Female
30	0.19571	0.19571
40	0.25286	0.24172
50	0.31000	0.27900
60	0.35000	0.35000

Teachers (1 to 2 years)		
Age	Male	Female
30	0.15574	0.11000
40	0.14250	0.11000
50	0.12926	0.11000
60	0.12000	0.11000

Teachers (2 to 3 years)		
Age	Male	Female
30	0.10275	0.10360
40	0.09750	0.07560
50	0.09750	0.07000
60	0.09750	0.07000

Teachers (3 to 4 years)		
Age	Male	Female
30	0.07200	0.07186
40	0.05592	0.07000
50	0.04500	0.07000
60	0.04500	0.07000

Teachers (4 to 5 years)		
Age	Male	Female
30	0.07888	0.08100
40	0.06448	0.05102
50	0.05008	0.04050
60	0.04000	0.04050

Teachers (greater than 5 years)		
Age	Male	Female
30	0.04200	0.04800
40	0.03332	0.03200
50	0.02100	0.01600
60	0.02800	0.02400

Non-Teachers and State (less than 1 year)		
Age	Male	Female
30	0.15600	0.20378
40	0.13200	0.17243
50	0.10800	0.14108
60	0.08400	0.10973

Non-Teachers and State (1 to 2 years)		
Age	Male	Female
30	0.12650	0.12560
40	0.09200	0.08568
50	0.06900	0.06480
60	0.05750	0.05850

Non-Teachers and State (2 to 3 years)		
Age	Male	Female
30	0.12500	0.09520
40	0.09360	0.06160
50	0.06000	0.05242
60	0.06000	0.05600

Non-Teachers and State (3 to 4 years)		
Age	Male	Female
30	0.08000	0.10000
40	0.07000	0.05400
50	0.07000	0.05265
60	0.07000	0.06075

Non-Teachers and State (4 to 5 years)		
Age	Male	Female
30	0.05625	0.08438
40	0.05175	0.05063
50	0.05175	0.03375
60	0.05175	0.02532

Non-Teachers and State (greater than 5 years)		
Age	Male	Female
30	0.05349	0.04728
40	0.03899	0.03063
50	0.02785	0.02303
60	0.02475	0.02450

West Virginia Consolidated Public Retirement Board
Actuarial Section
Teachers' Retirement System

Disablement Rates

A sample of disablement rates follows:

Age	Male	Female
30	0.00040	0.00051
40	0.00132	0.00128
50	0.00305	0.00241
60	0.00560	0.00563

Retirement Rates

A schedule of retirement rates follows:

Age	Teachers		Non-Teachers & State	
	Male	Female	Male	Female
54	0.000	0.000	0.000	0.000
55	0.175	0.175	0.200	0.150
56	0.175	0.175	0.200	0.175
57	0.200	0.200	0.175	0.150
58	0.200	0.200	0.200	0.150
59	0.200	0.225	0.150	0.175
60	0.200	0.225	0.125	0.150
61	0.225	0.225	0.125	0.150
62	0.325	0.275	0.300	0.225
63	0.225	0.250	0.225	0.175
64	0.250	0.225	0.150	0.175
65	0.325	0.300	0.300	0.275
66	0.275	0.350	0.225	0.275
67	0.225	0.300	0.225	0.225
68	0.250	0.300	0.225	0.225
69	0.250	0.300	0.225	0.225
70+	1.000	1.000	1.000	1.000

Accrual of Future Service

It is assumed that all active members will accrue 1 year of service for each future year of employment.

Non-Contributory Service Loadings

The load factor assumptions for non-contributory service (military, parochial or out-of-state teaching, transferred PERS service, and unused sick leave) are as follows:

Group	Male		Female	
	Tier 1	Tier 2	Tier 1	Tier 2
Teachers	7.50%	0.00%	4.60%	0.00%
Non-Teachers	6.00%	0.00%	4.00%	0.00%

West Virginia Consolidated Public Retirement Board
Actuarial Section
Teachers' Retirement System

Family Composition

It is assumed that 85% of males and 80% of females are married, with husbands 3 years older than wives.
Remarriage rates are not used.

Asset Valuation Method

Four-year 25% level smoothing of actuarial gain or (loss) on trust fund return:

- Implemented over 4 years, prospectively commencing July 1, 2016 for the experience for the trust year ending June 30, 2016.
- Actuarial gain or (loss) on assets is calculated as the difference between the expected return under valuation assumptions based on the smoothed Actuarial Value of Assets and the actual trust fund return.
- Actuarial gain or (loss) is recognized at 25% of the original amount each year until fully recognized in the fourth year.
- Total accumulated deferred gain or (loss) amounts are used to adjust the reported Market Value of Assets to determine the Actuarial Value of Assets.

Plan Contribution

Both employee and employer contributions to the plan are assumed to be paid in the middle of the year.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Teachers' Retirement System

Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Change in Average Pay	Number of Employers
6/30/2022	34,871	\$ 1,686,598,000	\$ 48,367	3.8%	81
6/30/2021	35,113	1,636,411,000	46,604	0.8%	82
6/30/2020	34,753	1,606,568,000	46,228	4.5%	80
6/30/2019	34,108	1,508,177,000	44,218	4.4%	82
6/30/2018	33,174	1,404,586,000	42,340	-0.3%	79
6/30/2017	34,318	1,457,143,000	42,460	1.0%	80
6/30/2016	35,811	1,505,080,000	42,028	-0.5%	84
6/30/2015	35,788	1,511,271,000	42,228	1.8%	84
6/30/2014	35,724	1,481,786,000	41,479	-1.1%	84
6/30/2013	35,593	1,493,515,000	41,961	-0.5%	84

Schedule of Funding Progress (in thousands)

Valuation Date	Actuarial Accrued			Unfunded AAL (UAAL)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll (b-a)/c)
	Actuarial Value of Assets (a)	Liability (AAL) Entry Age (b)	(b-a)				
7/1/2022	\$ 9,091,948	\$ 11,592,440	\$ 2,500,492	78.4%	\$ 1,686,598	148.3%	
7/1/2021	8,740,204	11,495,184	2,754,980	76.0%	1,636,411	168.4%	
7/1/2020	8,116,332	11,154,850	3,038,518	72.8%	1,606,568	189.1%	
7/1/2019	7,788,482	10,951,502	3,163,020	71.1%	1,508,177	209.7%	
7/1/2018	7,497,885	10,778,022	3,280,137	69.6%	1,404,586	233.5%	
7/1/2017	7,193,080	10,727,223	3,534,143	67.1%	1,457,143	242.5%	
7/1/2016	6,936,281	10,604,279	3,667,998	65.4%	1,505,080	243.7%	
7/1/2015	6,803,089	10,310,652	3,507,563	66.0%	1,511,271	232.1%	
7/1/2014	6,682,093	10,098,693	3,416,600	66.2%	1,481,786	230.6%	
7/1/2013	5,751,101	9,930,335	4,179,234	57.9%	1,493,515	279.8%	

Solvency Test (in thousands)

Valuation Date	(1)			(2)			(3)			% of Accrued Liabilities Covered by Valuation Assets		
	Active Member Contributions		Terms, Retirees, and Beneficiaries	Active Members (Employer Financed Portion)		Valuation of Assets	(1)	(2)	(3)			
6/30/2022	\$ 1,203,686	\$ 8,209,597	\$ 2,179,157	\$ 9,091,948	100.0%	96.0%	0.0%					
6/30/2021	1,188,606	8,177,589	2,128,989	8,740,204	100.0%	92.4%	0.0%					
6/30/2020	1,155,649	7,909,421	2,089,780	8,116,332	100.0%	88.0%	0.0%					
6/30/2019	1,113,929	7,854,163	1,983,410	7,788,482	100.0%	85.0%	0.0%					
6/30/2018	1,116,650	7,784,459	1,876,913	7,497,885	100.0%	82.0%	0.0%					
6/30/2017	1,067,691	7,637,691	2,021,841	7,193,080	100.0%	80.2%	0.0%					
6/30/2016	1,394,615	7,333,565	1,876,099	6,936,281	100.0%	75.6%	0.0%					
6/30/2015	1,433,224	6,976,345	1,901,083	6,803,089	100.0%	77.0%	0.0%					
6/30/2014	1,477,848	6,651,706	1,969,139	6,682,093	100.0%	78.2%	0.0%					
6/30/2013	1,533,929	6,264,695	2,131,711	5,751,101	100.0%	67.3%	0.0%					

West Virginia Consolidated Public Retirement Board
Actuarial Section
Teachers' Retirement System

Schedule of Retirees and Beneficiaries Added and Removed

Added		Removed		Year End		% Increase in Annual Allowances	Average Annual Allowances
Fiscal Year Ended	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Annual Allowances
2022	1,511	\$ 29,756,823	(1,696)	\$ 15,122,839	37,097	\$ 877,764,841	1.7% \$ 23,661
2021	1,851	25,989,474	(1,366)	7,129,368	37,282	863,130,857	2.2% \$ 23,151
2020	1,305	38,789,550	(1,160)	22,058,029	36,797	844,270,751	2.0% 22,944
2019	1,477	31,808,469	(1,219)	10,779,503	36,652	827,539,230	2.6% 22,578
2018	1,595	37,062,473	(1,165)	10,582,068	36,394	806,510,264	3.4% 22,161
2017	1,734	71,924,160	(1,210)	41,033,757	35,964	780,029,859	4.1% 21,689
2016	1,796	38,461,963	(1,094)	32,304,726	35,440	749,139,456	0.8% 21,138
2015	1,942	55,067,119	(1,204)	17,480,491	34,738	742,982,219	5.4% 21,388
2014	2,054	59,887,492	(1,061)	13,218,744	34,000	704,665,714	6.6% 20,725
2013	2,210	65,333,080	(1,116)	14,090,125	33,007	661,061,157	8.0% 20,028

Changes in Unfunded Actuarial Liability

Funded in Excess of Actuarial Liability, June 30, 2021	\$ 2,754,980
Interest	191,062
Normal cost	164,655
Contributions	(578,699)
Assumption changes	-
Liability (Gain)/Loss	9,693
Actuarial Asset (Gain)/Loss	(41,199)
Unfunded Actuarial Liability, June 30, 2022	\$ 2,500,492

Schedule of Contributions

The Schedule of Contributions is included in the Required Supplementary Information provided in the Financial Section of this Annual Comprehensive Financial Report.

Plan Provisions

A discussion of plan provisions is included in Note 2 to the financial statements included in the Financial Section.

December 18, 2023

West Virginia Consolidated Public Retirement Board
West Virginia Department of Public Safety Death, Disability and Retirement Fund
601 57th Street SE, Suite 5
Charleston, WV 25304

Dear Board Members,

We performed the annual actuarial valuation of the West Virginia Department of Public Safety Death, Disability and Retirement Fund (Plan A) as of July 1, 2022. The purpose of the actuarial valuation is to determine the actuarial liabilities of the System for funding purposes and to determine whether expected contributions will be sufficient to fulfill the System's long-term funding policy.

The valuation was based on membership data as of June 30, 2022, maintained by the West Virginia Consolidated Public Retirement Board, and financial information received from the West Virginia Investment Management Board. Buck reviewed the data for reasonableness and consistency with data provided for prior valuations but did not audit the data. The accuracy of the results of the valuation is dependent on the accuracy of the data.

The tables presented for Plan A in the actuarial section of this Annual Comprehensive Financial Report are based on information contained in our July 1, 2022, valuation report dated March 31, 2023. These tables include:

Actuarial Section

- Summary of Actuarial Methods and Assumptions
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Solvency Test
- Schedule of Retirees and Beneficiaries Added and Removed
- Changes in Unfunded Actuarial Liability

Financial Section

- Schedules of Contributions

All schedules in the Actuarial Section above were completed by the West Virginia Consolidated Public Retirement Board. Buck has reviewed these schedules for accuracy and consistency with the information provided in our July 1, 2022, valuation report.

The report presents fairly the actuarial position of Plan A as of July 1, 2022, in accordance with Actuarial Standards of Practice (ASOP) applied on a basis consistent with that of the preceding valuation. In our opinion, the assumptions used in preparing the liabilities and costs are individually reasonable with respect to Plan A experience and represent our best estimate of anticipated future experience of Plan A. The assumptions were developed in accordance with the guidance set forth in applicable Actuarial Standards of Practice, including ASOPs 27 and 35. The mortality assumptions were developed in accordance with the recommendation that an appropriate margin for future improvement in mortality beyond the measurement date be included.

Future actuarial measurements may differ significantly from current measurements due to system experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in system provisions, or applicable law or regulations. An analysis of the potential range of such future differences was beyond the scope of the valuation.

Where presented, the “funded ratio” and “unfunded accrued liability” are typically measured using the actuarial value of assets. Use of the market value of assets instead would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but does not represent the funded status of the plan if the plan were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities.

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses the following:

- third-party software to calculate the liabilities associated with the provisions of the plan using data, assumptions, and funding methods as specified in our report, and
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to generate the exhibits found in our report.

Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed.

The results presented herewith were prepared solely for the Consolidated Public Retirement Board for the purposes herein stated and may not be appropriate to use for other purposes. Buck does not intend to benefit and assumes no duty or liability to other parties who receive this work. Use of this report for any other purposes or by anyone other than the Consolidated Public Retirement Board and its auditors may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck's prior written consent.

We are Fellows of the Society of Actuaries and Members of the American Academy of Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

Buck Global, LLC (Buck)

David L. Driscoll

David L. Driscoll, FSA, EA, MAAA, FCA
Principal, Consulting Actuary

Elizabeth A. Wiley

Elizabeth A. Wiley, FSA, EA, MAAA, FCA
Senior Consultant, Retirement Actuary



West Virginia Consolidated Public Retirement Board
Actuarial Section
State Police Death, Disability, and Retirement System

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Valuation Date: July 1, 2022

Funding Method and Basis for Assumptions

The valuation is prepared under the Entry Age Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate. Entry is based on date of hire.

Experience studies are performed at least once in every five-year period. This valuation was prepared on the basis of assumptions that were recommended to and adopted by the Board based on the experience study covering the period from July 1, 2015, to June 30, 2020. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised demographic assumptions.

Interest Rate and Expenses

The valuation interest assumption is 7.25% per annum, with no loading for plan expenses.

Pre-Retirement Mortality

The Pub-2010 Safety Employee Mortality Tables, amount-weighted, projected generationally with Scale MP-2020.

Post-Retirement Mortality

Post-retirement mortality tables are as follows:

Healthy Male: 98% of Pub-2010 Safety Retiree Male Table, median, amount-weighted, projected generationally with Scale MP-2020.

Healthy Female: 99% of Pub-2010 Safety Retiree Female Table, median, amount-weighted, projected generationally with Scale MP-2020.

Disabled Male: 124% of Pub-2010 Safety Disabled Male Table, amount-weighted, projected generationally with Scale MP-2020.

Disabled Female: 100% of Pub-2010 Safety Disabled Female Table, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Male: * 111% of Pub-2010 Contingent Survivor Male Table, median, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Female: * 109% of Pub-2010 Contingent Survivor Female Table, median, amount-weighted, projected generationally with Scale MP-2020.

* The credibility-weighted Pub-2010 Contingent Survivor mortality tables are also applied to spouses and designated beneficiaries while the member is alive.

Salary Scales

The valuation results reflect the \$10,000 annual pay increase effective July 1, 2022 for all active members of Plan A. This flat-dollar increase was used in the valuation in place of the assumed salary scale for FY 2023.

Compensation is assumed to increase 4.00% per year. The inflation rate is 2.75%.

West Virginia Consolidated Public Retirement Board
Actuarial Section
State Police Death, Disability, and Retirement System

Withdrawal from Service

Withdrawal rates cease once an employee is eligible for normal retirement. A sample of withdrawal rates follows:

Age	Rate of Withdrawal
20	0.0267
30	0.0190
40	0.0114
50	0.0038

Disablement Rates

A sample of disablement rates, which cease once an employee is eligible for normal retirement, are as follows:

Age	Rate of Disablement	Type of Disability	Probability
30	0.0012	Duty-Related Full	0.25
40	0.0031	Duty-Related Partial	0.60
50	0.0040	Nonduty- Related	0.15
60	0.0040		

Family Composition

It is assumed that 90% of all members are married, with husbands 3 years older than their wives. Re-marriage rates are not used.

Accrual of Future Service

Active members are assumed to accrue 1 year of service for each future year of employment.

Non-Contributory Service

At retirement, a member is assumed to be granted 1.25 additional year of service for benefits due to allowable military service, plus three additional years for unused annual leave and/or unused sick leave for a total of 4.25 additional years.

Retirement Rates

87.5% of members are assumed to retire when first eligible for unreduced benefits at the earlier of age 50 and 20 years of service or any age and 25 years of service. An active member who has already attained eligibility for normal retirement has a 25% probability of retiring each year thereafter with 100% retiring on or after attainment of age 55.

Asset Valuation Method

Assets for valuation purposes are included at Market Value.

Plan Contributions

Both employee and employer contributions are assumed to be paid in the middle of the year.

West Virginia Consolidated Public Retirement Board

Actuarial Section

State Police Death, Disability, and Retirement System

Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Change in Average Pay	Number of Employers
6/30/2022	3	\$ 163,000	\$ 54,333	-2.1%	1
6/30/2021	4	222,000	55,500	1.4%	1
6/30/2020	4	219,000	54,750	-14.0%	1
6/30/2019	6	382,000	63,667	-6.8%	1
6/30/2018	20	1,366,000	68,300	14.6%	1
6/30/2017	39	2,325,000	59,615	-16.1%	1
6/30/2016	42	2,985,000	71,071	8.0%	1
6/30/2015	52	3,422,000	65,808	0.8%	1
6/30/2014	74	4,829,000	65,257	7.9%	1
6/30/2013	99	5,988,000	60,485	-3.6%	1

Schedule of Funding Progress (in thousands)

Valuation Date	Actuarial Accrued			(UAAL) (b-a)	Funded Ratio (a/b)	UAAL as a % of Covered Payroll	
	Actuarial Value of Assets (a)		Entry Age (b)			Covered Payroll (c)	
	(\$)	(\$)	(\$)			(\$)	(\$)
7/1/2022	\$ 767,205	\$ 806,356	\$ 39,151	95.1%	\$ 163	240	19.0%
7/1/2021	851,533	802,679	(48,854)	106.1%	222	-220	6.3%
7/1/2020	675,604	773,120	97,516	87.4%	219	445	27.9%
7/1/2019	689,820	767,118	77,298	89.9%	382	202	35.1%
7/1/2018	682,803	754,969	72,166	90.4%	1,366	528	3.0%
7/1/2017	641,748	739,828	98,080	86.7%	2,325	421	8.5%
7/1/2016	578,798	729,051	150,253	79.4%	2,985	503	3.6%
7/1/2015	607,339	717,362	110,023	84.7%	3,422	321	5.2%
7/1/2014	601,077	698,400	97,323	86.1%	4,829	201	5.4%
7/1/2013	520,322	679,931	159,609	76.5%	5,988	266	5.5%

Solvency Test

Valuation Date	(1)			(2)			(3)			% of Accrued Liabilities Covered by Valuation Assets		
	Active Member Contributions		Terms, Retirees, and Beneficiaries		Active Members (Employer Financed Portion)		Valuation of Assets		(1)	(2)	(3)	
	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)
6/30/2022	\$ 733,843	\$ 801,482,000	\$ 4,140,157	\$ 767,205,000	100.0%	100.0%	845.6%					
6/30/2021	912,484	796,522,000	5,244,516	851,533,000	100.0%	100.0%	1031.5%					
6/30/2020	847,409	767,477,000	4,795,591	675,604,000	100.0%	87.9%	0.0%					
6/30/2019	1,186,240	759,154,000	6,777,760	689,820,000	100.0%	90.7%	0.0%					
6/30/2018	3,440,152	731,985,000	19,543,848	682,803,000	100.0%	92.8%	0.0%					
6/30/2017	6,305,033	695,522,000	38,000,967	641,748,000	100.0%	91.4%	0.0%					
6/30/2016	6,239,309	687,180,000	35,631,691	578,798,000	100.0%	83.3%	0.0%					
6/30/2015	6,964,607	669,771,000	40,626,393	607,339,000	100.0%	89.6%	0.0%					
6/30/2014	9,379,242	634,008,000	55,012,758	601,077,000	100.0%	93.3%	0.0%					
6/30/2013	11,913,004	595,963,000	72,054,996	520,322,000	100.0%	85.3%	0.0%					

West Virginia Consolidated Public Retirement Board
Actuarial Section
State Police Death, Disability, and Retirement System

Schedule of Retirees and Beneficiaries Added and Removed

Fiscal Year Ended	Added		Removed		Year End		% Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
2022	13	\$ 1,989,422	(22)	\$ 780,811	743	\$ 51,437,834	2.4%	\$ 69,230
2021	8	1,602,717	(15)	598,560	752	50,229,223	2.0%	66,794
2020	13	2,260,665	(19)	586,695	759	49,225,066	3.5%	64,855
2019	25	2,619,144	(19)	596,854	765	47,551,096	4.4%	62,158
2018	27	2,811,688	(12)	608,065	759	45,528,806	5.1%	59,985
2017	15	1,626,683	(18)	271,233	744	43,325,183	3.2%	58,233
2016	23	877,188	(22)	877,888	747	41,969,733	0.0%	56,184
2015	35	2,346,469	(14)	739,302	746	41,970,433	6.7%	56,261
2014	34	1,921,276	(14)	435,906	725	39,349,335	7.5%	54,275
2013	16	1,089,846	(21)	751,139	705	36,589,971	3.7%	51,901

Changes in Unfunded Actuarial Liability

Funding in Excess of Actuarial Liability, June 30, 2021	\$ (48,854,000)
Interest	(4,171,000)
Normal cost	97,000
Contributions	(17,868,000)
Assumption changes	-
Liability (Gain)/Loss	(1,342,000)
Actuarial Asset (Gain)/Loss	111,289,000
Unfunded Actuarial Liability, June 30, 2022	\$ 39,151,000

Schedule of Contributions

The Schedule of Contributions is included in the Required Supplementary Information provided in the Financial Section of this Annual Comprehensive Financial Report.

