

TENNESSEE CONSOLIDATED RETIREMENT SYSTEM

A Program of the Tennessee Treasury Department | A Component Unit of the State of Tennessee



Comprehensive Annual Financial Report *For the Fiscal Year Ended June 30, 2019*



Prepared by:
State of Tennessee Department of Treasury
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David H. Lillard, Jr., State Treasurer
Jamie Wayman, TCRS Director



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Statistical Section

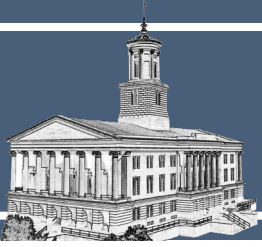
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Introduction

Chairman of the Board's Letter

Professional Awards

Letter of Transmittal

Administration and Mission

The Council on Pensions and Insurance

The Board of Trustees

Professional Consultants

Treasury Department Executive Staff

Organizational Chart





State of Tennessee

DAVID H. LILLARD, JR.
STATE TREASURER615.741.2956
David.Lillard@tn.govTREASURY DEPARTMENT
STATE CAPITOL
Nashville, Tennessee 37243-0225

December 13, 2019

Dear Members of the Tennessee Consolidated Retirement System:

It is my pleasure to submit this annual financial report of the Tennessee Consolidated Retirement System. This is the thirty-second consecutive year that the financial report is being submitted to the Government Finance Officers Association for review. All previous reports have received the Certificate of Achievement for Excellence in Financial Reporting.

Administration: TCRS continues to upgrade its pension administration system with a goal of providing enhanced operational efficiency and better access to information for our members. This web-based system allows active members and retirees to access real-time information, apply for retirement benefits, adjust tax withholding, bank account or address changes affecting the retirement benefit, and a variety of other services. In addition, employers electronically report pertinent payroll information through the system on a monthly basis. Information about the TCRS pension plans can be found at www.treasury.tn.gov/tcrs.

Investments: The 2019 fiscal year was a modest period for investors and TCRS portfolio experienced a gain of 7.54 percent with an annualized gain of 9.41 percent for the ten-year period. The one-year and the ten-year returns each exceeded the actuarially required rate of return and the portfolio was still managed in a manner to protect capital in an adverse environment.

Financial Soundness of the Plan: TCRS is considered one of the best-funded public pension plans in the nation. Standard and Poor's (S&P) ranks TCRS the sixth best-funded state pension plan in the U.S. All three national ratings agencies: S&P, Moody's, and Fitch, recognize Tennessee for fully funding its annual actuarially-determined contribution every year since 1972.

The General Assembly, the Board of Trustees and the TCRS staff have worked diligently to provide the best possible management of the system, invest the system assets in a prudent manner without undue risk, fund the system on an actuarially-strong basis and provide the best possible services to the members in the system.

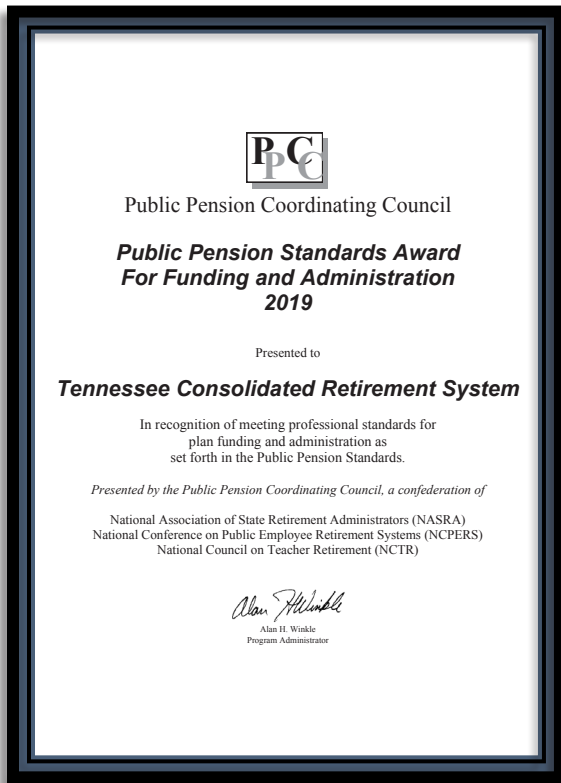
Sincerely,

David H. Lillard, Jr., State Treasurer
Chairman of the Board



**CERTIFICATE OF ACHIEVEMENT FOR EXCELLENCE
IN FINANCIAL REPORTING**

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Tennessee Consolidated Retirement System (TCRS) for our Comprehensive Annual Financial Report for the fiscal year ended June 30, 2018. This was the 31st consecutive year that TCRS has achieved this prestigious award.



PUBLIC PENSION STANDARDS AWARD

The Tennessee Consolidated Retirement System (TCRS) was awarded a Public Pension Standards Award for our Comprehensive Annual Financial Report for the fiscal year ended June 30, 2018. This prestigious award was presented by the Public Pension Coordinating Council, a confederation of the National Association of State Retirement Administrators (NASRA), the National Conference on Public Employee Retirement Systems (NCPERS), and the National Council on Teacher Retirement (NCTR). TCRS received the award in recognition of meeting professional standards for plan funding and administration as set forth in the Public Pension Standards.



STATE OF TENNESSEE
TENNESSEE CONSOLIDATED RETIREMENT SYSTEM
15th FLOOR ANDREW JACKSON BUILDING
502 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-0201

DAVID H. LILLARD, JR.
STATE TREASURER

JAMIE WAYMAN
DIRECTOR

December 13, 2019

Board of Trustees
Tennessee Consolidated Retirement System
Nashville, TN 37243

Ladies and Gentlemen:

We are pleased to present to you the Tennessee Consolidated Retirement System (TCRS) comprehensive annual financial report for the fiscal year ended June 30, 2019. Responsibility for the accuracy of the data and the fairness and completeness of this presentation, including all disclosures, rests with the management of TCRS. To the best of our knowledge and belief, the enclosed data is accurate in all material respects and is reported in a manner designed to provide a precise representation of the financial position and results of operations of the system.

This report has been prepared in accordance with generally accepted accounting principles as promulgated or adopted by the Governmental Accounting Standards Board and the American Institute of Certified Public Accountants. Specific accounting treatments are detailed in the Notes to the Financial Statements found in the Financial Section of this report. Management is responsible for establishing and maintaining internal controls for TCRS. The accounting systems are designed to include internal controls to provide reasonable assurances regarding safekeeping of assets and the reliability of financial records. These internal controls have been created to provide reasonable, rather than absolute, assurance that the financial statements are free of any material misstatements. The concept of reasonable assurance recognizes that first, the cost of a control should not exceed the benefits likely derived, and second, the valuation of the cost and benefits requires estimates and judgments by management. By statute, the Comptroller of the Treasury serves as the independent auditor for the system.

For additional discussion regarding financial information, please review Management’s Discussion and Analysis located in the Financial Section of this report.

PROFILE OF TCRS

TCRS was established in 1972 with the consolidation of seven separate retirement systems for state employees, public higher education institution employees, public school teachers and employees of political subdivisions electing to participate in TCRS. The State of Tennessee is responsible for the pension benefits of state employees and higher education employees and funds a significant portion of the retirement liability for teachers through the Basic Education Program. Each of the 572 participating political subdivisions is responsible for the pension benefits of its employees. TCRS is a qualified pension plan under Section 401(a) of the Internal Revenue Code. As such, the system is exempt from federal income taxation on its investment earnings. Since January 1, 1987, member contributions have been tax deferred under Section 414(h) of the Internal Revenue Code.

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Beginning July 1, 2014, new hire state employees and K-12 teachers participate in the hybrid retirement plan. The plan combines components of a defined benefit plan through TCRS and a defined contribution plan through the state's deferred compensation program. The structure was designed with cost and unfunded liability controls.

TCRS was established as a retirement program for the public employees of Tennessee. A variety of services are provided for the membership including: investing assets; counseling of rights and benefits; publishing newsletters, booklets, pamphlets and financial statements; processing deductions for retiree insurance programs and federal income tax; calculating death, disability and retirement benefits; and processing refund and prior service requests.