Plan Provisions

A discussion of plan provisions is included in Note 2 to the financial statements included in the Financial Section.

110 W. Berry Street
Suite 1300

Fort Wayne, IN 46802

December 18, 2023

West Virginia Consolidated Public Retirement Board
West Virginia State Police Retirement System
601 57th Street SE, Suite 5
Charleston, WV 25304

Dear Board Members,

We performed the annual actuarial valuation of the West Virginia State Police Retirement System (Plan B) as of July 1, 2022. The purpose of the actuarial valuation is to determine the actuarial liabilities of the System for funding purposes and to determine whether expected contributions will be sufficient to fulfill the System's long-term funding policy.

The valuation was based on membership data as of June 30, 2022, maintained by the West Virginia Consolidated Public Retirement Board, and financial information received from the West Virginia Investment Management Board. Buck reviewed the data for reasonableness and consistency with data provided for prior valuations but did not audit the data. The accuracy of the results of the valuation is dependent on the accuracy of the data.

The tables presented for Plan B in the actuarial section of this Annual Comprehensive Financial Report are based on information contained in our July 1, 2022, valuation report dated March 31, 2023. These tables include:

Actuarial Section

- Summary of Actuarial Methods and Assumptions
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Solvency Test
- Schedule of Retirees and Beneficiaries Added and Removed
- Changes in Unfunded Actuarial Liability

Financial Section

- Schedules of Contributions

All schedules in the Actuarial Section above were completed by the West Virginia Consolidated Public Retirement Board. Buck has reviewed these schedules for accuracy and consistency with the information provided in our July 1, 2022, valuation report.

The report presents fairly the actuarial position of Plan B as of July 1, 2022, in accordance with Actuarial Standards of Practice (ASOP) applied on a basis consistent with that of the preceding valuation. In our opinion, the

assumptions used in preparing the liabilities and costs are individually reasonable with respect to Plan B experience and represent our best estimate of anticipated future experience of Plan B. The assumptions were developed in accordance with the guidance set forth in applicable Actuarial Standards of Practice, including ASOPs 27 and 35. The mortality assumptions were developed in accordance with the recommendation that an appropriate margin for future improvement in mortality beyond the measurement date be included.

Future actuarial measurements may differ significantly from current measurements due to system experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in system provisions, or applicable law or regulations. An analysis of the potential range of such future differences was beyond the scope of the valuation.

Where presented, the “funded ratio” and “unfunded accrued liability” are typically measured using the actuarial value of assets. Use of the market value of assets instead would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but does not represent the funded status of the plan if the plan were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities.

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses the following:

- third-party software to calculate the liabilities associated with the provisions of the plan using data, assumptions, and funding methods as specified in our report, and
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to generate the exhibits found in our report.

Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed.

The results presented herewith were prepared solely for the Consolidated Public Retirement Board for the purposes herein stated and may not be appropriate to use for other purposes. Buck does not intend to benefit and assumes no duty or liability to other parties who receive this work. Use of this report for any other purposes or by anyone other than the Consolidated Public Retirement Board and its auditors may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck's prior written consent.

We are Fellows of the Society of Actuaries and Members of the American Academy of Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

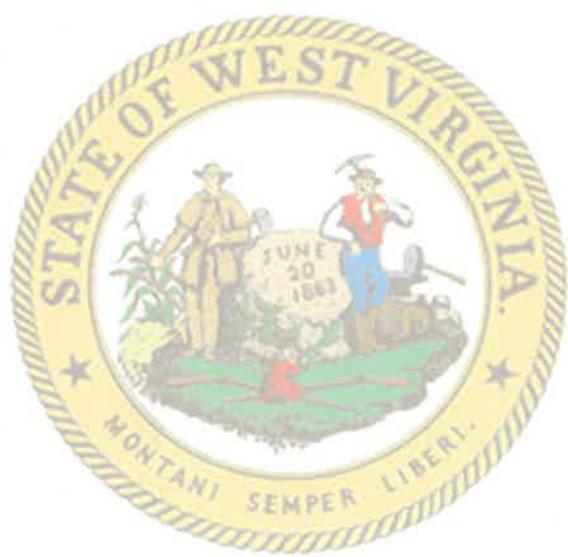
Buck Global, LLC (Buck)

David L. Driscoll

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Principal, Consulting Actuary

Elizabeth A. Wiley

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Senior Consultant, Retirement Actuary



West Virginia Consolidated Public Retirement Board
Actuarial Section
State Police Retirement System

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Valuation Date: July 1, 2022

Funding Method and Basis for Assumptions

The valuation is prepared under the Entry Age Normal Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate. Entry age is based on date of hire.

Experience studies are performed at least once in every five-year period. This valuation was prepared on the basis of assumptions that were recommended to and adopted by the Board based on an experience study covering the period from July 1, 2015, to June 30, 2020. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised demographic assumptions.

Interest Rate and Expenses

The valuation interest assumption is 7.25% per annum, with no loading for plan expenses.

Pre-Retirement Mortality

Pub-2010 Safety Employee Mortality Tables, amount-weighted, projected generationally with Scale MP-2020.

Post-Retirement Mortality

Post-retirement mortality tables are as follows:

Healthy Male: 98% of Pub-2010 Safety Retiree Male Table, median, amount-weighted, projected generationally with Scale MP-2020.

Healthy Female: 99% of Pub-2010 Safety Retiree Female Table, median, amount-weighted, projected generationally with Scale MP-2020.

Disabled Male: 124% of Pub-2010 Safety Disabled Male Table, amount-weighted, projected generationally with Scale MP-2020.

Disabled Female: 100% of Pub-2010 Safety Disabled Female Table, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Male: * 111% of Pub-2010 Contingent Survivor Male Table, median, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Female: * 109% of Pub-2010 Contingent Survivor Female Table, median, amount-weighted, projected generationally with Scale MP-2020.

* The credibility-weighted Pub-2010 Contingent Survivor mortality tables are also applied to spouses and designated beneficiaries while the member is alive.

Salary Scales

The valuation results reflect the \$10,000 annual pay increase effective July 1, 2022 for all active members of Plan A. This flat-dollar increase was used in the valuation in place of the assumed salary scale for FY 2023. Compensation is assumed to increase 4.00% per year service. The inflation rate is 2.75%.

Withdrawal from Service

Withdrawal rates cease once an employee is eligible for normal retirement. A sample of withdrawal rates follows:

Age	Rate of Withdrawal
20	0.0684
30	0.0488
40	0.0216
50	0.0096

West Virginia Consolidated Public Retirement Board
Actuarial Section
State Police Retirement System

Disablement Rates

No disablements are assumed to occur after the later of age 55 and the age first eligible for retirement. A sample of disablement rates follows:

Age	Rate of Disablement	Type of Disability	Probability
30	0.0012	Duty-Related Full	0.25
40	0.0031	Duty-Related Partial	0.60
50	0.0040	Nonduty Related	0.15
60	0.0040		

Family Composition

It is assumed that 90% of members are married, with husbands 3 years older than their wives. Remarriage rates are not used.

Accrual of Future Service

It is assumed that active members will accrue one year of service for each future year of employment.

Non-Contributory Service

At retirement, a member is assumed to be granted 1.25 additional year of service for benefits due to allowable military service. Members hired before July 1, 2015, are also assumed to be granted three additional years for unused annual leave and/or unused sick leave for a total of 4.25 additional years.

Retirement Rates

60% of members are assumed to retire when first eligible for unreduced benefits at the earlier of age 50 and 25 years of service or age 52 and 20 years of service. An active member who has already attained eligibility for normal retirement has a 20% probability of retiring each year thereafter with 100% retiring on or after attainment of age 55.

Asset Valuation Method

Assets for valuation purposes are included at Market Value.

Plan Contributions

Plan Contributions, both employee and employer, are assumed to be paid in the middle of the year.

West Virginia Consolidated Public Retirement Board
Actuarial Section
State Police Retirement System

Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Change in Average Pay	Number of Employers
6/30/2022	590	\$ 38,809,000	\$ 65,778	13.5%	1
6/30/2021	606	35,120,000	57,954	3.8%	1
6/30/2020	626	34,946,000	55,824	0.9%	1
6/30/2019	613	33,904,000	55,308	1.9%	1
6/30/2018	570	30,938,000	54,277	0.0%	1
6/30/2017	595	32,291,000	54,271	5.2%	1
6/30/2016	611	31,530,000	51,604	1.4%	1
6/30/2015	625	31,792,000	50,867	2.7%	1
6/30/2014	597	29,574,000	49,538	-0.2%	1
6/30/2013	558	27,701,000	49,643	1.5%	1

Schedule of Funding Progress (in thousands)

Valuation Date	Actuarial Accrued			UAAL as a % of		
	Actuarial Value of Assets		Liability (AAL)	Unfunded AAL (UAAL)	Covered Payroll	Covered Payroll
	(a)	(b)	(b-a)	(a/b)	(c)	((b-a)/c)
7/1/2022	\$ 289,303	\$ 334,828	\$ 45,525	86.4%	\$ 38,809	117.3%
7/1/2021	301,158	289,745	(11,413)	103.9%	\$ 35,120	-32.5%
7/1/2020	220,565	249,612	29,047	88.4%	34,946	83.1%
7/1/2019	207,102	225,630	18,528	91.8%	33,904	54.6%
7/1/2018	188,915	185,641	(3,274)	101.8%	30,938	-10.6%
7/1/2017	166,688	169,890	3,202	98.1%	32,291	9.9%
7/1/2016	138,569	145,326	6,757	95.4%	31,530	21.4%
7/1/2015	131,678	130,132	(1,546)	101.2%	31,792	-4.9%
7/1/2014	120,572	114,314	(6,258)	105.5%	29,574	-21.2%
7/1/2013	96,092	101,503	5,411	94.7%	27,701	19.5%

Solvency Test

Valuation Date	(1)			(2)			(3)			% of Accrued Liabilities Covered by Valuation Assets		
	Active Member Contributions			Terms, Retirees, and Beneficiaries			Active Members (Employer Financed Portion)			Valuation of Assets		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
6/30/2022	\$ 64,768,809	\$ 85,942,000	\$ 184,117,191	\$ 289,303,000	100.0%	100.0%	75.3%					
6/30/2021	63,724,695	65,870,000	160,150,305	301,158,000	100.0%	100.0%	107.1%					
6/30/2020	64,167,341	37,282,000	148,162,659	220,565,000	100.0%	100.0%	80.4%					
6/30/2019	60,679,470	26,652,000	138,298,530	207,102,000	100.0%	100.0%	86.6%					
6/30/2018	56,534,849	20,289,000	108,817,151	188,915,000	100.0%	100.0%	103.1%					
6/30/2017	52,882,128	16,048,000	100,959,872	166,688,000	100.0%	100.0%	96.8%					
6/30/2016	48,209,092	13,601,000	83,515,908	138,565,000	100.0%	100.0%	91.9%					
6/30/2015	43,690,814	11,150,000	75,291,186	131,678,000	100.0%	100.0%	102.1%					
6/30/2014	39,362,809	9,768,000	65,188,191	120,572,000	100.0%	100.0%	109.6%					
6/30/2013	34,875,692	8,776,000	57,851,308	96,092,000	100.0%	100.0%	90.6%					

West Virginia Consolidated Public Retirement Board
Actuarial Section
State Police Retirement System

Schedule of Retirees and Beneficiaries Added and Removed

Fiscal Year Ended	Added		Removed		Year End		% Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
2022	25	\$ 1,989,685	-	\$ -	119	\$ 5,291,123	60.3%	\$ 44,463
2021	35	1,161,284	-	-	94	3,301,438	54.3%	35,122
2020	19	667,829	-	-	59	2,140,154	45.4%	36,274
2019	7	286,245	-	-	40	1,472,325	24.1%	36,808
2018	7	280,891	(1)	51,831	33	1,186,080	23.9%	35,942
2017	4	189,448	(1)	43,640	27	957,020	18.0%	35,445
2016	4	171,345	(1)	30,260	24	811,212	11.3%	33,801
2015	2	87,512	-	-	21	729,127	15.4%	34,720
2014	-	-	-	-	19	632,053	7.0%	33,266
2013	2	94,333	(1)	30,101	19	590,653	15.3%	31,087

Changes in Unfunded Actuarial Liability

Funded in Excess of Actuarial Liability, June 30, 2021	\$ (11,413,000)
Interest	(620,000)
Normal cost	9,651,000
Contributions	(13,823,000)
Assumption changes	-
Liability (Gain)/Loss	19,674,000
Actuarial Asset (Gain)/Loss	42,056,000
Unfunded Actuarial Liability, June 30, 2022.	\$ 45,525,000

Schedule of Contributions

The Schedule of Contributions is included in the Required Supplementary Information provided in the Financial Section of this Annual Comprehensive Financial Report.

Plan Provisions

A discussion of plan provisions is included in Note 2 to the financial statements included in the Financial Section.



Consolidated Public Retirement Board



601 57th Street SE, Suite 5

Charleston, West Virginia 25304

Telephone: 304-558-3570 or 800-654-4406

Fax: 304-957-7522

Email: cprb@wv.gov

www.wvretirement.com

EXECUTIVE DIRECTOR

Jeffrey E. Fleck

BOARD CHAIRMAN

Joseph G. Bunn

December 18, 2023

West Virginia Consolidated Public Retirement Board
West Virginia Deputy Sheriffs' Retirement System
601 57th Street SE, Suite 5
Charleston, WV 25304

Dear Board Members:

We performed the annual actuarial valuation of the West Virginia Deputy Sheriffs' Retirement System (DSRS) as of July 1, 2022. The purpose of the actuarial valuation is to determine the actuarial liabilities of the System for funding purposes and to determine whether expected contributions will be sufficient to fulfill the System's long-term funding policy.

The valuation was based on membership data as of June 30, 2022, maintained by the West Virginia Consolidated Public Retirement Board, and financial information received from the West Virginia Investment Management Board. Census and financial data were not audited by the West Virginia Consolidated Public Retirement Board but were reviewed for consistency. The accuracy of the results of the valuation is dependent on the accuracy of the data.

The tables presented for DSRS in the actuarial section of this Annual Comprehensive Financial Report are based on information contained in our July 1, 2022, valuation report dated April 2023. These tables include:

Actuarial Section

- Summary of Actuarial Methods and Assumptions
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Solvency Test
- Schedule of Retirees and Beneficiaries Added and Removed
- Changes in Unfunded Actuarial Liability

Financial Section

- Schedules of Contributions

All schedules in the Actuarial Section above were completed by the West Virginia Consolidated Public Retirement Board. The CPRB has reviewed these schedules for accuracy and consistency with the information provided in our July 1, 2022, valuation report.

This report presents fairly the actuarial position of DSRS as of July 1, 2022, in accordance with Actuarial Standards of Practice (ASOP) applied on a basis consistent with that of the preceding valuation. In my opinion, the assumptions used in preparing the liabilities and costs are individually reasonable with respect to DSRS experience and represent my best estimate of anticipated future experience of DSRS.

The assumptions were developed in accordance with the guidance set forth in applicable Actuarial Standards of Practice, including ASOPs 27 and 35. In particular, the mortality assumptions were developed in accordance with the recommendation that an appropriate margin for future improvement in mortality beyond the measurement date be included.

Future actuarial measurements may differ significantly from current measurements due to system experience differing from that anticipated by the economic and demographic assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in system provisions, or applicable law or regulations. An analysis of the potential range of such future differences was beyond the scope of the valuation.

Where presented, the “funded ratio” and “unfunded accrued liability” are typically measured using the actuarial value of assets. It should be noted that use of the market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratios presented are appropriate for evaluating the need and level of future contributions but make no assessment of the funded status of the plan if it were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities.

Actuarial Standard of Practice No. 56 (“ASOP 56”) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. The CPRB uses the following:

- third-party software to calculate the liabilities associated with the provisions of the plan using data, assumptions and funding methods as specified in our report.
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to generate the exhibits found in our report.

The CPRB has an extensive review process whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability and consistency with prior results. The CPRB also reviews the third-party model when significant changes are made to the software or model. The review is performed by the CPRB Board Actuary who is familiar with applicable funding methods as well as the manner in which the model generates its output.

The results presented herewith were prepared solely by the West Virginia Consolidated Public Retirement Board for the purposes herein stated and may not be appropriate to use for other purposes. Use of this report for any other purposes or by anyone other than the West Virginia Consolidated Public Retirement Board and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. No one may make any representations or warranties based on any statements or conclusions contained in this report without prior written consent of the CPRB Board Actuary.

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions about it.

Respectfully,

Kenneth M. Woodson Jr.

Kenneth M. Woodson Jr., FSA, MAAA, Ph.D.

CPRB Board Actuary



West Virginia Consolidated Public Retirement Board
Actuarial Section
Deputy Sheriff Retirement System

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Valuation Date: July 1, 2022

Funding Method and Basis of Assumptions

The valuation is prepared under the Entry Age Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate.

Experience studies are performed at least once in every five-year period. This valuation was prepared on the basis of assumptions that were recommended to and adopted by the Board based on an experience study covering the period from July 1, 2015, to June 30, 2020. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised assumptions.

Interest Return and Expenses

The interest rate assumption is 7.25% annually, net of investment and administrative expenses. The rate is applied to the interest return on Trust Fund assets as well as the discount rate on future expected benefit payments.

Salary Scale

An annual salary increase rate of 5.25% in each of the first two years of service, decreasing to 4.75% for years three through five, 4.25% for years six through ten years and 3.75% for all years of service in excess of the first ten years.

Pre-Retirement Mortality

100% of Pub-2010 Safety Employee Mortality Tables, median, amount-weighted, projected generationally with Scale MP-2020.

Post-Retirement Mortality

Post-retirement mortality tables are as follows:

Healthy Male: 98% of Pub-2010 Safety Retiree Male Table, median, amount-weighted, projected generationally with Scale MP-2020.