ECONOMIC CONDITION

Funding of TCRS is provided through employee and employer contributions plus earnings from the invested assets. A standard actuarial "advanced funding" method is used to provide for the accumulation of assets to fund the cost of retirement, disability and death benefits provided by the system. The funding objective of TCRS is being met as the state and political subdivisions continue to make contributions to the plan at the rates established by the Board of Trustees. The Board is utilizing a strong actuarial method and has adopted reasonable actuarial assumptions for the determination of the appropriate employer contribution rates.

An actuarial valuation of TCRS is performed by an independent actuarial firm annually to determine the funding requirements for the employers participating in TCRS. On June 30, 2019, the legacy plan had the following funded ratios on a market value basis: state employees, 90.26 percent; K-12 teachers, 101.49 percent; and political subdivisions in aggregate 101.77 percent. On June 30, 2019, the hybrid retirement plan had the following funded ratios on a market value basis: state employees, 132.39 percent and K-12 teachers, 126.97 percent. Experience studies are performed on a quadrennial basis. The results of the June 30, 2016 experience study have been incorporated into the June 30, 2017 actuarial valuation which produced employer contribution rates for the period July 1, 2018-June 30, 2019.

The TCRS is invested in the Tennessee Retiree Group Trust (TRGT). The TRGT portfolio is diversified among domestic and international stocks and bonds, real estate, private equity and short-term securities. A diversified portfolio is used to manage risk and to minimize significant exposure to unpredictable events. Staff consults with the TCRS general consultant periodically to determine the optimal, long-term mix of assets to best meet the plan's investment objectives. TCRS has adopted a conservative investment strategy that has yielded excellent returns with a low level of risks.

Because TCRS is a well-funded pension plan, volatility in investment income will cause employer contribution rates to fluctuate. Investment strategies have been adopted that somewhat reduce, but do not eliminate, this volatility. The investment market outlook continues to create significant challenges in meeting the 7.25 percent investment return assumed by TCRS. A premium will continue to be placed on security selection. At the September 2017 TCRS Board of Trustees meeting, the board reviewed the results of the June 30, 2016 experience study and lowered the investment rate of return to 7.25 percent.

The current TCRS Investment Policy can be found at treasury.tn.gov/Retirement/Boards-and-Governance/Reporting-and-Investment-Policies. TCRS pension funds represent 99.6 percent of the TRGT. For fiscal year 2019, the TRGT investments provided a 7.54 percent rate of return. The annualized rate of return was 9.02 percent over the past three years and 6.60 percent over the past five years. For further information on investments of TRGT, please refer to the TRGT Financial Statements at www.treasury.tn.gov.

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AWARDS AND ACKNOWLEDGMENTS

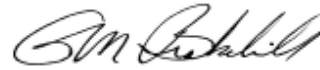
The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to Tennessee Consolidated Retirement System for its comprehensive annual financial report for the fiscal year that ended June 30, 2018. This was the 31st consecutive year that the System has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized comprehensive annual financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements. The GFOA Certificate of Achievement is valid for a period of one year only. We believe that our current comprehensive annual 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.

TCRS is also the recipient of the Public Pension Principles Achievement Award. This program, administered by the Public Pension Coordinating Council, recognizes the professional achievements of public employee retirement systems.

The dedicated effort of the Treasury Department team to assemble the information contained in this publication is hereby acknowledged with our sincerest appreciation. The report will be provided to state legislators, members of the Board of Trustees, state officials, participating employers and other interested parties.

A handwritten signature in cursive script that reads "Jamie Wayman".

Jamie Wayman
TCRS Director

A handwritten signature in cursive script that reads "Michael Brakebill".

Michael Brakebill
Chief Investment Officer



ADMINISTRATION

The State Treasurer is a constitutional officer elected every two years by a joint session of the General Assembly. He serves as the Chief Executive Officer of the Treasury Department, a part of the legislative branch of state government. The administration and operation of the Tennessee Consolidated Retirement System are among the primary responsibilities of the State Treasurer. In order to meet the statutory requirements and fiduciary responsibilities of administering TCRS, the Treasurer appoints two executive officers: the Director of TCRS and the Chief Investment Officer.