Healthy Female: 99% of Pub-2010 Safety Retiree Female Table, median, amount-weighted, projected generationally with Scale MP-2020.

Disabled Male: 124% of Pub-2010 Safety Disabled Male Table, amount-weighted, projected generationally with Scale MP-2020.

Disabled Female: 100% of Pub-2010 Safety Disabled Female Table, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Male: 111% of Pub-2010 Contingent Survivor Male Table, median, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Female: 109% of Pub-2010 Contingent Survivor Female Table, median, amount-weighted, projected generationally with Scale MP-2020.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Deputy Sheriff Retirement System

Withdrawal Rates

Withdrawal rates predict termination of employment prior to unreduced retirement eligibility. A sample of withdrawal rates by age are:

Age	Rate of Withdrawal
30	0.0880
40	0.0528
50+	0.0500

Disability Rates

Disability rates predict an active member becoming disabled prior to unreduced retirement eligibility. A sample of disability rates by age are:

Age	Rate of Disablement
30	0.0012
40	0.0031
50+	0.0040

Disability Rates - Type of Disability

It is assumed that members eligible for unreduced retirement will elect retirement prior to becoming disabled. It is also assumed that retired members will not become disabled following retirement due to duty related causes incurred prior to retirement.

Disability retirement benefits vary by type of disability. Disability retirements are assumed to break down in the following types:

Duty Related Full Disability	50%
Duty Related Partial Disability	25%
Non-Duty Full Disability	20%
Non-Duty Partial Disability	5%

Family Composition

It is assumed that 90% of members are married, with husbands 3 years older than their wives. Remarriage rates are not used.

Accrual of Future Service

Employment as a deputy sheriff is considered a full-time professional position. All active members are assumed to complete sufficient hours to accrue one year of service in each future year of employment.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Deputy Sheriff Retirement System

Non-Contributory Service Credits for Military Service and Unused Leave at Retirement

At Normal or Early retirement, a member is assumed to be granted 1 additional year of service for benefits due to allowable military service, plus 2 additional years for unused annual leave and/or unused sick leave for a total of 3 additional years.

Retirement Rates

Members who become eligible for unreduced retirement benefits are assumed to have a 16% probability of retiring each year through age 59, with 20% assumed to retire each year through age 64. On or after age at 65, 100% of members are assumed to retire.

Asset Valuation Method

Four-year 25% level smoothing of actuarial gain or (loss) on trust fund return:

- Implemented over 4 years, prospectively commencing July 1, 2020 for the experience for the trust year ending June 30, 2020.
- Actuarial gain or (loss) on assets is calculated as the difference between the expected return under valuation assumptions based on the smoothed Actuarial Value of Assets and the actual trust fund return.
- Actuarial gain or (loss) is recognized at 25% of the original amount each year until fully recognized in the fourth year.
- Total accumulated deferred gain or (loss) amounts are used to adjust the reported Market Value of Assets to determine the Actuarial Value of Assets.

Plan Contributions

Member and employer contributions are calculated as a percentage of total members' payroll. For interest calculation purposes, all amounts are treated as being deposited on an average of half-way through the Plan year.

Fee Contributions under Section 7-14E-2

A portion of fees generated by each sheriff department for reports are contributed to the DSRS Trust Fund. Fees are deposited throughout the year. For interest calculation purposes they are treated as being deposited on an average of half-way through the Plan year.

Fees are estimated based upon historical amounts contributed to the Trust Fund. For the purposes of analyzing the adequacy of total funding for DSRS in meeting the DSRS funding target, an average annual fee income of \$425,000 has been assumed to continue in this and all future years.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Deputy Sheriff Retirement System

Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Change in Average Pay	Number of Employers
6/30/2022	1,085	\$ 65,637,000	\$ 60,495	5.4%	55
6/30/2021	1,085	62,284,000	57,405	5.1%	55
6/30/2020	1,086	59,289,000	54,594	2.3%	55
6/30/2019	1,081	57,698,000	53,375	4.4%	55
6/30/2018	1,050	53,676,000	51,120	4.3%	55
6/30/2017	1,018	49,915,000	49,032	0.2%	55
6/30/2016	1,042	51,004,000	48,948	2.1%	55
6/30/2015	1,024	49,081,000	47,931	3.0%	55
6/30/2014	1,002	46,634,000	46,541	2.1%	55
6/30/2013	990	45,106,000	45,562	2.3%	53

Schedule of Funding Progress (in thousands)

Valuation Date	Actuarial Accrued				UAAL as a % of		
	Actuarial Value of Assets		Liability (AAL)	Unfunded AAL (UAAL)	Covered Payroll	Covered Payroll	
	(a)	(b)	(b-a)	(a/b)	(c)	((b-a)/c)	
7/1/2022	\$ 298,002	\$ 337,065	\$ 39,063	88.4%	\$ 65,637	59.5%	
7/1/2021	277,320	316,860	39,540	87.5%	62,284	63.5%	
7/1/2020	247,776	277,817	30,041	89.2%	59,289	50.7%	
7/1/2019	233,659	260,750	27,091	89.6%	57,698	47.0%	
7/1/2018	220,514	239,516	19,002	92.1%	53,676	35.4%	
7/1/2017	200,820	203,293	2,473	98.8%	49,915	5.0%	
7/1/2016	172,626	195,681	23,055	88.2%	51,004	45.2%	
7/1/2015	171,358	188,243	16,885	91.0%	49,081	34.4%	
7/1/2014	162,748	180,677	17,929	90.1%	46,634	38.4%	
7/1/2013	135,756	169,260	33,504	80.2%	45,106	74.3%	

Solvency Test

Valuation Date	Active Members				% of Accrued Liabilities Covered by Valuation Assets				
	(1) Active Member Contributions		(2) Terms, Retirees, and Beneficiaries		(3) Employer Financed Portion	Valuation of Assets	(1)	(2)	(3)
6/30/2022	\$ 58,431,244	\$ 175,985,000	\$ 102,648,756	\$ 298,002,000		100.0%	100.0%	62.0%	
6/30/2021	55,903,424	165,153,000	95,803,576	277,320,000		100.0%	100.0%	58.7%	
6/30/2020	54,371,378	140,698,000	82,747,622	247,776,000		100.0%	100.0%	63.7%	
6/30/2019	50,450,775	132,668,000	77,631,225	233,659,000		100.0%	100.0%	65.1%	
6/30/2018	47,847,056	122,551,000	69,117,944	220,514,000		100.0%	100.0%	72.5%	
6/30/2017	44,861,806	106,203,000	52,228,194	200,820,000		100.0%	100.0%	95.3%	
6/30/2016	42,061,818	96,344,000	57,275,182	172,626,000		100.0%	100.0%	59.7%	
6/30/2015	38,786,095	87,709,000	61,747,905	171,358,000		100.0%	100.0%	72.7%	
6/30/2014	36,727,472	84,203,000	59,746,528	162,748,000		100.0%	100.0%	70.0%	
6/30/2013	34,909,631	77,437,000	56,913,369	135,756,000		100.0%	100.0%	41.1%	

West Virginia Consolidated Public Retirement Board
Actuarial Section
Deputy Sheriff Retirement System

Schedule of Retirees and Beneficiaries Added and Removed

Added		Removed		Year End		% Increase in	Average
Fiscal Year Ended	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Annual Allowances
2022	37	\$ 1,391,800	(14)	\$ 274,342	517	\$ 14,483,499	8.4% \$ 28,015
2021	48	1,736,605	(10)	630,829	494	13,366,041	9.0% 27,057
2020	30	1,085,378	(6)	164,861	456	12,260,265	8.1% 26,887
2019	35	1,791,272	(6)	63,273	432	11,339,748	18.0% 26,249
2018	22	702,906	(2)	47,862	403	9,611,749	7.3% 23,850
2017	45	905,155	(5)	120,872	383	8,956,705	9.6% 23,386
2016	12	425,742	(8)	170,848	343	8,172,422	3.2% 23,826
2015	31	914,923	(9)	194,873	339	7,917,528	10.5% 23,356
2014	26	853,364	(8)	149,532	317	7,168,032	8.3% 22,612
2013	28	784,788	(12)	204,814	299	6,616,848	7.7% 22,130

Changes in Unfunded Actuarial Liability

Unfunded Actuarial Liability, June 30, 2021	\$ 39,540,000
Interest	3,036,000
Normal cost	9,305,000
Contributions	(14,193,000)
Assumption changes	-
Liability (Gain)/Loss	3,276,000
Actuarial Asset (Gain)/Loss	(1,901,000)
Unfunded Actuarial Liability, June 30, 2022	\$ 39,063,000

Schedule of Contributions

The Schedule of Contributions is included in the Required Supplementary Information provided in the Financial Section of this Annual Comprehensive Financial Report.

Plan Provisions

A discussion of plan provisions is included in Note 2 to the financial statements included in the Financial Section.





110 W. Berry Street

Suite 1300

Fort Wayne, IN 46802

December 18, 2023

West Virginia Consolidated Public Retirement Board
West Virginia Judges' Retirement System
601 57th Street SE, Suite 5
Charleston, WV 25304

Dear Board Members,

We performed the annual actuarial valuation of the West Virginia Judges' Retirement System (JRS) as of July 1, 2022. The purpose of the actuarial valuation is to determine the actuarial liabilities of the System for funding purposes and to determine whether expected contributions will be sufficient to fulfill the System's long-term funding policy.

The valuation was based on membership data as of June 30, 2022, maintained by the West Virginia Consolidated Public Retirement Board, and financial information received from the West Virginia Investment Management Board. Buck reviewed the data for reasonableness and consistency with data provided for prior valuations but did not audit the data. The accuracy of the results of the valuation is dependent on the accuracy of the data.

The tables presented for JRS in the actuarial section of this Annual Comprehensive Financial Report are based on information contained in our July 1, 2022, valuation report dated March 31, 2023. These tables include:

Actuarial Section

- Summary of Actuarial Methods and Assumptions
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Solvency Test
- Schedule of Retirees and Beneficiaries Added and Removed
- Changes in Unfunded Actuarial Liability

Financial Section

- Schedules of Contributions

All schedules in the Actuarial Section above were completed by the West Virginia Consolidated Public Retirement Board. Buck has reviewed these schedules for accuracy and consistency with the information provided in our July 1, 2022, valuation report.

The report presents fairly the actuarial position of JRS as of July 1, 2022, in accordance with Actuarial Standards of Practice (ASOP) applied on a basis consistent with that of the preceding valuation. In our opinion, the assumptions used in preparing the liabilities and costs are individually reasonable with respect to JRS experience and represent our best estimate of anticipated future experience of JRS. The assumptions were developed in accordance with the guidance set forth in applicable Actuarial Standards of Practice, including ASOPs 27 and 35. The mortality assumptions were developed in accordance with the recommendation that an appropriate margin for future improvement in mortality beyond the measurement date be included.

Future actuarial measurements may differ significantly from current measurements due to system experience differing from that anticipated by the actuarial assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in system provisions, or applicable law or regulations. An analysis of the potential range of such future differences was beyond the scope of the valuation.

Where presented, the “funded ratio” and “unfunded accrued liability” are typically measured using the actuarial value of assets. Use of the market value of assets instead would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but does not represent the funded status of the plan if the plan were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities.

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses the following:

- third-party software to calculate the liabilities associated with the provisions of the plan using data, assumptions, and funding methods as specified in our report, and
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to generate the exhibits found in our report.

Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed.

The results presented herewith were prepared solely for the Consolidated Public Retirement Board for the purposes herein stated and may not be appropriate to use for other purposes. Buck does not intend to benefit and assumes no duty or liability to other parties who receive this work. Use of this report for any other purposes or by anyone other than the Consolidated Public Retirement Board and its auditors may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck's prior written consent.

We are Fellows of the Society of Actuaries and Members of the American Academy of Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.

Buck Global, LLC (Buck)

David L. Driscoll

David L. Driscoll, FSA, EA, MAAA, FCA
Principal, Consulting Actuary

Elizabeth A. Wiley

Elizabeth A. Wiley, FSA, EA, MAAA, FCA
Senior Consultant, Retirement Actuary



West Virginia Consolidated Public Retirement Board
Actuarial Section
Judges' Retirement System

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Valuation Date: July 1, 2022

Funding Method and Basis for Assumptions

The valuation is prepared under the Entry Age Normal Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate. Entry is based on date of hire. Active liabilities include amounts calculated for judges currently participating in the Public Employees' Retirement System (PERS) who may in the future transfer into the Judges' Retirement System (JRS) with an adjustment for the anticipated transfer of required member contributions.

Experience studies are performed at least once in every five-year period. This valuation was prepared on the basis of assumptions that were recommended to and adopted by the Board based on the 2021 Assumption Review, which covered the period from July 1, 2015, to June 30, 2020. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised assumptions.

Interest Rate and Expenses

The valuation interest assumption is 7.25% per annum, with no loading for plan expenses.

Salary Scale

In accordance with West Virginia Senate Bill 597, salary is assumed to increase by 5.00% effective July 1, 2021 and 4.76% effective on July 1, 2022. Salary is assumed to increase 4.25% annually thereafter. The most recent pay increase prior to July 1, 2021, occurred on July 1, 2011.

Automatic Cost-of-Living Increases to Pensions

Pensions for judges appointed or elected prior to July 2, 2005 are assumed to increase at the same time as active salaries increase, and by the same percentage.

Pre-Retirement Mortality

No pre-retirement mortality is assumed due to the small number of active members.

Post-Retirement Mortality

Post-retirement mortality tables are as follows:

Healthy Male: 100% of Pub-2010 General Retiree Male Table, above-median, amount-weighted, projected generationally with Scale MP-2020.

Healthy Female: 100% of Pub-2010 General Retiree Female Table, above-median, amount-weighted, projected generationally with Scale MP-2020.

Disabled Male: 100% of Pub-2010 General/Teacher Disabled Male Table, amount-weighted, projected generationally with Scale MP-2020.

Disabled Female: 100% of Pub-2010 General/Teacher Disabled Female Table, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Male: 100% of Pub-2010 Contingent Survivor Male Table, above-median, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Female: 100% of Pub-2010 Contingent Survivor Female Table, above-median, amount-weighted, projected generationally with Scale MP-2020.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Judges' Retirement System

Withdrawal from Service

No withdrawal is assumed due to the small number of active members.

Retirement Rates and Service

For those eligible to retire prior to age 65, 5% are assumed to retire each year through age 64 with 100% retiring at age 65. For those first eligible at age 65 or later, 100% are assumed to retire when they become eligible.

Disability

No disablement is assumed due to the small number of active members.

Transfers from PERS

It is assumed that all judges in PERS who earn sufficient service to vest under JRS will join JRS. Liabilities for potential transfers from PERS are included in this valuation and are calculated as if the judge had always been a member of JRS. Accumulated member contributions under PERS are treated as an offset to plan liabilities for valuation purposes. The shortfall of PERS accumulated member contributions versus the amount they would have contributed under the plan had they always been a participant under JRS is recognized in the development of the normal cost.

Family Composition

All judges are assumed to be married. Where spousal data is not available, it is assumed that male judges are five years older than their spouses and female judges are five years younger than their spouses. Surviving children's benefits were not explicitly valued.

Asset Valuation Method

Assets for valuation purposes are included at Market Value.

Plan Contributions

Plan contributions, both employee and employer, are assumed to be paid in the middle of the year.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Judges' Retirement System

Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Change in Average Pay	Number of Employers
6/30/2022	81	\$ 11,289,000	\$ 139,370	10.0%	1
6/30/2021	79	10,504,000	132,962	5.0%	1
6/30/2020	77	9,752,000	126,649	0.0%	1
6/30/2019	77	9,752,000	126,649	0.0%	1
6/30/2018	74	9,374,000	126,676	0.0%	1
6/30/2017	75	9,500,000	126,667	0.0%	1
6/30/2016	72	9,122,000	126,694	0.0%	1
6/30/2015	70	8,870,000	126,714	0.0%	1
6/30/2014	73	9,248,000	126,685	0.0%	1
6/30/2013	70	8,870,000	126,714	0.1%	1

Schedule of Funding Progress (in thousands)

Valuation Date	Actuarial Accrued					UAAL as a % of Covered Payroll	
	Actuarial Value of Assets	Liability (AAL) Entry Age	Unfunded AAL (UAAL)	Funded Ratio (a/b)	Covered Payroll (c)	Covered Payroll ((b-a)/c)	
(a)	(b)	(b-a)	(a/b)				
7/1/2022	\$ 259,242	\$ 108,251	\$ (150,991)	239.5%	\$ 11,289	-1337.5%	
7/1/2021	280,660	106,682	(173,978)	263.1%	10,504	-1656.3%	
7/1/2020	215,688	98,800	(116,888)	218.3%	9,752	-1198.6%	
7/1/2019	212,653	110,476	(102,177)	192.5%	9,752	-1047.8%	
7/1/2018	204,488	110,215	(94,273)	185.5%	9,374	-1005.7%	
7/1/2017	189,956	108,932	(81,024)	174.4%	9,500	-852.9%	
7/1/2016	167,194	107,774	(59,420)	155.1%	9,122	-651.4%	
7/1/2015	170,152	107,125	(63,027)	158.8%	8,870	-710.6%	
7/1/2014	165,239	106,029	(59,210)	155.8%	9,248	-640.2%	
7/1/2013	141,476	105,739	(35,737)	133.8%	8,870	-402.9%	

Solvency Test

Valuation Date	Active Members					% of Accrued Liabilities Covered by Valuation Assets		
	Terms.		(Employer Financed Portion)			(1)	(2)	(3)
	Active Member Contributions	Retirees, and Beneficiaries	Financed Portion)	Valuation of Assets				
6/30/2022	\$ 5,155,301	\$ 64,789,000	\$ 38,306,699	\$ 259,242,000	100.0%	100.0%	394.2%	
6/30/2021	5,194,918	64,581,000	36,906,082	280,660,000	100.0%	100.0%	571.4%	
6/30/2020	5,174,080	60,657,000	32,968,920	215,688,000	100.0%	100.0%	454.5%	
6/30/2019	5,108,621	68,734,000	36,633,379	212,653,000	100.0%	100.0%	378.9%	
6/30/2018	6,302,978	62,968,000	40,944,022	204,488,000	100.0%	100.0%	330.3%	
6/30/2017	6,526,575	61,650,000	40,755,425	189,956,000	100.0%	100.0%	298.8%	
6/30/2016	7,481,777	53,847,000	46,445,223	167,194,000	100.0%	100.0%	227.9%	
6/30/2015	7,485,928	53,805,000	45,834,072	170,152,000	100.0%	100.0%	237.5%	
6/30/2014	8,157,052	49,709,000	48,162,948	165,239,000	100.0%	100.0%	222.9%	
6/30/2013	7,823,170	52,408,000	45,507,830	141,476,000	100.0%	100.0%	178.5%	

West Virginia Consolidated Public Retirement Board
Actuarial Section
Judges' Retirement System

Schedule of Retirees and Beneficiaries Added and Removed

Fiscal Year Ended	Added		Removed		Year End			Average		
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Allowances	% Increase in Annual Allowances	Annual Allowances	
2022	1	\$ 456,373	(3)	\$ 218,389	57	\$ 5,045,872		4.9%	\$ 88,524	
2021	1	41,225	(3)	130,167	59	4,807,888		-1.8%	81,490	
2020	3	114,975	(3)	61,567	61	4,896,830		1.1%	80,276	
2019	4	157,012	(1)	78,120	61	4,843,422		1.7%	79,400	
2018	6	378,000	(5)	123,777	58	4,764,530		5.6%	82,147	
2017	7	568,043	(4)	439,783	57	4,510,307		2.9%	79,128	
2016	-	-	(1)	72,573	54	4,382,047		-0.4%	81,149	
2015	2	201,600	-	-	55	4,397,505		4.8%	79,955	
2014	-	-	(4)	289,800	53	4,195,905		-6.0%	79,168	
2013	2	189,000	-	-	57	4,461,705		4.4%	78,276	

Changes in Unfunded Actuarial Liability

Funded in excess of Actuarial Liability, June 30, 2021	\$	(173,978,000)
Interest		(12,470,000)
Normal cost		2,651,000
Contributions		(1,371,000)
Assumption changes		-
Liability (Gain)/Loss		(3,783,000)
Actuarial Asset (Gain)/Loss		37,960,000
 Funded in excess of Actuarial Liability, June 30, 2022	\$	 (150,991,000)

Schedule of Contributions

The Schedule of Contributions is included in the Required Supplementary Information provided in the Financial Section of this Annual Comprehensive Financial Report.

Plan Provisions

A discussion of plan provisions is included in Note 2 to the financial statements included in the Financial Section.



Consolidated Public Retirement Board

601 57th Street SE, Suite 5

Charleston, West Virginia 25304

Telephone: 304-558-3570 or 800-654-4406

Fax: 304-957-7522

Email: cprb@wv.gov

www.wvretirement.com

EXECUTIVE DIRECTOR

Jeffrey E. Fleck



BOARD CHAIRMAN

Joseph G. Bunn

December 18, 2023

West Virginia Consolidated Public Retirement Board
West Virginia Emergency Medical Services Retirement System 601
57th Street SE, Suite 5
Charleston, WV 25304

Dear Board Members:

We performed the annual actuarial valuation of the West Virginia Emergency Medical Services Retirement System (EMSRS) as of July 1, 2022. The purpose of the actuarial valuation is to determine the actuarial liabilities of the System for funding purposes and to determine whether expected contributions will be sufficient to fulfill the System's long-term funding policy.

The valuation was based on membership data as of June 30, 2022, maintained by the West Virginia Consolidated Public Retirement Board, and financial information received from the West Virginia Investment Management Board. Census and financial data were not audited by the West Virginia Consolidated Public Retirement Board but were reviewed for consistency. The accuracy of the results of the valuation is dependent on the accuracy of the data.

The tables presented for EMSRS in the actuarial section of this Annual Comprehensive Financial Report are based on information contained in our July 1, 2022, valuation report dated April 2023. These tables include:

Actuarial Section

- Summary of Actuarial Methods and Assumptions
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Solvency Test
- Schedule of Retirees and Beneficiaries Added and Removed
- Changes in Unfunded Actuarial Liability

Financial Section

- Schedules of Contributions

All schedules in the Actuarial Section above were completed by the West Virginia Consolidated Public Retirement Board. The CPRB has reviewed these schedules for accuracy and consistency with the information provided in our July 1, 2022, valuation report.

This report presents fairly the actuarial position of EMSRS as of July 1, 2022, in accordance with

Actuarial Standards of Practice (ASOP) applied on a basis consistent with that of the preceding valuation. In my opinion, the assumptions used in preparing the liabilities and costs are individually reasonable with respect to EMSRS experience and represent my best estimate of anticipated future experience of EMSRS. The assumptions were developed in accordance with the guidance set forth in applicable Actuarial Standards of Practice, including ASOPs 27 and 35. In particular, the mortality assumptions were developed in accordance with the recommendation that an appropriate margin for future improvement in mortality beyond the measurement date be included.

Future actuarial measurements may differ significantly from current measurements due to system experience differing from that anticipated by the economic and demographic assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in system provisions, or applicable law or regulations. An analysis of the potential range of such future differences was beyond the scope of the valuation.

Where presented, the “funded ratio” and “unfunded accrued liability” are typically measured using the actuarial value of assets. It should be noted that use of the market value of assets would not result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratios presented are appropriate for evaluating the need and level of future contributions but make no assessment of the funded status of the plan if it were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities.

Actuarial Standard of Practice No. 56 (“ASOP 56”) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. The CPRB uses the following:

- third-party software to calculate the liabilities associated with the provisions of the plan using data, assumptions and funding methods as specified in our report.
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to generate the exhibits found in our report.

The CPRB has an extensive review process whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability and consistency with prior results. The CPRB also reviews the third-party model when significant changes are made to the software or model. The review is performed by the CPRB Board Actuary who is familiar with applicable funding methods as well as the manner in which the model generates its output.

The results presented herewith were prepared solely by the West Virginia Consolidated Public Retirement Board for the purposes herein stated and may not be appropriate to use for other purposes. Use of this report for any other purposes or by anyone other than the West Virginia Consolidated Public Retirement Board and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. No one may make any representations or warranties based on any statements or conclusions contained in this report without prior written consent of the CPRB Board Actuary.

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions about it.

Respectfully,

Kenneth M. Woodson Jr.

Kenneth M. Woodson Jr., FSA, MAAA, Ph.D.

CPRB Board Actuary



West Virginia Consolidated Public Retirement Board
Actuarial Section
Emergency Medical Services Retirement System

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Valuation Date: July 1, 2022

Funding Method and Basis of Assumptions

The valuation is prepared under the Entry Age Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate.

Experience studies are performed at least once in every five-year period. This valuation was prepared on the basis of assumptions that were recommended to and adopted by the Board based on an experience study covering the period from July 1, 2015, to June 30, 2020. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised assumptions.

Interest Return and Expenses

The interest rate assumption is a net return rate of 7.25% annually, net of investment and administrative expenses.

Pre-Retirement Mortality

100% of Pub-2010 Safety Employee Mortality Tables, median, amount-weighted, projected generationally with Scale MP-2020.

Post-Retirement Mortality

Post-retirement mortality tables are as follows:

Healthy Male: 98% of Pub-2010 Safety Retiree Male Mortality Tables, median, amount-weighted, projected generationally with Scale MP-2020.

Healthy Female: 99% of Pub-2010 Safety Retiree Female Mortality Tables, median, amount-weighted, projected generationally with Scale MP-2020.

Disabled Male: 124% of Pub-2010 Safety Disabled Male Mortality Tables, amount-weighted, projected generationally with Scale MP-2020.

Disabled Female: 100% of Pub-2010 Safety Disabled Female Mortality Tables, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Male: 111% of Pub-2010 Contingent Survivor Male Table, median, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Female: 109% of Pub-2010 Contingent Survivor Female Table, median, amount-weighted, projected generationally with Scale MP-2020.

Salary Scale

Annual salary increases are assumed by age on a unisex basis. Sample annual salary increases are as follows:

Age	Rate
Under 31	5.00%
40	4.25%
50	3.75%
60	3.25%

West Virginia Consolidated Public Retirement Board
Actuarial Section
Emergency Medical Services Retirement System

Withdrawal Rates

Withdrawal rates predict termination of employment prior to unreduced retirement eligibility. A sample of unisex rates by age are:

Age	Rate of Withdrawal
30	0.1960
40	0.1320
50	0.0800
55	0.0000

Disability Rates

Disability rates predict an active member becoming disabled prior to unreduced retirement eligibility. A sample of disability rates by age are:

Age	Rate of Disablement
30	0.0012
40	0.0031
50+	0.0040

It is assumed that members eligible for unreduced retirement will elect retirement prior to becoming disabled. It is also assumed that retired members will not become disabled following retirement due to duty related causes incurred prior to retirement.

Disability retirement benefits vary by duty and non-duty causes. Disability retirements are assumed to occur in the following percentages:

Duty Related Disability	50%
Non-Duty Disability	50%

Family Composition

In determining the value of pre-retirement spousal death benefits, it is assumed that 80% of all members will be married at death. Males are assumed to be three years older than their female spouse. Remarriage rates are not considered, and no dependent children are assumed.

Accrual of Future Service

EMSRS employment is considered a full-time professional position. All active members are assumed to complete sufficient hours to accrue one year of service in each future year of employment.

Non-Contributory Service Credits for Military Service and Unused Leave at Retirement

At retirement, male members are assumed to be credited with one additional year of service for benefits due to allowable military service, plus one additional year for unused annual leave and/or sick leave for a total of two additional years. Female members are assumed to be credited with one additional year of service, which is solely attributed to unused annual leave and/or sick leave.

West Virginia Consolidated Public Retirement Board

Actuarial Section

Emergency Medical Services Retirement System

Retirement Rates

Members who are eligible for unreduced retirement benefits are assumed to have a 25% probability of retiring each year prior to age 65. On or after age 65, 100% of remaining members are assumed to retire.

Members who first become eligible for unreduced retirement benefits on or after the attainment of age 65 are assumed to retire in the year they first become eligible.

Asset Valuation Method

Assets for valuation purposes are included at Market Value.

Plan Contributions

Member and employer contributions are calculated as a percentage of total members' payroll. For interest calculation purposes, all amounts are treated as being deposited on an average of halfway through the Plan year.

West Virginia Consolidated Public Retirement Board

Actuarial Section

Emergency Medical Services Retirement System

Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Change in Average Pay	Number of Employers
6/30/2022	637	\$ 33,642,000	\$ 52,813	-1.1%	23
6/30/2021	638	34,071,000	53,403	11.0%	17
6/30/2020	611	29,395,000	48,110	6.4%	15
6/30/2019	587	26,536,000	45,206	0.2%	15
6/30/2018	577	26,024,000	45,102	1.6%	15
6/30/2017	608	27,001,000	44,410	-3.6%	14
6/30/2016	586	26,992,000	46,061	0.8%	14
6/30/2015	568	25,963,000	45,710	3.4%	14
6/30/2014	546	24,145,000	44,222	2.6%	14
6/30/2013	523	22,548,000	43,113	20.0%	13

Schedule of Funding Progress (in thousands)

Valuation Date	Actuarial Accrued			Unfunded AAL (UAAL)	Funded Ratio (a/b)	UAAL as a % of Covered Payroll	
	Actuarial Value of Assets		Liability (AAL) Entry Age			Covered Payroll	Covered Payroll
	(a)	(b)	(b-a)			(c)	((b-a)/c)
7/1/2022	\$ 112,961	\$ 109,968	\$ (2,993)	102.7%	\$ 33,642	-8.9%	
7/1/2021	119,221	105,663	(13,558)	112.8%	34,071	-39.8%	
7/1/2020	89,005	90,691	1,686	98.1%	29,395	5.7%	
7/1/2019	84,969	82,582	(2,387)	102.9%	26,536	-9.0%	
7/1/2018	79,302	75,574	(3,728)	104.9%	26,024	-14.3%	
7/1/2017	71,165	71,590	425	99.4%	27,001	1.6%	
7/1/2016	58,868	67,053	8,185	87.8%	26,992	30.3%	
7/1/2015	56,938	60,287	3,349	94.4%	25,963	12.9%	
7/1/2014	53,647	56,459	2,812	95.0%	24,145	11.6%	
7/1/2013	42,903	50,950	8,047	84.2%	22,548	35.7%	

Solvency Test

Valuation Date	Active Members				% of Accrued Liabilities Covered by Valuation Assets				
	(1) Active Member Contributions		(2) Terms, Retirees, and Beneficiaries		(3) Employer Financed Portion	Valuation of Assets	(1)	(2)	(3)
6/30/2022	\$ 18,354,740	\$ 57,792,000	\$ 33,821,260	\$ 112,961,000	100.0%	100.0%	108.9%		
6/30/2021	18,804,340	48,636,000	38,222,660	119,221,000	100.0%	100.0%	135.5%		
6/30/2020	17,732,945	43,090,000	29,868,055	89,005,000	100.0%	100.0%	94.4%		
6/30/2019	16,631,777	38,276,000	27,674,223	84,969,000	100.0%	100.0%	108.6%		
6/30/2018	16,378,993	32,802,000	26,393,007	79,302,000	100.0%	100.0%	114.1%		
6/30/2017	15,405,406	29,942,000	26,242,594	71,165,000	100.0%	100.0%	98.4%		
6/30/2016	14,137,547	26,599,000	26,316,453	58,868,000	100.0%	100.0%	68.9%		
6/30/2015	13,099,832	22,687,000	24,500,168	56,938,000	100.0%	100.0%	86.3%		
6/30/2014	12,317,472	19,879,000	24,262,528	53,647,000	100.0%	100.0%	88.4%		
6/30/2013	11,173,226	15,401,000	24,375,774	42,903,000	100.0%	100.0%	67.0%		

West Virginia Consolidated Public Retirement Board

Actuarial Section

Emergency Medical Services Retirement System

Schedule of Retirees and Beneficiaries Added and Removed

Fiscal Year Ended	Added		Removed		Year End		% Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
2021	20	\$ 446,697	(4)	\$ 12,352	154	\$ 4,186,137	11.6%	\$ 27,183
2021	15	463,769	(7)	59,566	138	3,751,792	12.1%	27,187
2020	11	373,902	(1)	16,113	130	3,347,589	12.0%	25,751
2019	18	409,076	-	-	120	2,989,800	15.9%	24,915
2018	13	379,419	-	-	102	2,580,724	17.2%	25,301
2017	9	128,661	(1)	24,392	89	2,201,305	5.0%	24,734
2016	10	265,750	-	-	81	2,097,036	16.1%	25,889
2015	15	394,335	-	-	71	1,805,868	24.6%	25,435
2014	11	255,922	-	-	56	1,449,168	23.4%	25,878
2013	11	304,129	-	-	45	1,174,004	43.3%	26,089

Changes in Unfunded Actuarial Liability

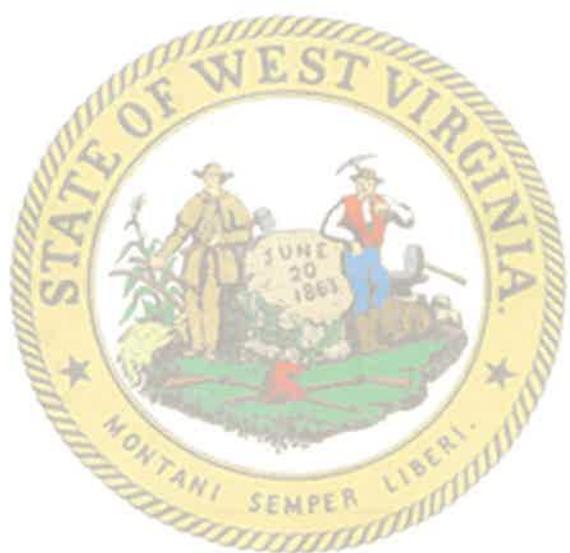
Funded in Excess of Actuarial Liability, June 30, 2021	\$ (13,558,000)
Interest	(915,000)
Normal cost	4,157,000
Contributions	(6,534,000)
Assumption changes	-
Liability (Gain)/Loss	(2,558,000)
Actuarial Asset (Gain)/Loss	16,415,000
 Funded in excess of Actuarial Liability, June 30, 2022	 \$ (2,993,000)

Schedule of Contributions

The Schedule of Contributions is included in the Required Supplementary Information provided in the Financial Section of this Annual Comprehensive Financial Report.

Plan Provisions

A discussion of plan provisions is included in Note 2 to the financial statements included in the Financial Section.





Consolidated Public Retirement Board

601 57th Street SE, Suite 5

Charleston, West Virginia 25304

Telephone: 304-558-3570 or 800-654-4406

Fax: 304-957-7522

Email: cprb@wv.gov

www.wvretirement.com

EXECUTIVE DIRECTOR

Jeffrey E. Fleck



BOARD CHAIRMAN

Joseph G. Bunn

December 18, 2023

West Virginia Consolidated Public Retirement Board
West Virginia Municipal Police Officers and Firefighters Retirement System
601 57th Street SE, Suite 5
Charleston, WV 25304

Dear Board Members:

We performed the annual actuarial valuation of the West Virginia Municipal Police Officers and Firefighters Retirement System (MPFRS) as of July 1, 2022. The purpose of the actuarial valuation is to determine the actuarial liabilities of the System for funding purposes and to determine whether expected contributions will be sufficient to fulfill the System's long-term funding policy.

The valuation was based on membership data as of June 30, 2022, maintained by the West Virginia Consolidated Public Retirement Board, and financial information received from the West Virginia Investment Management Board. Census and financial data were not audited by the West Virginia Consolidated Public Retirement Board but were reviewed for consistency. The accuracy of the results of the valuation is dependent on the accuracy of the data.

The tables presented for MPFRS in the actuarial section of this Annual Comprehensive Financial Report are based on information contained in our July 1, 2022, valuation report dated April 2023. These tables include:

Actuarial Section

- Summary of Actuarial Methods and Assumptions
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Solvency Test
- Schedule of Retirees and Beneficiaries Added and Removed
- Changes in Unfunded Actuarial Liability

Financial Section

- Schedules of Contributions

All schedules in the Actuarial Section above were completed by the West Virginia Consolidated Public Retirement Board. The CPRB has reviewed these schedules for accuracy and consistency with the information provided in our July 1, 2022, valuation report.

This report presents fairly the actuarial position of MPFRS as of July 1, 2022, in accordance with Actuarial Standards of Practice (ASOP) applied on a basis consistent with that of the preceding valuation. In my opinion, the assumptions used in preparing the liabilities and costs are individually reasonable with respect to MPFRS experience and represent my best estimate of anticipated future experience of MPFRS. The assumptions were developed in accordance with the guidance set forth in applicable Actuarial Standards of Practice, including ASOPs 27 and 35. In particular, the mortality assumptions were developed in accordance with the recommendation that an appropriate margin for future improvement in mortality beyond the measurement date be included.

Future actuarial measurements may differ significantly from current measurements due to system experience differing from that anticipated by the economic and demographic assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in system provisions, or applicable law or regulations. An analysis of the potential range of such future differences was beyond the scope of the valuation.

Where presented, the “funded ratio” and “unfunded accrued liability” are typically measured using the actuarial value of assets. It should be noted that use of the market value of assets would not result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratios presented are appropriate for evaluating the need and level of future contributions but make no assessment of the funded status of the plan if it were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities.

Actuarial Standard of Practice No. 56 (“ASOP 56”) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. The CPRB uses the following:

- third-party software to calculate the liabilities associated with the provisions of the plan using data, assumptions and funding methods as specified in our report.
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to generate the exhibits found in our report.

The CPRB has an extensive review process whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability and consistency with prior results. The CPRB also reviews the third-party model when significant changes are made to the software or model. The review is performed by the CPRB Board Actuary who is familiar with applicable funding methods as well as the manner in which the model generates its output.

The results presented herewith were prepared solely by the West Virginia Consolidated Public Retirement Board for the purposes herein stated and may not be appropriate to use for other purposes. Use of this report for any other purposes or by anyone other than the West Virginia Consolidated Public Retirement Board and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. No one may make any representations or warranties based on any statements or conclusions contained in this report without prior written consent of the CPRB Board Actuary.

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions about it.

Respectfully,

Kenneth M. Woodson Jr.

Kenneth M. Woodson Jr., FSA, MAAA, Ph.D.
CPRB Board Actuary



West Virginia Consolidated Public Retirement Board
Actuarial Section
Municipal Police Officers and Firefighters Retirement System

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Valuation Date: July 1, 2022

Funding Method and Basis of Assumptions

The valuation is prepared under the Entry Age Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate.

Experience studies are performed at least once in every five-year period. This valuation was prepared on the basis of assumptions that were recommended to and adopted by the Board based on an experience study covering the period from July 1, 2015, to June 30, 2020. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised assumptions.

Interest Return and Expenses

The interest rate assumption is a net return rate of 7.25% annually, net of investment and administrative expenses.

Pre-Retirement Mortality

100% of Pub-2010 Safety Employee Mortality Tables, median, amount-weighted, projected generationally with Scale MP-2020.

Post-Retirement Mortality

Post-retirement mortality tables are as follows:

Healthy Male: 98% of Pub-2010 Safety Retiree Male Mortality Table, median, amount-weighted, projected generationally with Scale MP-2020.

Healthy Female: 99% of Pub-2010 Safety Retiree Female Mortality Table, median, amount-weighted, projected generationally with Scale MP-2020.

Disabled Male: 124% of Pub-2010 Safety Disabled Male Mortality Tables, amount-weighted, projected generationally with Scale MP-2020.