The Director of TCRS is responsible for the daily operation of the retirement system which includes providing counseling services for the active and retired members; issuance of payments to retired members, disabled members, beneficiaries of deceased members and refunds to terminated employees; enrollment of members; maintenance of member account balances and records; establishment of service credit and issuance of various publications to inform members of their rights and benefits.

The Chief Investment Officer is responsible for the investment and oversight of TCRS assets in accordance with statutory guidelines and the investment policies and strategies established by the Board of Trustees.

Other divisions within the Treasury Department, which support the operations of TCRS, include Information Systems, Accounting, Management Services, Financial Empowerment, Internal Audit, Financial Strategies and Analysis, Human Resources, and Communications. Through these divisions, data processing services, accounting services, records maintenance, control reviews and personnel services are provided.

The administrative budget of TCRS is subject to approval by the General Assembly and is part of the overall annual budget process of the State of Tennessee. Funding for the operation of TCRS is provided by three sources. The State of Tennessee is responsible for the operational cost associated with state employees and higher education employees. Local education agencies are responsible for the operational cost related to K-12 teachers. Political subdivisions are responsible for the operational cost associated with their employees.

MISSION

The mission of the TCRS is to provide superior services to constituents in a cost-effective manner through qualified personnel while maintaining the highest ethical standards. The mission is accomplished by TCRS in cooperation with the Board of Trustees, the Council on Pensions and Insurance and the TCRS membership through the following objectives:

- ❖ **Exemplary Service** — To provide accurate, courteous and prompt service to members of TCRS.
- ❖ **Benefit Standards** — To provide retirement coverage through TCRS, Social Security and personal savings vehicles which will allow public employees to maintain their standard of living after retirement.
- ❖ **Funding Standards** — To provide for the long-term funding of TCRS on an actuarial basis which will ensure that sufficient assets will be accumulated to pay the statutory benefits of current and future retirees.
- ❖ **Staffing** — To attract and retain professional, highly-trained staff in an atmosphere conducive to innovation, challenges and a high level of performance.
- ❖ **Research** — To continuously perform studies on pension issues and to compare the TCRS plan with other public and private pension systems.
- ❖ **Management** — To manage by leading, planning, organizing and controlling the operation of TCRS in a cost-effective manner for the benefit of members and Tennessee taxpayers utilizing personnel, technology and capital efficiently while providing the highest level of service.
- ❖ **Ethical Standards** — To maintain the highest ethical standards.
- ❖ **Investment Return** — To obtain the highest available return on investments consistent with the preservation of principal while maintaining sufficient liquidity to react to the changing environment and to pay benefits when due.



THE COUNCIL ON PENSIONS AND INSURANCE

Created as a legislative oversight committee, the Council on Pensions and Insurance develops, recommends and establishes pension and retirement standards and maintains a progressive state policy on retirement. Additionally, the Council reviews legislation affecting state-provided insurance programs for both active and retired members of the Tennessee Consolidated Retirement System.

The Council periodically reviews Tennessee's retirement and state-provided insurance provisions and recommends changes in state law as deemed necessary. Since its creation, the Council has continuously performed studies and comparisons of other pension systems, including those of other states, private industry and the federal government's Social Security program. All proposed legislation affecting Tennessee's retirement laws must be reviewed by the Council before the legislature may take action. The Council is authorized to prepare and propose amendments

which are then forwarded to the standing committees. Information regarding the actuarial cost or impact of proposed legislation is provided by the Council to the other members of the legislature. The staff of the TCRS also serves as staff to the Council.

The voting membership of the Council consists of the Speaker of each house of the General Assembly; the officers of the House and the Senate Committees on Finance, Ways and Means; and three additional members of each finance committee. The Speaker of the Senate may designate a member of the Senate and the Speaker of the House of Representatives may designate a member of the House to serve as alternates to vote or otherwise act at Council meetings in absence of the respective speaker. Nonvoting members include the Commissioner of Human Resources, the Commissioner of Finance and Administration, the Comptroller of the Treasury, the State Treasurer and the Director of TCRS.