Disabled Female: 100% of Pub-2010 Safety Disabled Female Mortality Tables, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Male: 111% of Pub-2010 Contingent Survivor Male Table, median, amount-weighted, projected generationally with Scale MP-2020.

Beneficiary Female: 109% of Pub-2010 Contingent Survivor Female Table, median, amount-weighted, projected generationally with Scale MP-2020.

Salary Scale

Annual salary increases are assumed by age on a unisex basis with sample annual salary increases as follows:

Age	Rate
Under 31	4.75%
40	4.00%
50	3.75%
60	3.50%
65	3.25%

West Virginia Consolidated Public Retirement Board
Actuarial Section
Municipal Police Officers and Firefighters Retirement System

Withdrawal Rates

Withdrawal rates predict termination of employment prior to unreduced retirement eligibility. A sample of unisex rates by age are:

Age	Rate of Withdrawal
30	0.1425
40	0.0768
50	0.0400
55	0.0000

Disability Rates

Disability rates predict an active member becoming disabled prior to unreduced retirement eligibility. A sample of disability rates by age are:

Age	Rate of Disablement
30	0.0012
40	0.0031
50+	0.0040

It is assumed that members eligible for unreduced retirement will elect retirement prior to becoming disabled. It is also assumed that retired members will not become disabled following retirement due to duty related causes incurred prior to retirement.

Disability retirement benefits vary by duty and non-duty causes. Disability retirements are assumed to occur in the following percentages:

Duty Related Disability 75%
Non-Duty Disability 25%

Family Composition

In determining the value of pre-retirement spousal death benefits, it is assumed that 90% of all members will be married at death. Males are assumed to be three years older than their female spouse.

Accrual of Future Service

MPFRS employment is considered a full-time professional position. All active members are assumed to complete sufficient hours to accrue one year of service in each future year of employment.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Municipal Police Officers and Firefighters Retirement System

Non-Contributory Service Credits for Military Service

At Normal retirement, male members are assumed to be credited with one additional service credit year for benefits, which is solely attributed to allowable military service additional retirement service credits. Female members are assumed to have no additional years of service credits.

Retirement Rates

Members who become eligible for unreduced retirement benefits are assumed to have 25% probability of retiring each year prior to age 65. On or after age 65, 100% of members are assumed to retire.

Asset Valuation Method

Assets for valuation purposes are included at Market Value.

Plan Contributions

Member and employer contributions are calculated as a percentage of total members' payroll. Amounts are deposited to the Trust Fund on a monthly basis. For interest calculation purposes, all amounts are treated as being deposited on an average of half-way through the Plan year.

Plan Provisions

During the 2022 West Virginia Second Special Legislative Session, HB 216 became law and changed the benefit multiplier as outlined below:

Prior Benefit Multiplier

2.60% of Average Compensation for each of the first 20 years of service credit, plus
2.00% of Average Compensation for years 21 through 25, plus
1.00% of Average Compensation for years 26 through 30.
Maximum benefit of 67% Average Compensation

New Benefit Multiplier

2.75% of Average Compensation for each of the first 20 years of service credit, plus
2.00% of Average Compensation for years 21 through 25, plus
1.50% of Average Compensation for years after 25.
Maximum benefit of 90% Average Compensation

Changes to the benefit multiplier apply to all years of service for active members of MPFRS.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Municipal Police Officers and Firefighters Retirement System

Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Change in Average Pay	Number of Employers
6/30/2022	602	\$ 34,242,000	\$ 56,880	6.7%	37
6/30/2021	540	28,785,000	53,306	5.8%	37
6/30/2020	436	21,972,000	50,394	4.6%	37
6/30/2019	370	17,831,000	48,192	5.7%	32
6/30/2018	332	15,132,000	45,578	-2.4%	30
6/30/2017	217	10,136,000	46,710	13.0%	21
6/30/2016	191	7,898,000	41,351	5.6%	16
6/30/2015	140	5,483,000	39,164	0.4%	16
6/30/2014	97	3,784,000	39,010	2.2%	11
6/30/2013	48	1,883,000	38,188	6.7%	9

Schedule of Funding Progress (in thousands)

Valuation Date	Actuarial Accrued			Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	UAAL as a % of Covered Payroll ((b-a)/c)	
	Actuarial Value of Assets (a)		Liability (AAL) Entry Age (b)			Covered Payroll (c)	Covered Payroll ((b-a)/c)
	7/1/2022	\$ 27,197	\$ 19,419	\$ 34,242	-22.7%		
7/1/2021	\$ 24,098		13,376	(\$10,722)	180.2%	\$ 28,785	-37.2%
7/1/2020	\$ 14,889		8,945	(\$5,944)	166.5%	\$ 21,972	-27.1%
7/1/2019	\$ 11,297		6,365	(\$4,932)	177.5%	\$ 17,831	-27.7%
7/1/2018	\$ 8,077		4,798	(\$3,279)	168.3%	\$ 15,132	-21.7%
7/1/2017	\$ 5,522		2,957	(\$2,565)	186.7%	\$ 10,136	-25.3%
7/1/2016	\$ 3,082		2,015	(\$1,067)	153.0%	\$ 7,898	-13.5%
7/1/2015	\$ 2,046		1,116	(\$930)	183.3%	\$ 5,483	-17.0%
7/1/2014	\$ 1,201		568	(\$633)	211.4%	\$ 3,784	-16.7%
7/1/2013	\$ 529		264	(\$265)	200.4%	\$ 1,833	-14.5%

Solvency Test

Valuation Date	% of Accrued Liabilities Covered by Valuation Assets					
	(1)		(2)		(3)	
	Active Member Contributions		Terms, Retirees, and Beneficiaries		Active Members (Employer Financed Portion)	
6/30/2022	\$ 10,207,460	\$ 1,634,000	\$ 7,577,540	\$ 27,197,000	100.0%	100.0% 202.7%
6/30/2021	\$ 7,867,560	\$ 1,304,000	\$ 4,204,440	\$ 24,098,000	100.0%	100.0% 355.0%
6/30/2020	\$ 5,952,221	\$ 1,021,000	\$ 1,971,779	\$ 14,889,000	100.0%	100.0% 401.5%
6/30/2019	\$ 4,215,858	\$ 981,000	\$ 1,168,142	\$ 11,297,000	100.0%	100.0% 522.2%
6/30/2018	\$ 3,159,458	\$ 770,000	\$ 868,542	\$ 8,077,000	100.0%	100.0% 477.5%
6/30/2017	\$ 2,173,360	\$ 283,000	\$ 500,640	\$ 5,522,000	100.0%	100.0% 612.3%
6/30/2016	\$ 1,484,433	\$ 106,000	\$ 424,567	\$ 3,082,000	100.0%	100.0% 351.3%
6/30/2015	\$ 871,797	\$ 61,000	\$ 183,203	\$ 2,046,000	100.0%	100.0% 607.6%
6/30/2014	\$ 502,241	\$ 35,000	\$ 30,759	\$ 1,201,000	100.0%	100.0% 2157.9%
6/30/2013	\$ 232,075	\$ 19,000	\$ 12,925	\$ 529,000	100.0%	100.0% 2150.3%

West Virginia Consolidated Public Retirement Board
Actuarial Section
Municipal Police Officers and Firefighters Retirement System

Schedule of Retirees and Beneficiaries Added and Removed

Fiscal Year Ended	Added		Removed		Year End		% Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
2022	-	-	-	-	1	\$ 38,734	0.0%	\$ 38,734
2021	-	-	-	-	1	38,734	0.0%	38,734
2020	-	-	-	-	1	38,734	0.0%	38,734
2019	-	19,367	-	-	1	38,734	100.0%	38,734
2018	1	19,367	-	-	1	19,367	100.0%	19,367
2017	-	-	-	-	-	-	0.0%	-
2016	-	-	-	-	-	-	0.0%	-
2015	-	-	-	-	-	-	0.0%	-
2014	-	-	-	-	-	-	0.0%	-
2013	-	-	-	-	-	-	0.0%	-

Changes in Unfunded Actuarial Liability

Funded in excess of Actuarial Liability, June 30, 2021	\$ (10,722,000)
Interest	(720,000)
Normal cost	3,414,000
Contributions	(5,345,000)
Plan Changes	1,148,000
Liability (Gain)/Loss	684,000
Actuarial Asset (Gain)/Loss	3,763,000
Funded in excess of Actuarial Liability, June 30, 2022	\$ (7,778,000)

Schedule of Contributions

The Schedule of Contributions is included in the Required Supplementary Information provided in the Financial Section of this Annual Comprehensive Financial Report.

Plan Provisions

A discussion of plan provisions is included in Note 2 to the financial statements included in the Financial Section.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Municipal Police Officers and Firefighters Retirement System





Consolidated Public Retirement Board



EXECUTIVE DIRECTOR

Jeffrey E. Fleck

601 57th Street SE, Suite 5

Charleston, West Virginia 25304

Telephone: 304-558-3570 or 800-654-4406

Fax: 304-957-7522

Email: cprb@wv.gov

www.wvretirement.com

BOARD CHAIRMAN

Joseph G. Bunn

December 18, 2023

West Virginia Consolidated Public Retirement Board
West Virginia Natural Resources Police Officers Retirement System
601 57th Street SE, Suite 5
Charleston, WV 25304

Dear Board Members:

We performed the annual actuarial valuation of the West Virginia Natural Resources Police Officers Retirement System (NRPORS) as of July 1, 2022. The purpose of the actuarial valuation is to determine the actuarial liabilities of the System for funding purposes and to determine whether expected contributions will be sufficient to fulfill the System's long-term funding policy.

The valuation was based on membership data as of June 30, 2022, maintained by the West Virginia Consolidated Public Retirement Board, and financial information received from the West Virginia Investment Management Board. Census and financial data were not audited by the West Virginia Consolidated Public Retirement Board but were reviewed for consistency. The accuracy of the results of the valuation is dependent on the accuracy of the data.

The tables presented for NRPORS in the actuarial section of this Annual Comprehensive Financial Report are based on information contained in our July 1, 2022, valuation report dated April 2023. These tables include:

Actuarial Section

- Summary of Actuarial Methods and Assumptions
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Solvency Test
- Schedule of Retirees and Beneficiaries Added and Removed
- Changes in Unfunded Actuarial Liability

Financial Section

- Schedules of Contributions

All schedules in the Actuarial Section above were completed by the West Virginia Consolidated Public Retirement Board. The CPRB has reviewed these schedules for accuracy and consistency with the information provided in our July 1, 2022, valuation report.

This report presents fairly the actuarial position of NRPORS as of July 1, 2022, in accordance with Actuarial Standards of Practice (ASOP) applied on a basis consistent with that of the preceding valuation. In my opinion, the assumptions used in preparing the liabilities and costs are individually reasonable with respect to NRPORS experience and represent my best estimate of anticipated future experience of NRPORS. The assumptions were developed in accordance with the guidance set forth in applicable Actuarial Standards of Practice, including ASOPs 27 and 35. In particular, the mortality assumptions were developed in accordance with the recommendation that an appropriate margin for future improvement in mortality beyond the measurement date be included.

Future actuarial measurements may differ significantly from current measurements due to system experience differing from that anticipated by the economic and demographic assumptions, changes expected as part of the natural operation of the methodology used for these measurements, and changes in system provisions, or applicable law or regulations. An analysis of the potential range of such future differences was beyond the scope of the valuation.

Where presented, the “funded ratio” and “unfunded accrued liability” are typically measured using the actuarial value of assets. It should be noted that use of the market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratios presented are appropriate for evaluating the need and level of future contributions but make no assessment of the funded status of the plan if it were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities.

Actuarial Standard of Practice No. 56 (“ASOP 56”) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. The CPRB uses the following:

- third-party software to calculate the liabilities associated with the provisions of the plan using data, assumptions and funding methods as specified in our report.
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to generate the exhibits found in our report.

The CPRB has an extensive review process whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability and consistency with prior results. The CPRB also reviews the third-party model when significant changes are made to the software or model. The review is performed by the CPRB Board Actuary who is familiar with applicable funding methods as well as the manner in which the model generates its output.

The results presented herewith were prepared solely by the West Virginia Consolidated Public Retirement Board for the purposes herein stated and may not be appropriate to use for other purposes. Use of this report for any other purposes or by anyone other than the West Virginia Consolidated Public Retirement Board and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. No one may make any representations or warranties based on any statements or conclusions contained in this report without prior written consent of the CPRB Board Actuary.

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions about it.

Respectfully,

Kenneth M. Woodson Jr.

Kenneth M. Woodson Jr., FSA, MAAA, Ph.D.

CPRB Board Actuary



West Virginia Consolidated Public Retirement Board

Actuarial Section

Natural Resources Police Officers Retirement System

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Valuation Date: July 1, 2022

Funding Method and Basis of Assumptions

The valuation is prepared under the Entry Age Cost Method with individually computed accrued liabilities. The Normal Cost is computed in aggregate. Experience studies are performed at least once in every five-year period. This valuation was prepared on the basis of assumptions that were recommended to and adopted by the Board based on an experience study covering the period from July 1, 2015, to June 30, 2020. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised assumptions.

Interest Return and Expenses

The interest rate assumption is a net return rate of 7.25% annually, net of investment and administrative expenses.

Pre-Retirement Mortality

100% of Pub-2010 Safety Employee Mortality Tables, median, amount-weighted, projected generationally with Scale MP-2020.

Post-Retirement Mortality

Post-retirement mortality tables are as follows:

- Healthy Male: 98% of Pub-2010 Safety Retiree Male Mortality Table, median, amount-weighted, projected generationally with Scale MP-2020.
- Healthy Female: 99% of Pub-2010 Safety Retiree Female Mortality Table, median, amount-weighted, projected generationally with Scale MP-2020.
- Disabled Male: 124% of Pub-2010 Safety Disabled Male Mortality Tables, amount-weighted, projected generationally with Scale MP-2020.
- Disabled Female: 100% of Pub-2010 Safety Disabled Female Mortality Tables, amount-weighted, projected generationally with Scale MP-2020.
- Beneficiary Male: 111% of Pub-2010 Contingent Survivor Male Table, median, amount-weighted, projected generationally with Scale MP-2020.
- Beneficiary Female: 109% of Pub-2010 Contingent Survivor Female Table, median, amount-weighted, projected generationally with Scale MP-2020.

Salary Scale

An annual salary increase rate of 5.75% in each of the first two years of service, decreasing to 5.25% for years three through five, 4.75% for years six through ten, and 4.25% for all years in excess of the first ten years.

Withdrawal Rates

Withdrawal rates predict termination of employment prior to unreduced retirement eligibility. A sample of unisex rates by age are:

Age	Rate of Withdrawal
30	0.0440
40	0.0264
50	0.0200
55	0.0200

West Virginia Consolidated Public Retirement Board
Actuarial Section
Natural Resources Police Officers Retirement System

Disability Rates

Disability rates predict an active member becoming disabled prior to unreduced retirement eligibility. A sample of disability rates by age are:

Age	Rate of Disablement
30	0.0012
40	0.0031
50+	0.0040

It is assumed that members eligible for unreduced retirement will elect retirement prior to becoming disabled. It is also assumed that retired members will not become disabled following retirement due to duty related causes incurred prior to retirement.

Disability retirement benefits vary by duty and non-duty causes. Disability retirements are assumed to occur in the following percentages:

Type of Disability	Probability
Duty-Related Full	0.50
Duty-Related Partial	0.25
Non-Duty-Related Full	0.20
Non-Duty-Related Partial	0.05

Family Composition

In determining the value of pre-retirement spousal death benefits, it is assumed that 90% of all members will be married at death. Males are assumed to be three years older than their female spouse.

Accrual of Future Service

NRPORS employment is considered a full-time professional position. All active members are assumed to complete sufficient hours to accrue one year of service in each future year of employment.

Non-Contributory Service Credits for Military Service

At retirement, a member is assumed to be granted 1.25 additional year of service for benefits due to allowable military service, plus 2.25 additional years for unused annual leave and/or sick leave for a total of 3.5 additional years.

Retirement Rates

40% of members are assumed to retire when first eligible for unreduced benefits at the earlier of (a) attainment of age 55 and age plus service at least 70, or (b) attainment of age 62 and 10 years of service. An active member who has already attained eligibility for normal retirement has a 20% probability of retiring each year thereafter with 100% retiring on or after attainment of age 62.

Asset Valuation Method

The asset valuation method changed from market value of assets to a four-year 25% level asset smoothing method, implemented prospectively from July 1, 2022.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Natural Resources Police Officers Retirement System

Asset Valuation Method (continued)

4-year 25% smoothing of actuarial gain or (loss) on trust fund return:

- Implemented over 4 years, prospectively commencing July 1, 2022 for the experience for the trust year ending June 30, 2022.
- Actuarial gain or (loss) on assets is calculated as the difference between the expected return under valuation assumptions based on the smoothed Actuarial Value of Assets and the actual trust fund return.
- Actuarial gain or (loss) is recognized at 25% of the original amount each year until fully recognized in the fourth year.
- Total accumulated deferred gain or (loss) amounts are used to adjust the reported Market Value of Assets to determine the Actuarial Value of Assets.

Plan Contributions

Member and employer contributions are calculated as a percentage of total members' payroll. Amounts are deposited to the Trust Fund on a monthly basis. For interest calculation purposes, all amounts are treated as being deposited on an average of half-way through the Plan year.

West Virginia Consolidated Public Retirement Board
Actuarial Section
Natural Resources Police Officers Retirement System

Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll	Annual Average Pay	% Change in Average Pay	Number of Employers
6/30/2022	115	\$ 6,589,000	\$ 57,296	2.2%	1
6/30/2021	111	6,224,000	56,072	0.0%	1

Schedule of Funding Progress (in thousands)

Valuation Date	Actuarial Accrued			Covered Payroll	UAAL as a % of Covered Payroll
	Actuarial Value of Assets (a)	Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b-a)		
7/1/2022	\$ 27,121	\$ 30,028	\$ 2,907	90.3%	\$ 6,589 44.1%
7/1/2021	25,013	27,860	2,847	89.8%	6,224 45.7%

Solvency Test

Valuation Date	Active Members					% of Accrued Liabilities Covered by Valuation Assets		
	Active Member Contributions (1)	Terms, Retirees, and Beneficiaries (2)	(Employer Financed Portion)	Valuation of Assets	(1)	(2)	(3)	
6/30/2022	\$ 5,060,054	\$ 5,233,000	\$ 19,734,946	\$ 27,121,000	100.0%	100.0%	88.3%	
6/30/2021	4,710,383	2,802,000	20,347,617	\$ 25,013,000	100.0%	100.0%	86.0%	

Schedule of Retirees and Beneficiaries Added and Removed

Fiscal Year Ended	Added		Removed		Year End		% Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances		
2022	4	\$ 210,857			7	\$ 406,353	207.9%	\$ 58,050.43
2021	-	-	-	-	3	195,496	0.0%	-

Changes in Unfunded Actuarial Liability

Unfunded Actuarial Liability, January 2, 2021	\$ 2,847,000
Interest	236,000
Normal cost	1,097,000
Contributions	(1,394,000)
Assumption changes	-
Liability (Gain)/Loss	(760,000)
Actuarial Asset (Gain)/Loss	881,000
Unfunded Actuarial Liability, June 30, 2022	\$ 2,907,000

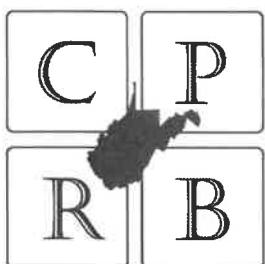
Schedule of Contributions

The Schedule of Contributions is included in the Required Supplementary Information provided in the Financial Section of this Annual Comprehensive Financial Report.

Plan Provisions

A discussion of plan provisions is included in Note 2 to the financial statements included in the Financial Section.

Statistical Section



2023 ANNUAL COMPREHENSIVE FINANCIAL REPORT
For the Fiscal Year Ended June 30, 2023

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West Virginia Consolidated Public Retirement Board

Statistical Section

Overview

The statistical section of the annual comprehensive financial report provides information to the reader to assist in understanding the information in the financial statements, note disclosures, and required supplementary information regarding the Retirement Systems' overall financial health. The information in this section is obtained from annual comprehensive financial reports and other internal sources.

Financial Trends

These schedules contain trend information to help the reader understand how the Retirement Systems' financial performance has changed over time.

- Additions by Source, Deductions by Type, and Changes in Plan Net Position
- Benefit by Type

Retirees and Beneficiaries

These schedules provide information concerning the retirees and beneficiaries receiving benefits.

- Retired Members by Type of Benefit
- Average Monthly Benefit Payments

Participating Units

This schedule provides information concerning units participating in the various Retirement Systems.

- Largest Employers

West Virginia Consolidated Public Retirement Board
Statistical Section



West Virginia Consolidated Public Retirement Board

Statistical Section

Additions by Source, Deductions by Type, and Changes in Plan Net Assets

Public Employees Retirement System

(in thousands)

Fiscal Year	Additions				
	Contributions		Investment	Other	
	Member	Employer	Income	Income	
2023	\$ 89,190	\$ 152,675	\$ 669,213	\$ 11,682	
2022	81,165	167,761	(542,500)	1,238	
2021	78,762	159,259	2,170,293	1,154	
2020	75,857	155,230	215,355	866	
2019	70,357	147,081	393,179	763	
2018	65,150	152,541	606,303	1,497	
2017	63,578	165,676	875,090	1,031	
2016	62,801	186,770	(6,827)	297	
2015	61,838	189,947	219,329	17	
2014	60,899	194,728	864,023	50	

Fiscal Year	Deductions					
	Service					
	Benefit Payments	Transfers to (from)	Administrative Expenses	Refunds		
2023	\$ 507,209	\$ 2,914	\$ 3,736	\$ 15,131	\$ 393,770	
2022	489,324	(20)	3,520	13,395	(798,555)	
2021	469,160	21,432	6,311	9,934	1,902,631	
2020	453,001	(227)	6,186	10,549	(22,201)	
2019	436,965	(232)	6,915	11,782	155,900	
2018	421,936	-	6,850	12,248	384,457	
2017	402,213	(110)	4,989	10,566	687,717	
2016	382,577	(123)	4,886	11,877	(156,176)	
2015	363,495	(265)	4,785	10,669	92,447	
2014	342,683	(83)	4,695	10,929	761,476	

West Virginia Consolidated Public Retirement Board

Statistical Section

Additions by Source, Deductions by Type, and Changes in Plan Net Assets

Teachers' Defined Benefit Retirement System (in thousands)

Fiscal Year	Additions			
	Contributions		Investment	Other
	Member	Employer	Income	Income
2023	\$ 104,429	\$ 452,521	\$ 739,885	\$ 3,925
2022	95,694	483,005	(600,544)	3,573
2021	97,258	417,334	2,429,811	2,944
2020	96,511	463,840	241,591	3,371
2019	93,219	481,525	444,661	3,446
2018	89,128	471,837	688,273	3,046
2017	91,503	451,447	995,095	2,822
2016	95,177	423,195	(18,403)	3,918
2015	94,694	490,640	255,988	3,460
2014	90,612	514,248	1,003,180	3,775

Fiscal Year	Deductions				Total Change in Plan Net Position	
	Service					
	Benefit Payments	Transfers to (from)	Administrative Expenses	Refund		
2023	\$ 885,273	\$ 190	\$ 4,192	\$ 12,558	\$ 398,547	
2022	877,766	188	3,951	12,753	(912,930)	
2021	863,132	151	5,221	8,384	2,070,459	
2020	844,272	232	5,525	9,695	(54,411)	
2019	827,539	174	6,239	10,769	178,130	
2018	806,511	-	6,035	9,591	430,147	
2017	780,030	(149)	4,582	9,028	747,376	
2016	749,139	133	4,507	10,364	(260,256)	
2015	710,833	262	4,432	8,006	121,249	
2014	668,923	265	4,348	7,287	930,992	

West Virginia Consolidated Public Retirement Board

Statistical Section

Additions by Source, Deductions by Type, and Changes in Plan Net Assets

State Police Death, Disability, and Retirement System
(in thousands)

Fiscal Year	Additions			
	Contributions		Investment	Other
	Member	Employer	Income	Income
2023	\$ 22	\$ 40	\$ 62,950	\$ 704
2022	26	17,842	(51,130)	721
2021	34	16,699	208,656	822
2020	35	13,246	21,252	530
2019	110	15,595	38,174	752
2018	186	24,829	60,939	691
2017	362	17,319	87,793	847
2016	320	13,977	(1,229)	594
2015	445	21,668	22,866	861
2014	545	26,218	90,872	739

Fiscal Year	Deductions				Total Change in Plan Net Position	
	Service					
	Benefit Payments	Transfers to (from)	Administrative Expenses	Refund		
2023	\$ 52,429		\$ 358		\$ 10,929	
2022	51,447	-	340	-	(84,328)	
2021	50,228	-	54	-	175,929	
2020	49,225	-	54	-	(14,216)	
2019	47,551	-	63	-	7,017	
2018	45,529	-	61	-	41,055	
2017	43,325	-	46	-	62,950	
2016	41,969	-	53	-	(28,360)	
2015	39,708	-	51	-	6,081	
2014	37,566	-	53	-	80,755	

West Virginia Consolidated Public Retirement Board

Statistical Section

Additions by Source, Deductions by Type, and Changes in Plan Net Assets

State Police Retirement System
(in thousands)

Fiscal Year	Additions			
	Contributions		Investment Income	Other Income
	Member	Employer		
2023	\$ 4,860	\$ 8,100	\$ 24,933	\$ 129
2022	4,395	9,428	(19,815)	-
2021	4,185	7,928	72,138	-
2020	4,168	4,850	7,010	-
2019	3,905	4,556	11,730	-
2018	3,621	4,205	16,303	-
2017	3,634	3,657	22,346	-
2016	3,755	3,724	91	-
2015	3,609	4,060	4,972	-
2014	3,630	4,049	17,756	-

Fiscal Year	Deductions				Total Change in Plan Net Position	
	Service				Refund	\$ 30,741
	Benefit Payments	Transfers to (from)	Administrative Expenses			
2023	\$ 6,826		\$ 135	\$ 320		
2022	5,290	-	120	453		(11,855)
2021	3,302	-	59	297		80,593
2020	2,140	-	67	358		13,463
2019	1,473	-	60	471		18,187
2018	1,186	-	60	656		22,227
2017	957	-	64	497		28,119
2016	811	-	47	260		6,452
2015	633	-	45	418		11,545
2014	682	-	43	230		24,480

West Virginia Consolidated Public Retirement Board
Statistical Section
Additions by Source, Deductions by Type, and Changes in Plan Net Assets

Deputy Sheriffs Retirement System
 (in thousands)

Fiscal Year	Additions		
	Contributions		Investment Income
	Member	Employer	Other Income
2023	\$ 5,777	\$ 8,811	\$ 24,926
2022	5,531	8,258	(19,974)
2021	5,177	7,213	76,547
2020	4,860	6,861	7,528
2019	4,846	6,705	13,200
2018	4,416	6,194	19,361
2017	4,166	5,917	27,282
2016	4,306	6,071	(64)
2015	4,068	5,972	6,534
2014	3,908	5,977	24,438
			556

Fiscal Year	Deductions				Total Change in Plan Net Position	
	Benefit Payments	Service Transfers to (from)	Administrative Expenses	Refund		
2023	\$ 15,740	\$ -	\$ 137	\$ 1,225	\$ 22,734	
2022	14,491	-	126	981	(21,379)	
2021	13,364	(166)	136	530	75,465	
2020	12,260	-	133	716	6,544	
2019	11,338	-	145	602	13,145	
2018	9,614	-	137	997	19,694	
2017	8,957	-	102	1,186	27,553	
2016	8,187	-	101	611	1,908	
2015	7,554	-	96	817	8,613	
2014	6,955	(2)	97	839	26,990	

West Virginia Consolidated Public Retirement Board

Statistical Section

Additions by Source, Deductions by Type, and Changes in Plan Net Assets

Judges Retirement System (in thousands)

Fiscal Year	Additions							
	Contributions		Investment		Other			
	Member	Employer	Income	Income				
2023	\$ 369	\$ 797	\$ 22,031	\$ 1,303				
2022	319	1,052	(17,631)	-				
2021	295	886	68,611	-				
2020	301	791	6,850	-				
2019	331	779	12,085	-				
2018	364	735	18,373	-				
2017	372	747	26,270	-				
2016	383	739	(175)	-				
2015	413	2,845	6,525	-				
2014	474	2,456	25,263	-				

Fiscal Year	Deductions							
	Service			Total Change				
	Benefit Payments	Transfers to (from)	Administrative Expenses	Refund	in Plan Net Position			
2023	\$ 5,134	\$ -	\$ 121	\$ -	\$ 19,245			
2022	5,046	-	112	-	(21,418)			
2021	4,810	-	10	-	64,972			
2020	4,897	-	10	-	3,035			
2019	4,846	86	11	87	8,165			
2018	4,765	-	8	167	14,532			
2017	4,510	12	6	99	22,762			
2016	4,382	-	27	47	(3,509)			
2015	4,244	-	6	69	5,464			
2014	4,374	(32)	7	81	23,763			

West Virginia Consolidated Public Retirement Board
Statistical Section
Additions by Source, Deductions by Type, and Changes in Plan Net Assets

Emergency Medical Services Retirement System
 (in thousands)

Fiscal Year	Additions			
	Contributions		Investment	Other
	Member	Employer	Income	Income
2023	\$ 3,272	\$ 3,662	\$ 9,618	\$ 2,232
2022	2,924	3,610	(7,672)	-
2021	2,842	3,523	28,643	-
2020	2,531	3,078	2,817	-
2019	2,302	2,844	4,774	-
2018	2,231	2,765	6,867	-
2017	2,314	2,859	9,506	-
2016	2,222	2,744	18	1
2015	2,071	2,607	2,144	-
2014	2,077	2,442	7,874	1

Fiscal Year	Deductions				Total Change in Plan Net Position	
	Benefit Payments	Service Transfers to (from)	Administrative Expenses	Refund		
2023	\$ 4,686	\$ -	\$ 53	\$ 1,075	\$ 12,970	
2022	4,184	-	47	891	(6,260)	
2021	3,752	-	78	962	30,216	
2020	3,348	-	73	969	4,036	
2019	2,989	-	77	1,187	5,667	
2018	2,582	-	73	1,071	8,137	
2017	2,201	-	53	575	11,850	
2016	1,953	-	49	605	2,378	
2015	1,600	-	46	666	4,510	
2014	1,290	(140)	42	459	10,743	

West Virginia Consolidated Public Retirement Board
Statistical Section
Additions by Source, Deductions by Type, and Changes in Plan Net Assets

Municipal Police Officers & Firefighters Retirement System
 (in thousands)

Fiscal Year	Additions					
	Contributions		Investment Income		Other Income	
	Member	Employer				
2023	\$ 3,168	\$ 3,168	\$ 2,535	\$ 19		
2022	2,673	2,672	(1,830)	-		
2021	2,158	2,136	5,202	68		
2020	1,717	1,721	437	1		
2019	1,438	1,438	611	38		
2018	1,087	1,089	547	-		
2017	846	846	606	-		
2016	644	644	28	-		
2015	417	417	66	-		
2014	279	279	125	-		

Fiscal Year	Deductions						Total Change in Plan Net Position	
	Benefit Payments	Service Transfers to (from)			Administrative Expenses			
					Refund			
2023	\$ 39	\$ -	\$ 12	\$ 560	\$ 8,279			
2022	41	-	10	365	3,099			
2021	41	-	41	273	9,209			
2020	39	-	36	209	3,592			
2019	36	(28)	35	262	3,220			
2018	20	-	23	125	2,555			
2017	-	-	14	79	2,205			
2016	-	-	11	34	1,271			
2015	-	-	7	49	844			
2014	-	-	3	7	673			

Natural Resources Police Officers Retirement System*
 (in thousands)

Fiscal Year	Additions					
	Contributions		Investment Income		Other Income	
	Member	Employer				
2023	\$ 678	\$ 856	\$ 2,128	\$ -		
2022	615	779	(1,661)	-		
2021	263	332	2,996	21,432		

Fiscal Year	Deductions						Total Change in Plan Net Position	
	Benefit Payments	Service Transfers to (from)			Administrative Expenses			
					Refund			
2023	\$ 449	\$ -	\$ 11	\$ 31	\$ 3,171			
2022	385	(162)	10	36	(536)			
2021	-	-	-	10	25,013			

* The NRPORS was established in January 2021.

West Virginia Consolidated Public Retirement Board

Statistical Section

Additions by Source, Deductions by Type, and Changes in Plan Net Assets

Teachers' Defined Contribution Retirement System

(in thousands)

Fiscal Year	Additions			
	Contributions		Investment Income	Other Income
	Member	Employer		
2023	\$ 5,597	\$ 9,329	\$ 70,638	\$ 471
2022	5,703	9,536	(83,137)	112
2021	5,980	10,307	141,739	12
2020	6,219	9,965	35,185	32
2019	6,126	10,204	34,920	95
2018	6,075	11,664	41,447	34
2017	6,971	10,510	49,571	980
2016	6,438	11,401	3,542	87
2015	6,504	11,194	15,530	354
2014	6,632	10,284	51,102	258

Fiscal Year	Deductions				Total Change in Plan Net Position	
	Benefit Payments	Service Transfers to (from)	Administrative Expenses	Refund		
2023	\$ -	\$ -	\$ 282	\$ 26,335	\$ 59,418	
2022	-	(6)	281	31,907	(99,968)	
2021	-	15	465	22,838	134,720	
2020	-	(5)	784	17,476	33,146	
2019	-	-	752	16,282	34,311	
2018	-	-	1,054	12,173	45,993	
2017	-	247	1,288	18,432	48,065	
2016	-	(10)	1,417	16,046	4,015	
2015	-	3	1,064	15,552	16,963	
2014	-	(8)	1,072	15,949	51,263	

The TDCRS is a multiple employer defined contribution retirement system, which is a money purchase pension plan covering primarily full-time employees of the State's 55 county public school systems, the State Department of Education, and the Schools for the Deaf and Blind who were hired between July 1, 1991 and June 30, 2005. TDCRS benefits depend solely on amounts contributed to the plan plus investment earnings. TDCRS closed participation to new members effective June 30, 2005.

In 2008, the West Virginia Legislature provided an opportunity for members of the TDCRS to elect to transfer to the West Virginia Teachers' Retirement System (TRS). The transfer occurred on July 1, 2008 and a total of 15, 152 TDCRS members transferred to TRS.

West Virginia Consolidated Public Retirement Board
Statistical Section
Benefits by Type

The following schedules provide information on the benefits provided by type of benefit for each plan.

Public Employees Retirement System
(in thousands)

Fiscal Year	Age & Service Benefits		Disability Benefits	Death Benefits & Refunds	
	Retirants	Survivors		Death	Resignation
2023	\$ 446,356	\$ 11,259	\$ 29,594	\$ 1,896	\$ 13,235
2022	448,103	10,896	30,325	164	13,231
2021	427,658	10,475	31,027	563	9,371
2020	411,166	10,315	31,520	1,523	9,026
2019	378,882	29,435	28,648	189	11,593
2018	355,308	33,028	33,600	1,041	11,207
2017	338,865	31,400	31,944	990	9,580
2016	320,869	30,223	31,868	1,317	10,177
2015	304,113	28,795	30,480	1,123	9,653
2014	285,706	27,880	29,933	80	10,013

Teachers' Defined Benefit Retirement System
(in thousands)

Fiscal Year	Age & Service Benefits		Disability Benefits	Death Benefits & Refunds	
	Retirants	Survivors		Death	Resignation
2023	\$ 855,460	\$ 4,426	\$ 25,387	\$ 4,268	\$ 8,290
2022	847,287	4,555	25,924	5,488	7,265
2021	832,041	4,410	26,681	3,157	5,227
2020	812,961	4,479	26,832	2,826	6,869
2019	773,205	27,583	26,751	3,090	7,679
2018	748,486	30,522	27,503	2,203	7,388
2017	723,929	29,482	26,576	2,095	6,976
2016	695,555	27,591	26,292	4,231	5,834
2015	658,674	25,230	25,947	3,910	5,078
2014	618,616	24,327	25,183	2,418	5,666

State Police Death, Disability, and Retirement System
(in thousands)

Fiscal Year	Age & Service Benefits		Disability Benefits	Death Benefits & Refunds	
	Retirants	Survivors		Death	Resignation
2023	\$ 48,805	\$ 1,020	\$ 8,604	\$ -	\$ -
2022	42,001	1,033	8,413	-	-
2021	40,949	1,007	8,272	-	-
2020	40,052	1,021	8,152	-	-
2019	36,524	3,023	8,004	-	-
2018	34,052	3,610	7,867	-	-
2017	32,403	3,436	7,486	-	-
2016	31,525	3,092	7,352	-	-
2015	30,240	2,320	7,148	-	-
2014	28,469	2,209	6,888	-	-

West Virginia Consolidated Public Retirement Board

Statistical Section

Benefits by Type

State Police Retirement System

(in thousands)

Fiscal Year	Age & Service Benefits		Disability Benefits	Death Benefits & Refunds	
	Retirants	Survivors		Death	Resignation
2023	\$ 5,802	\$ 247	\$ 777	- \$	320
2022	4,411	229	650	-	453
2021	2,497	204	601	-	297
2020	1,448	489	203	-	358
2019	815	201	457	-	471
2018	518	252	416	-	656
2017	425	199	329	-	501
2016	344	153	317	-	257
2015	319	21	292	-	419
2014	316	22	290	-	284
2013	266	48	243	8	241

Deputy Sheriffs Retirement System

(in thousands)

Fiscal Year	Age & Service Benefits		Disability Benefits	Death Benefits & Refunds	
	Retirants	Survivors		Death	Resignation
2023	\$ 13,090	\$ 272	\$ 2,378	13 \$	1,212
2022	12,011	181	2,299	-	981
2021	10,925	156	2,283	-	530
2020	10,032	147	2,081	53	663
2019	9,388	130	1,820	-	602
2018	7,654	398	1,562	46	951
2017	7,095	380	1,493	235	940
2016	6,517	342	1,333	43	563
2015	6,060	271	1,219	-	821
2013	5,085	250	976	-	669

Judges Retirement System

(in thousands)

Fiscal Year	Age & Service Benefits		Disability Benefits	Death Benefits & Refunds	
	Retirants	Survivors		Death	Resignation
2023	\$ 4,790	\$ 106	\$ 150	- \$	-
2022	4,866	106	162	-	-
2021	4,564	101	145	-	-
2020	4,650	102	145	-	-
2019	3,894	774	178	-	87
2018	3,909	856	-	-	167
2017	3,710	800	-	-	99
2016	3,427	955	-	-	47
2015	3,314	866	47	-	86
2014	3,310	969	95	-	81

West Virginia Consolidated Public Retirement Board
Statistical Section
Benefits by Type

Emergency Medical Services Retirement System
(in thousands)

Fiscal Year	Age & Service Benefits		Disability Benefits	Death Benefits & Refunds	
	Retirants	Survivors		Death	Resignation
2023	\$ 2,842	\$ 109	\$ 735	\$ 23	\$ 1,052
2022	3,366	109	709	-	891
2021	2,895	129	728	52	910
2020	2,649	75	624	1	968
2019	2,315	87	587	57	1,130
2018	2,031	26	525	-	1,071
2017	1,782	20	399	-	575
2016	1,616	20	282	-	640
2015	1,320	20	261	-	665
2014	1,042	22	228	11	446

Municipal Police Officers & Firefighters Retirement System
(in thousands)