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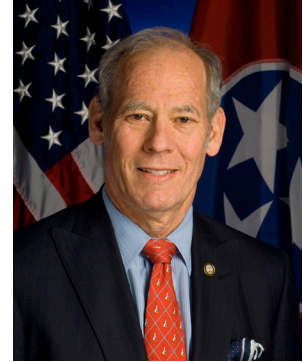
NON-VOTING MEMBERS



David H. Lillard, Jr.
State Treasurer



Jamie Wayman
TCRS Director



Justin Wilson
Comptroller of the Treasury



Juan Williams
*Commissioner of
Human Resources*



Stuart McWhorter
*Commissioner of
Finance and Administration*



VOTING MEMBERS - SENATORS



**Lieutenant Governor
Randy McNally**
Speaker of the Senate



**Senator
Todd Gardenhire**



**Senator
Brenda Gilmore**



**Senator
Jack Johnson**



**Senator
Joey Hensley**
*Finance, Ways and Means
Second Vice-Chair*



**Senator
John Stevens**
*Finance, Ways and Means
First Vice-Chair*



**Senator
Paul Bailey**
Speaker's Designee



**Senator
Bo Watson**
*Council Chair
Finance, Ways and Means Chair*

(continued)



VOTING MEMBERS - REPRESENTATIVES



**Speaker
Glen Casada**
House of Representatives



**Representative
Patsy Hazlewood**
*Finance, Ways and Means
Vice-Chair*



**Representative
Gary Hicks**
Speaker's Designee



**Representative
Brandon Ogles**



**Representative
William Lamberth**



**Representative
Andy Holt**
*Finance, Ways and Means
Sub-Committee Chair*



**Representative
Rick Staples**



**Representative
Susan Lynn**
*Council Vice-Chair
Finance, Ways & Means Chair*



THE BOARD OF TRUSTEES

The Tennessee Consolidated Retirement System Board of Trustees is responsible for the general administration and proper operation of TCRS within the requirements and provisions of state statute (T.C.A., Title 8, Chapters 34-37). The 20-member Board meets quarterly and is subject to the call of the chair for special meetings. Nine voting members constitute a quorum and nine affirmative votes are needed for decision making.

The Board consists of nine ex-officio members, nine representatives of the active TCRS membership and two representatives for retirees. Ex-officio members include the chair and vice-chair of the Legislative Council on Pensions and Insurance (as nonvoting members), the Commissioner of Human Resources, the Commissioner of Finance and Administration, the Comptroller of the Treasury, the Secretary of State and the Administrative Director of the Courts. In addition, the State Treasurer sits as Chair of the Board and the Director of TCRS serves as Secretary.

Employee representation consists of three teachers, one from each grand division of the state; two state employees from departments other than those represented by ex-officio members; one public safety officer and three representatives of local governments. Retiree representation includes a retired teacher and a retired state employee.

Three teachers and one retired teacher are selected for three-year terms by the Speaker of the Senate and the Speaker of the House of Representatives. State employees elect two representatives who also serve three-year terms.

One representative is appointed for a two-year term by each of the following organizations: The Tennessee County Services Association, the Tennessee Municipal League and the Tennessee County Officials Association. The public safety representative and the state retiree representative are appointed by the Governor. All employee representatives must be vested members of TCRS.

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EX-OFFICIO MEMBERS



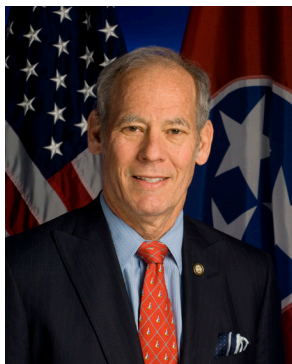
David H. Lillard, Jr.
State Treasurer



Jamie Wayman
TCRS Director



Tre Hargett
Secretary of State



Justin Wilson
Comptroller of the Treasury



**Senator
Bo Watson**
Council Chair



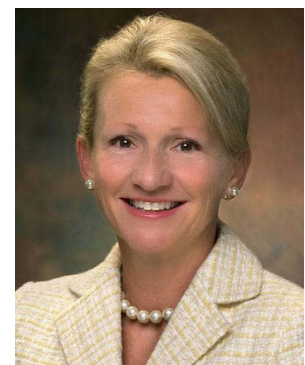
**Representative
Susan Lynn**
Council Vice-Chair