Fiscal Year	Age & Service Benefits		Disability Benefits	Death Benefits & Refunds	
	Retirants	Survivors		Death	Resignation
2023	\$ -	\$ -	\$ 39	\$ 17	\$ 543
2022	-	-	41	-	365
2021	-	-	41	-	273
2020	39	-	-	-	209
2019	36	-	-	20	242
2018	-	-	20	-	125
2017	-	-	-	-	79
2016	-	-	-	-	34
2015	-	-	-	-	49
2014	-	-	-	-	7
2013	-	-	-	3	2

Natural Resources Police Officers Retirement System
(in thousands)

Fiscal Year	Age & Service Benefits		Disability Benefits	Death Benefits & Refunds	
	Retirants	Survivors		Death	Resignation
2023	\$ 449	\$ -	\$ -	\$ -	\$ 31
2022	385	-	-	-	36
2021	-	-	-	-	10

West Virginia Consolidated Public Retirement Board

Statistical Section

Retired Members by Type of Benefit

Public Employees Retirement System

Amount of Monthly Benefit	Number of Retirants	Type of Retirement			Maximum	Option Selected		
		A	B	C		Option 1	Option 2	Other
\$ 1 - 1,000	13,296	10,976	535	1,785	6,700	4,713	1,883	-
1,001 - 2,000	9,972	8,782	275	915	5,022	3,497	1,453	-
2,001 - 3,000	4,520	4,339	71	110	2,199	1,524	797	-
3,001 - 4,000	1,776	1,746	19	11	853	553	370	-
4,001 - 5,000	633	626	5	2	290	218	125	-
Over \$ 5,000	345	344	1	-	204	82	59	-
	30,542	26,813	906	2,823	15,268	10,587	4,687	-

Teachers' Retirement System

Amount of Monthly Benefit	Number of Retirants	Type of Retirement			Maximum	Option Selected		
		A	B	C		Option 1	Option 2	Other
\$ 1 - 1,000	10,032	8,569	34	1,429	5,791	2,361	1,347	533
1,001 - 2,000	10,807	9,994	93	720	5,991	2,623	1,653	540
2,001 - 3,000	8,797	8,620	50	127	4,893	1,901	1,501	502
3,001 - 4,000	5,024	5,000	16	8	3,003	860	940	221
4,001 - 5,000	1,852	1,846	6	-	1,218	244	333	57
Over \$ 5,000	969	966	2	1	602	143	185	39
	37,481	34,995	201	2,285	21,498	8,132	5,959	1,892

State Police Death, Disability, and Retirement System

Amount of Monthly Benefit	Number of Retirants	Type of Retirement			Maximum	Option Selected		
		A	B	C		Option 1	Option 2	Other
\$ 1 - 1,000	11	10	-	1	-	-	-	11
1,001 - 2,000	34	21	2	11	-	-	-	34
2,001 - 3,000	42	28	3	11	-	-	-	42
3,001 - 4,000	50	36	4	10	-	-	-	50
4,001 - 5,000	68	55	1	12	-	-	-	68
Over \$ 5,000	546	465	9	72	2	-	-	546
	751	615	19	117	2	-	-	751

State Police Retirement System

Amount of Monthly Benefit	Number of Retirants	Type of Retirement			Maximum	Option Selected		
		A	B	C		Option 1	Option 2	Other
\$ 1 - 1,000	8	7	1	-	-	3	-	5
1,001 - 2,000	7	3	1	3	-	-	-	7
2,001 - 3,000	11	3	2	6	-	1	-	10
3,001 - 4,000	18	17	1	-	-	5	-	13
4,001 - 5,000	42	33	2	7	-	11	-	31
Over \$ 5,000	59	56	-	3	-	19	-	40
	145	119	7	19	-	39	-	106

West Virginia Consolidated Public Retirement Board
Statistical Section
Retired Members by Type of Benefit

Deputy Sheriffs Retirement System

Amount of Monthly Benefit	Number of Retirants	Type of Retirement			Option Selected			
		A	B	C	Maximum	Option 1	Option 2	Other
\$ 1 - 1,000	51	44	1	6	8	11	9	23
1,001 - 2,000	156	121	6	29	37	20	22	77
2,001 - 3,000	205	176	4	25	65	30	29	80
3,001 - 4,000	81	65	-	16	21	11	10	39
4,001 - 5,000	45	39	1	5	17	5	4	18
Over \$ 5,000	15	14	-	1	4	5	1	5
	553	459	12	82	152	82	75	242

Judges Retirement System

Amount of Monthly Benefit	Number of Retirants	Type of Retirement			Option Selected			
		A	B	C	Maximum	Option 1	Option 2	Other
\$ 1 - 1,000	-	-	-	-	-	-	-	-
1,001 - 2,000	-	-	-	-	-	-	-	-
2,001 - 3,000	-	-	-	-	-	-	-	-
3,001 - 4,000	-	-	-	-	-	-	-	-
4,001 - 5,000	17	14	2	1	-	-	-	17
Over \$ 5,000	44	43	-	1	-	-	-	44
	61	57	2	2	-	-	-	61

Emergency Medical Services Retirement System

Amount of Monthly Benefit	Number of Retirants	Type of Retirement			Option Selected			
		A	B	C	Maximum	Option 1	Option 2	Other
\$ 1 - 1,000	14	14	-	-	11	2	1	-
1,001 - 2,000	53	48	3	2	27	14	3	9
2,001 - 3,000	54	47	2	5	21	11	7	15
3,001 - 4,000	30	23	-	7	11	6	4	9
4,001 - 5,000	12	9	-	3	4	4	1	3
Over \$ 5,000	5	3	-	2	2	1	-	2
	168	144	5	19	76	38	16	38

West Virginia Consolidated Public Retirement Board

Statistical Section

Retired Members by Type of Benefit

Municipal Police Officers & Firefighters Retirement System

Amount of Monthly Benefit	Number of Retirants	Type of Retirement			Maximum	Option Selected		
		A	B	C		Option 1	Option 2	Other
\$ 1 - 1,000	-	-	-	-	-	-	-	-
1,001 - 2,000	-	-	-	-	-	-	-	-
2,001 - 3,000	-	-	-	-	-	-	-	-
3,001 - 4,000	1	-	-	1	-	-	-	1
4,001 - 5,000	-	-	-	-	-	-	-	-
Over \$ 5,000	-	-	-	-	-	-	-	-
	1	-	-	1	-	-	-	1

Natural Resources Police Officers Retirement System

Amount of Monthly Benefit	Number of Retirants	Type of Retirement			Maximum	Option Selected		
		A	B	C		Option 1	Option 2	Other
\$ 1 - 1,000	-	-	-	-	-	-	-	-
1,001 - 2,000	-	-	-	-	-	-	-	-
2,001 - 3,000	-	-	-	-	-	-	-	-
3,001 - 4,000	4	4	-	-	1	3	-	1
4,001 - 5,000	4	4	-	-	1	2	-	-
Over \$ 5,000	1	1	-	-	1	-	-	-
	9	9	-	-	3	5	-	1

Type of Retirement

- A - Service
- B - Survivor Benefit
- C - Disability

Option

- Maximum - Life Annuity
- Option 1 - 100% Joint Survivorship
- Option 2 - 50% Joint Survivorship
- Other

West Virginia Consolidated Public Retirement Board

Statistical Section

Largest Employers

Public Employees Retirement System

Top Employers	June 30, 2023			June 30, 2013		
	Covered Members	Rank	Percentage of Total	Covered Members	Rank	Percentage of Total
State of West Virginia	22,710	1	63.25%	24,269	1	66.24%
All other employers	13,195		36.75%	12,368		33.76%
	35,905		100.00%	36,637		100.00%

Teachers Retirement System

Top Employers	June 30, 2023			June 30, 2013		
	Covered Members	Rank	Percentage of Total	Covered Members	Rank	Percentage of Total
Kanawha County Board of Education	3,192	1	8.96%	3,254	1	9.14%
Berkeley County Board of Education	2,394	2	6.71%	2,092	2	5.88%
Cabell County Board of Education	1,648	3	4.62%	1,401	5	3.94%
Wood County Board of Education	1,554	4	4.36%	1,558	3	4.38%
Monongalia County Board of Education	1,553	5	4.35%	1,251	7	3.51%
Raleigh County Board of Education	1,433	6	4.02%	1,446	4	4.06%
Harrison County Board of Education	1,370	7	3.84%	1,393	6	3.91%
Mercer County Board of Education	1,162	8	3.26%	1,177	8	3.31%
Putnam County Board of Education	1,134	9	3.18%	1,000	10	2.81%
Jefferson County Board of Education	1,046	10	2.93%	1,004	9	2.82%
Total Top Employers	16,486		46.21%	15,576		43.76%
All other employers	19,194		53.79%	20,017		56.24%
	35,680		100.00%	35,593		100.00%

State Police Death, Disability, and Retirement System

Top Employers	June 30, 2023			June 30, 2013		
	Covered Members	Rank	Percentage of Total	Covered Members	Rank	Percentage of Total
State of West Virginia	3	1	100.00%	99	1	100.00%
All other employers	-		-	-		0.00%
	3		100.00%	99		100.00%

West Virginia Consolidated Public Retirement Board
Statistical Section
Largest Employers

State Police Retirement System

Top Employers	June 30, 2023			June 30, 2013		
	Covered Members	Rank	Percentage of Total	Covered Members	Rank	Percentage of Total
State of West Virginia	656	1	100.00%	558	1	100.00%
All other employers	-	-	-	-	-	-
	656		100.00%	558		100.00%

Deputy Sheriffs Retirement System

Top Employers	June 30, 2023			June 30, 2013		
	Covered Members	Rank	Percentage of Total	Covered Members	Rank	Percentage of Total
Kanawha County	103	1	8.60%	103	1	10.40%
Berkeley County	71	2	5.93%	56	2	5.66%
Raleigh County	58	3	4.84%	46	3	4.65%
Harrison County	56	4	4.67%	42	5	4.24%
Monongalia County	46	5	3.84%	43	4	4.34%
Putnam County	45	6	3.76%	42	6	4.24%
Wood County	40	7	3.34%	34	9	3.43%
Cabell County	39	8	3.26%	38	8	3.84%
Fayette County	37	9	3.09%	39	7	3.94%
Ohio County	35	10	2.92%	33	10	3.34%
Total Top Employers	530		44.25%	476		48.08%
All other employers	668		55.75%	514		51.92%
	1,198		100.00%	990		100.00%

Judges Retirement System

Top Employers	June 30, 2023			June 30, 2013		
	Covered Members	Rank	Percentage of Total	Covered Members	Rank	Percentage of Total
State of West Virginia	42	1	100.00%	50	1	100.00%
All other employers	-	-	-	-	-	-
	42		100.00%	50		100.00%

West Virginia Consolidated Public Retirement Board
Statistical Section
Largest Employers

Emergency Medical Services Retirement System

Top Employers	June 30, 2023			June 30, 2013		
	Covered Members	Rank	Percentage of Total	Covered Members	Rank	Percentage of Total
Cabell County Emergency Medical Services	201	1	20.28%	118	2	22.56%
Kanawha County Emergency Ambulance	186	2	18.77%	192	1	36.70%
Berkeley County Emergency Ambulance Auth	74	3	7.47%			
Grant County Ambulance	53	4	5.35%			
Jefferson County Emergency Services Agency	48	5	4.84%			
Total Top Employers	562		56.71%	310		59.26%
All other employers	429		43.29%	213		40.74%
	991		100.00%	523		100.00%

Municipal Police Officers and Firefighters Retirement System

Top Employers	June 30, 2023			June 30, 2013		
	Covered Members	Rank	Percentage of Total	Covered Members	Rank	Percentage of Total
City of Charleston Firefighters	118	1	16.25%	-		
City of Charleston Police	101	2	13.91%	18	2	37.50%
City of Huntington Police	57	3	7.85%	27	1	56.25%
City of Wheeling Firefigthers	57	4	7.85%			
City of Wheeling Police	48	5	6.61%			
Total Top Employers	381		52.47%	45		93.75%
All other employers	345		47.53%	3		6.25%
	726		100.00%	48		100.00%

Natural Resources Police Officers Retirement System*

Top Employers	June 30, 2021			June 30, 2012		
	Covered Members	Rank	Percentage of Total	Covered Members	Rank	Percentage of Total
State of West Virginia	116	1	100.00%	n/a	n/a	n/a
All other employers	-		-	n/a		n/a
	116		100.00%	n/a		n/a

* The NRPORS was established in January 2021.

West Virginia Consolidated Public Retirement Board

Statistical Section

Average Monthly Benefit Payments

The following schedules provide information on the average monthly benefit payments. These schedules exclude participants retiring with a reduced early retirement benefit with less than 10 years of service.

Public Employees Retirement System

	Years of Credited Service				
	10 - 14	15 - 19	20 - 24	25 - 29	30+
For the Year Ended June 30, 2023:					
Average monthly benefit	\$ 597	\$ 871	\$ 1,217	\$ 1,606	\$ 2,522
Average final average salary	\$ 31,176	\$ 33,649	\$ 36,870	\$ 39,694	\$ 46,621
Number of benefit recipients	4,665	4,426	4,914	4,778	8,850
For the Year Ended June 30, 2022:					
Average monthly benefit	\$ 586	\$ 847	\$ 1,186	\$ 1,572	\$ 2,479
Average final average salary	\$ 30,200	\$ 32,503	\$ 35,779	\$ 38,770	\$ 45,714
Number of benefit recipients	4,620	4,396	4,875	4,742	8,724
For the Year Ended June 30, 2021:					
Average monthly benefit	\$ 569	\$ 825	\$ 1,147	\$ 1,533	\$ 2,431
Average final average salary	\$ 28,988	\$ 31,436	\$ 34,510	\$ 37,669	\$ 44,737
Number of benefit recipients	4,575	4,341	4,771	4,682	8,518
For the Year Ended June 30, 2020:					
Average monthly benefit	\$ 560	\$ 810	\$ 1,119	\$ 1,507	\$ 2,383
Average final average salary	\$ 28,080	\$ 30,541	\$ 33,400	\$ 36,863	\$ 46,815
Number of benefit recipients	4,530	4,288	4,666	4,606	8,292
For the Year Ended June 30, 2019:					
Average monthly benefit	\$ 550	\$ 791	\$ 1,094	\$ 1,477	\$ 2,729
Average final average salary	\$ 27,186	\$ 29,558	\$ 32,418	\$ 36,048	\$ 46,159
Number of benefit recipients	4,462	4,238	4,636	4,594	8,095
For the Year Ended June 30, 2018:					
Average monthly benefit	\$ 543	\$ 775	\$ 1,078	\$ 1,466	\$ 2,317
Average final average salary	\$ 26,402	\$ 28,543	\$ 31,614	\$ 35,540	\$ 42,311
Number of benefit recipients	4,441	4,202	4,555	4,548	7,877
For the Year Ended June 30, 2017:					
Average monthly benefit	\$ 547	\$ 764	\$ 1,070	\$ 1,456	\$ 2,299
Average final average salary	\$ 27,350	\$ 26,965	\$ 29,182	\$ 32,356	\$ 36,300
Number of benefit recipients	4,512	4,049	4,448	4,295	6,902
For the Year Ended June 30, 2016:					
Average monthly benefit	\$ 531	\$ 743	\$ 1,037	\$ 1,392	\$ 2,274
Average final average salary	\$ 26,550	\$ 26,224	\$ 28,282	\$ 30,933	\$ 35,905
Number of benefit recipients	4,471	3,998	4,309	4,176	6,484
For the Year Ended June 30, 2015:					
Average monthly benefit	\$ 522	\$ 733	\$ 1,019	\$ 1,386	\$ 2,204
Average final average salary	\$ 26,100	\$ 25,871	\$ 27,791	\$ 30,800	\$ 34,800
Number of benefit recipients	4,438	3,934	4,296	4,107	6,390
For the Year Ended June 30, 2014:					
Average monthly benefit	\$ 547	\$ 760	\$ 1,055	\$ 1,440	\$ 2,281
Average final average salary	\$ 27,350	\$ 26,824	\$ 28,773	\$ 32,000	\$ 36,016
Number of benefit recipients	4,245	3,770	7,165	3,993	6,258

West Virginia Consolidated Public Retirement Board

Statistical Section

Average Monthly Benefit Payments

Teachers Retirement System

	Years of Credited Service				
	10 - 14	15 - 19	20 - 24	25 - 29	30+
For the Year Ended June 30, 2023:					
Average monthly benefit	\$ 548	\$ 844	\$ 1,169	\$ 1,580	\$ 2,784
Average final average salary	\$ 28,016	\$ 30,045	\$ 31,221	\$ 34,749	\$ 47,212
Number of benefit recipients	2,741	3,441	4,450	4,984	20,474
For the Year Ended June 30, 2022:					
Average monthly benefit	\$ 533	\$ 819	\$ 1,138	\$ 1,548	\$ 2,745
Average final average salary	\$ 26,717	\$ 28,581	\$ 29,673	\$ 33,375	\$ 46,229
Number of benefit recipients	2,671	3,400	4,456	5,091	20,653
For the Year Ended June 30, 2021:					
Average monthly benefit	\$ 517	\$ 787	\$ 1,105	\$ 1,516	\$ 2,705
Average final average salary	\$ 25,327	\$ 26,910	\$ 28,177	\$ 32,173	\$ 45,247
Number of benefit recipients	2,577	3,293	4,434	5,181	20,676
For the Year Ended June 30, 2020:					
Average monthly benefit	\$ 503	\$ 763	\$ 1,080	\$ 1,491	\$ 2,665
Average final average salary	\$ 24,025	\$ 25,418	\$ 26,939	\$ 31,067	\$ 44,093
Number of benefit recipients	2,502	3,197	4,397	5,211	20,528
For the Year Ended June 30, 2019:					
Average monthly benefit	\$ 485	\$ 739	\$ 1,054	\$ 1,468	\$ 3,096
Average final average salary	\$ 22,542	\$ 23,782	\$ 25,525	\$ 30,212	\$ 42,789
Number of benefit recipients	2,410	3,154	4,440	5,258	20,383
For the Year Ended June 30, 2018:					
Average monthly benefit	\$ 479	\$ 728	\$ 1,040	\$ 1,460	\$ 2,596
Average final average salary	\$ 21,520	\$ 22,553	\$ 24,240	\$ 29,356	\$ 42,331
Number of benefit recipients	2,400	3,157	4,434	5,274	20,051
For the Year Ended June 30, 2017:					
Average monthly benefit	\$ 475	\$ 719	\$ 1,048	\$ 1,488	\$ 2,572
Average final average salary	\$ 23,750	\$ 25,376	\$ 28,582	\$ 33,067	\$ 40,611
Number of benefit recipients	2,476	3,199	4,674	5,383	18,717
For the Year Ended June 30, 2016:					
Average monthly benefit	\$ 443	\$ 692	\$ 1,021	\$ 1,437	\$ 2,486
Average final average salary	\$ 22,150	\$ 24,424	\$ 27,845	\$ 31,933	\$ 39,253
Number of benefit recipients	2,402	3,191	4,605	5,359	17,974
For the Year Ended June 30, 2015:					
Average monthly benefit	\$ 432	\$ 668	\$ 1,004	\$ 1,414	\$ 2,453
Average final average salary	\$ 21,600	\$ 23,576	\$ 27,382	\$ 31,422	\$ 38,732
Number of benefit recipients	2,352	3,187	4,728	5,351	17,680
For the Year Ended June 30, 2014:					
Average monthly benefit	\$ 452	\$ 695	\$ 1,026	\$ 1,446	\$ 2,481
Average final average salary	\$ 22,600	\$ 24,529	\$ 27,982	\$ 32,133	\$ 39,174
Number of benefit recipients	2,224	3,020	4,575	5,200	17,445

West Virginia Consolidated Public Retirement Board

Statistical Section

Average Monthly Benefit Payments

State Police Death, Disability, and Retirement System

	Years of Credited Service				
	10 - 14	15 - 19	20 - 24	25 - 29	30+
For the Year Ended June 30, 2023:					
Average monthly benefit	\$ 6,276	\$ 6,620	\$ 5,169	\$ 5,796	\$ 6,998
Average final average salary	\$ 97,808	\$ 76,019	\$ 46,991	\$ 43,607	\$ 50,894
Number of benefit recipients	27	26	85	486	107
For the Year Ended June 30, 2022:					
Average monthly benefit	\$ 6,326	\$ 6,384	\$ 4,971	\$ 5,594	\$ 6,707
Average final average salary	\$ 98,587	\$ 73,309	\$ 45,191	\$ 42,087	\$ 48,778
Number of benefit recipients	27	26	86	497	107
For the Year Ended June 30, 2021:					
Average monthly benefit	\$ 6,097	\$ 5,960	\$ 4,839	\$ 5,425	\$ 6,416
Average final average salary	\$ 95,018	\$ 68,441	\$ 43,991	\$ 40,813	\$ 46,662
Number of benefit recipients	27	28	84	494	113
For the Year Ended June 30, 2020:					
Average monthly benefit	\$ 5,877	\$ 5,745	\$ 4,631	\$ 5,263	\$ 6,156
Average final average salary	\$ 91,589	\$ 65,972	\$ 42,100	\$ 39,596	\$ 44,770
Number of benefit recipients	27	28	86	499	117
For the Year Ended June 30, 2019:					
Average monthly benefit	\$ 5,664	\$ 5,541	\$ 4,487	\$ 5,104	\$ 5,776
Average final average salary	\$ 88,270	\$ 63,629	\$ 40,791	\$ 38,400	\$ 42,007
Number of benefit recipients	27	28	87	502	118
For the Year Ended June 30, 2018:					
Average monthly benefit	\$ 5,459	\$ 5,270	\$ 4,337	\$ 4,928	\$ 5,729
Average final average salary	\$ 85,075	\$ 60,517	\$ 39,427	\$ 37,076	\$ 41,665
Number of benefit recipients	27	30	86	483	119
For the Year Ended June 30, 2017:					
Average monthly benefit	\$ 5,307	\$ 5,356	\$ 4,332	\$ 5,069	\$ 5,707
Average final average salary	\$ 82,706	\$ 61,504	\$ 39,382	\$ 38,137	\$ 41,505
Number of benefit recipients	29	27	105	450	83
For the Year Ended June 30, 2016:					
Average monthly benefit	\$ 5,276	\$ 5,262	\$ 4,109	\$ 4,747	\$ 5,466
Average final average salary	\$ 82,223	\$ 60,425	\$ 37,355	\$ 35,714	\$ 39,753
Number of benefit recipients	29	27	103	449	84
For the Year Ended June 30, 2015:					
Average monthly benefit	\$ 5,224	\$ 4,965	\$ 3,910	\$ 4,574	\$ 5,277
Average final average salary	\$ 81,413	\$ 57,014	\$ 35,545	\$ 34,413	\$ 38,378
Number of benefit recipients	30	27	111	446	85
For the Year Ended June 30, 2014:					
Average monthly benefit	\$ 5,202	\$ 5,097	\$ 3,870	\$ 4,611	\$ 5,153
Average final average salary	\$ 81,070	\$ 58,530	\$ 35,182	\$ 34,691	\$ 37,476
Number of benefit recipients	24	22	89	423	86

West Virginia Consolidated Public Retirement Board

Statistical Section

Average Monthly Benefit Payments

State Police Retirement System

	Years of Credited Service				
	10 - 14	15 - 19	20 - 24	25 - 29	30+
For the Year Ended June 30, 2023:					
Average monthly benefit	\$ 3,183	\$ 3,847	\$ 3,406	\$ 4,002	\$ 5,630
Average final average salary	\$ 42,965	\$ 55,535	\$ 61,277	\$ 67,032	\$ 76,179
Number of benefit recipients	9	7	15	48	61
For the Year Ended June 30, 2022:					
Average monthly benefit	\$ 3,208	\$ 3,810	\$ 3,039	\$ 4,002	\$ 5,181
Average final average salary	\$ 41,520	\$ 55,535	\$ 60,307	\$ 67,115	\$ 73,089
Number of benefit recipients	8	7	12	42	39
For the Year Ended June 30, 2021:					
Average monthly benefit	\$ 3,179	\$ 4,011	\$ 3,033	\$ 4,037	\$ 4,975
Average final average salary	\$ 41,520	\$ 55,284	\$ 60,307	\$ 67,507	\$ 70,849
Number of benefit recipients	8	6	12	35	25
For the Year Ended June 30, 2020:					
Average monthly benefit	\$ 2,977	\$ 4,204	\$ 3,101	\$ 4,014	\$ 4,842
Average final average salary	\$ 92,790	\$ 55,005	\$ 60,885	\$ 65,026	\$ 63,259
Number of benefit recipients	7	5	11	18	8
For the Year Ended June 30, 2019:					
Average monthly benefit	\$ 3,186	\$ 4,163	\$ 3,193	\$ 3,303	\$ 4,375
Average final average salary	\$ 99,304	\$ 95,610	\$ 58,055	\$ 49,700	\$ 63,636
Number of benefit recipients	6	5	3	12	6
For the Year Ended June 30, 2018:					
Average monthly benefit	\$ 3,159	\$ 4,123	\$ 3,694	\$ 3,379	\$ 4,298
Average final average salary	\$ 98,462	\$ 94,691	\$ 67,164	\$ 50,844	\$ 62,516
Number of benefit recipients	6	5	6	7	3
For the Year Ended June 30, 2017:					
Average monthly benefit	\$ 3,537	\$ 3,683	\$ 3,031	\$ 2,953	\$ 3,998
Average final average salary	\$ 110,244	\$ 84,586	\$ 55,109	\$ 44,434	\$ 58,153
Number of benefit recipients	3	4	3	7	2
For the Year Ended June 30, 2016:					
Average monthly benefit	\$ 3,489	\$ 3,718	\$ 3,015	\$ 3,058	\$ 3,998
Average final average salary	\$ 108,748	\$ 85,389	\$ 54,818	\$ 46,014	\$ 58,153
Number of benefit recipients	3	3	3	2	2
For the Year Ended June 30, 2015:					
Average monthly benefit	\$ 3,468	\$ 4,130	\$ 3,034	\$ 3,058	\$ 4,469
Average final average salary	\$ 108,094	\$ 94,852	\$ 55,164	\$ 46,014	\$ 65,004
Number of benefit recipients	3	2	2	2	1
For the Year Ended June 30, 2014:					
Average monthly benefit	\$ 2,601	\$ 4,131	\$ 3,034	\$ 3,058	\$ 4,469
Average final average salary	\$ 81,070	\$ 94,875	\$ 55,164	\$ 46,014	\$ 65,004
Number of benefit recipients	4	2	2	2	1

West Virginia Consolidated Public Retirement Board

Statistical Section

Average Monthly Benefit Payments

Deputy Sheriffs Retirement System

	Years of Credited Service				
	10 - 14	15 - 19	20 - 24	25 - 29	30+
For the Year Ended June 30, 2023:					
Average monthly benefit	\$ 1,051	\$ 2,108	\$ 2,036	\$ 2,276	\$ 3,120
Average final average salary	\$ 33,365	\$ 34,149	\$ 41,956	\$ 44,265	\$ 50,103
Number of benefit recipients	23	48	115	139	208
For the Year Ended June 30, 2022:					
Average monthly benefit	\$ 1,081	\$ 2,136	\$ 1,964	\$ 2,208	\$ 3,051
Average final average salary	\$ 32,155	\$ 33,802	\$ 40,475	\$ 42,808	\$ 48,928
Number of benefit recipients	23	47	102	135	196
For the Year Ended June 30, 2021:					
Average monthly benefit	\$ 1,195	\$ 2,083	\$ 2,006	\$ 2,333	\$ 3,091
Average final average salary	\$ 31,595	\$ 34,112	\$ 41,169	\$ 42,439	\$ 48,585
Number of benefit recipients	25	47	130	124	150
For the Year Ended June 30, 2020:					
Average monthly benefit	\$ 1,198	\$ 1,888	\$ 1,954	\$ 2,267	\$ 2,986
Average final average salary	\$ 29,839	\$ 32,584	\$ 40,255	\$ 41,045	\$ 46,914
Number of benefit recipients	21	43	122	118	134
For the Year Ended June 30, 2019:					
Average monthly benefit	\$ 1,158	\$ 1,856	\$ 1,935	\$ 2,240	\$ 2,769
Average final average salary	\$ 34,405	\$ 38,925	\$ 31,359	\$ 29,579	\$ 32,908
Number of benefit recipients	19	40	109	114	129
For the Year Ended June 30, 2018:					
Average monthly benefit	\$ 1,136	\$ 1,807	\$ 1,680	\$ 1,914	\$ 2,545
Average final average salary	\$ 33,752	\$ 34,147	\$ 38,653	\$ 40,547	\$ 45,086
Number of benefit recipients	16	33	78	108	151
For the Year Ended June 30, 2017:					
Average monthly benefit	\$ 1,535	\$ 1,537	\$ 1,645	\$ 1,810	\$ 2,549
Average final average salary	\$ 45,607	\$ 48,220	\$ 39,879	\$ 35,753	\$ 45,316
Number of benefit recipients	18	29	67	105	135
For the Year Ended June 30, 2016:					
Average monthly benefit	\$ 1,479	\$ 1,541	\$ 1,613	\$ 1,757	\$ 2,487
Average final average salary	\$ 43,943	\$ 48,345	\$ 39,103	\$ 34,706	\$ 44,213
Number of benefit recipients	16	26	64	98	129
For the Year Ended June 30, 2015:					
Average monthly benefit	\$ 1,428	\$ 1,503	\$ 1,570	\$ 1,729	\$ 2,424
Average final average salary	\$ 42,427	\$ 47,153	\$ 38,061	\$ 34,153	\$ 43,093
Number of benefit recipients	14	25	62	95	121
For the Year Ended June 30, 2014:					
Average monthly benefit	\$ 1,333	\$ 1,533	\$ 1,579	\$ 1,789	\$ 2,456
Average final average salary	\$ 39,605	\$ 48,094	\$ 38,279	\$ 35,338	\$ 43,662
Number of benefit recipients	15	24	64	94	124

West Virginia Consolidated Public Retirement Board
Statistical Section
Average Monthly Benefit Payments

Judges Retirement System

	Years of Credited Service				
	10 - 14	15 - 19	20 - 24	25 - 29	30+
For the Year Ended June 30, 2023:					
Average monthly benefit	\$ 4,410	\$ 6,927	\$ 7,694	\$ 7,709	\$ 7,270
Average final average salary	\$ 67,200	\$ 93,776	\$ 115,408	\$ 127,424	\$ 116,240
Number of benefit recipients	1	15	24	12	9
For the Year Ended June 30, 2022:					
Average monthly benefit	\$ 4,410	\$ 6,592	\$ 7,574	\$ 7,563	\$ 7,270
Average final average salary	\$ 70,560	\$ 105,472	\$ 121,184	\$ 121,008	\$ 118,176
Number of benefit recipients	1	17	24	10	9
For the Year Ended June 30, 2021:					
Average monthly benefit	\$ 4,200	\$ 6,345	\$ 7,335	\$ 7,011	\$ 6,719
Average final average salary	\$ 67,200	\$ 101,520	\$ 117,360	\$ 112,176	\$ 107,504
Number of benefit recipients	1	20	23	9	9
For the Year Ended June 30, 2020:					
Average monthly benefit	\$ 4,200	\$ 6,451	\$ 7,335	\$ 7,098	\$ 6,719
Average final average salary	\$ 67,200	\$ 103,216	\$ 117,360	\$ 113,568	\$ 107,504
Number of benefit recipients	1	19	23	10	9
For the Year Ended June 30, 2019:					
Average monthly benefit	\$ 4,200	\$ 6,253	\$ 7,357	\$ 7,465	\$ 6,914
Average final average salary	\$ 67,200	\$ 100,048	\$ 117,712	\$ 119,440	\$ 110,624
Number of benefit recipients	1	21	24	10	7
For the Year Ended June 30, 2018:					
Average monthly benefit	\$ 4,200	\$ 6,160	\$ 7,335	\$ 7,419	\$ 6,914
Average final average salary	\$ 67,200	\$ 98,560	\$ 117,360	\$ 118,704	\$ 110,624
Number of benefit recipients	1	22	23	9	7
For the Year Ended June 30, 2017:					
Average monthly benefit	\$ 4,200	\$ 5,581	\$ 6,841	\$ 7,363	\$ 7,265
Average final average salary	\$ 67,200	\$ 89,296	\$ 109,456	\$ 117,808	\$ 116,240
Number of benefit recipients	1	25	20	8	5
For the Year Ended June 30, 2016:					
Average monthly benefit	\$ 4,200	\$ 5,600	\$ 6,847	\$ 7,442	\$ 7,265
Average final average salary	\$ 67,200	\$ 89,600	\$ 109,552	\$ 119,072	\$ 116,240
Number of benefit recipients	1	26	17	8	5
For the Year Ended June 30, 2015:					
Average monthly benefit	\$ 4,200	\$ 5,607	\$ 6,864	\$ 7,789	\$ 7,265
Average final average salary	\$ 67,200	\$ 89,712	\$ 109,824	\$ 124,624	\$ 116,240
Number of benefit recipients	1	26	15	8	5
For the Year Ended June 30, 2014:					
Average monthly benefit	\$ 4,200	\$ 5,713	\$ 7,257	\$ 7,953	\$ 7,265
Average final average salary	\$ 67,200	\$ 91,408	\$ 116,112	\$ 127,248	\$ 116,240
Number of benefit recipients	1	23	15	8	5

West Virginia Consolidated Public Retirement Board

Statistical Section

Average Monthly Benefit Payments

Emergency Medical Services Retirement System

	Years of Credited Service				
	10 - 14	15 - 19	20 - 24	25 - 29	30+
For the Year Ended June 30, 2023:					
Average monthly benefit	\$ 2,418	\$ 1,930	\$ 2,280	\$ 2,682	\$ 3,313
Average final average salary	\$ 37,171	\$ 43,870	\$ 51,158	\$ 55,844	\$ 63,596
Number of benefit recipients	22	34	38	36	27
For the Year Ended June 30, 2022:					
Average monthly benefit	\$ 2,185	\$ 1,939	\$ 2,217	\$ 2,641	\$ 3,292
Average final average salary	\$ 38,544	\$ 43,496	\$ 50,042	\$ 52,818	\$ 63,607
Number of benefit recipients	20	31	34	34	27
For the Year Ended June 30, 2021:					
Average monthly benefit	\$ 2,015	\$ 1,959	\$ 2,049	\$ 2,480	\$ 3,012
Average final average salary	\$ 37,674	\$ 43,541	\$ 46,313	\$ 49,382	\$ 60,984
Number of benefit recipients	21	30	29	28	22
For the Year Ended June 30, 2020:					
Average monthly benefit	\$ 2,084	\$ 2,016	\$ 2,049	\$ 2,391	\$ 3,012
Average final average salary	\$ 39,092	\$ 41,246	\$ 46,313	\$ 47,565	\$ 60,984
Number of benefit recipients	18	26	29	24	22
For the Year Ended June 30, 2019:					
Average monthly benefit	\$ 2,053	\$ 2,038	\$ 2,068	\$ 2,333	\$ 2,985
Average final average salary	\$ 74,655	\$ 52,312	\$ 41,018	\$ 37,705	\$ 43,418
Number of benefit recipients	17	22	27	22	19
For the Year Ended June 30, 2018:					
Average monthly benefit	\$ 1,975	\$ 2,009	\$ 1,988	\$ 2,393	\$ 2,940
Average final average salary	\$ 71,818	\$ 51,568	\$ 40,461	\$ 42,885	\$ 50,472
Number of benefit recipients	15	20	22	21	17
For the Year Ended June 30, 2017:					
Average monthly benefit	\$ 1,933	\$ 1,528	\$ 1,948	\$ 2,535	\$ 3,173
Average final average salary	\$ 70,291	\$ 39,221	\$ 39,647	\$ 45,430	\$ 54,472
Number of benefit recipients	12	15	20	21	10
For the Year Ended June 30, 2016:					
Average monthly benefit	\$ 1,874	\$ 1,596	\$ 2,012	\$ 2,274	\$ 3,176
Average final average salary	\$ 68,145	\$ 40,967	\$ 40,950	\$ 40,753	\$ 54,524
Number of benefit recipients	10	12	18	17	10
For the Year Ended June 30, 2015:					
Average monthly benefit	\$ 1,812	\$ 1,632	\$ 2,027	\$ 2,104	\$ 3,189
Average final average salary	\$ 65,891	\$ 41,891	\$ 41,255	\$ 37,706	\$ 54,747
Number of benefit recipients	10	10	16	16	8
For the Year Ended June 30, 2014:					
Average monthly benefit	\$ 1,830	\$ 1,775	\$ 2,114	\$ 2,038	\$ 3,057
Average final average salary	\$ 66,545	\$ 45,561	\$ 43,026	\$ 41,362	\$ 52,481
Number of benefit recipients	10	10	16	17	9

West Virginia Consolidated Public Retirement Board

Statistical Section

Average Monthly Benefit Payments

Municipal Police Officers & Firefighters Retirement System

	Years of Credited Service				
	10 - 14	15 - 19	20 - 24	25 - 29	30+

For the Year Ended June 30, 2023:

Average monthly benefit	\$ 3,228	\$ -	\$ -	\$ -	\$ -
Average final average salary	\$ 43,038	\$ -	\$ -	\$ -	\$ -
Number of benefit recipients	1	-	-	-	-

For the Year Ended June 30, 2022:

Average monthly benefit	\$ 3,228	\$ -	\$ -	\$ -	\$ -
Average final average salary	\$ 43,038	\$ -	\$ -	\$ -	\$ -
Number of benefit recipients	1	-	-	-	-

For the Year Ended June 30, 2021:

Average monthly benefit	\$ 3,228	\$ -	\$ -	\$ -	\$ -
Average final average salary	\$ 43,038	\$ -	\$ -	\$ -	\$ -
Number of benefit recipients	1	-	-	-	-

For the Year Ended June 30, 2020:

Average monthly benefit	\$ 3,228	\$ -	\$ -	\$ -	\$ -
Average final average salary	\$ 43,038	\$ -	\$ -	\$ -	\$ -
Number of benefit recipients	1	-	-	-	-

For the Year Ended June 30, 2019:

Average monthly benefit	\$ 3,228	\$ -	\$ -	\$ -	\$ -
Average final average salary	\$ 43,038	\$ -	\$ -	\$ -	\$ -
Number of benefit recipients	1	-	-	-	-

For the Year Ended June 30, 2018:

Average monthly benefit	\$ 3,228	\$ -	\$ -	\$ -	\$ -
Average final average salary	\$ 43,038	\$ -	\$ -	\$ -	\$ -
Number of benefit recipients	1	-	-	-	-

Note: The MPFRS was established in January 2010 and had no benefits or retirees to report before the year ended June 30, 2018

Natural Resources Police Officers Retirement System

	Years of Credited Service				
	10 - 14	15 - 19	20 - 24	25 - 29	30+

For the Year Ended June 30, 2023:

Average monthly benefit	\$ -	\$ -	\$ -	\$ -	\$ 4,625
Average final average salary	\$ -	\$ -	\$ -	\$ -	\$ 69,937
Number of benefit recipients	-	-	-	-	9

For the Year Ended June 30, 2022:

Average monthly benefit	\$ -	\$ -	\$ -	\$ -	\$ 4,838
Average final average salary	\$ -	\$ -	\$ -	\$ -	\$ 71,167
Number of benefit recipients	-	-	-	-	7

For the Year Ended June 30, 2021:

Average monthly benefit	\$ -	\$ -	\$ -	\$ -	\$ -
Average final average salary	\$ -	\$ -	\$ -	\$ -	\$ -
Number of benefit recipients	-	-	-	-	-

Note: The NRPORS was established in January 2021 and had no benefits or retirees to report before the year ended June 30, 2021.