Juan Williams
*Commissioner of
Human Resources*



Stuart McWhorter
*Commissioner of
Finance and Administration*



Deborah Taylor-Tate
*Administrative Director
of the Courts*

(continued)



ELECTED OR APPOINTED MEMBERS



Michael Barker
Retired Teacher
Term Expires:
June 30, 2019



Vicki Burton
State Employee
Term Expires:
June 30, 2019



Kevin Fielden
East Tennessee Teacher
Term Expires:
June 30, 2019



Bill Kemp
Tennessee County
Officials Association
Term Expires:
June 30, 2019



Alfred Laney
Retired State Employee
Term Expires:
June 30, 2020



Patsy Moore
West Tennessee Teacher
Term Expires:
June 30, 2020



Ed Taylor
State Employee
Term Expires:
June 30, 2019



Paul Todd Varble
Public Safety
Term Expires: June 30, 2019



Tim Ellis
Tennessee
Municipal League
Term Expires: June 30, 2019



Robert Wormsley
Tennessee County
Services Association
Term Expires: June 30, 2019

*Not pictured: **Stacey Hobbs**, Middle Tennessee Teacher



PROFESSIONAL CONSULTANTS

Independent professional consultants are appointed by the Board of Trustees to advise the Board and the TCRS staff on investment, medical and actuarial issues. Service fees related to investment professionals may be found on pages 65-67.

GENERAL INVESTMENT CONSULTANT

An investment consultant is employed to assist in the long-term financial planning process, to evaluate various investment strategies, to measure investment performance, to determine whether the system's objectives are being met, to research investment proposals regarding the use of new asset classes or variations of existing asset classes and to provide investment information on various issues which may arise.

Margaret Jadallah
Verus
San Francisco, California

PRIVATE EQUITY AND STRATEGIC LENDING CONSULTANT

Thomas Martin
TorreyCove Capital Partners
San Diego, California

REAL ESTATE INVESTMENT CONSULTANT AND ADVISORS

The real estate consultant provides general market advice relative to real estate, measures performance of real estate properties, assists in the formulation of policy and assists in the selection of real estate advisors.

Martin Rosenberg
The Townsend Group
Cleveland, Ohio

The real estate investment advisors identify prospective real estate transactions and provide asset management services.

Jeffrey G. Maguire
UBS Realty Investors LLC
Hartford, Connecticut

Chris Conklin
RREEF America LLC
Chicago, Illinois

Tony Ferrante
Heitman
Chicago, Illinois

Christine M. Mullis
L&B Realty Advisors, LLP
Dallas, Texas

Alison L. Husid
AEW Capital Management L.P.
Boston, Massachusetts

Daniel Valpano
J.P. Morgan Investment Management, Inc.
New York, New York

(continued)

**INTERNATIONAL EQUITY INVESTMENT MANAGERS**

The international equity investment managers are responsible for purchasing stock of companies domiciled in foreign countries as set out in the investment policy.

Jeffrey Braemer
TimesSquare Capital Management
New York, New York

Thomas Clancy
Fiera Capital
Boston, Massachusetts

Chris Moore
WCM Asset Management
Laguna Beach, California

Greg Cassano
TT International
New York, New York

Jill Farrell
American Century Investments
Kansas City, Missouri

Jane Henderson
Walter Scott & Partners, Ltd.
Edinburgh, Scotland, UK

Brett Peven
Pzena Investment Management
New York, New York

William Bardeen
PanAgora Asset Management, Inc.
Boston, Massachusetts

Thomas Leventhorpe
J.P. Morgan Asset Management
New York, New York

Zack Laukhardt
Marathon Asset Management
London

Todd Rittenhouse
Mondrian Investment Partners
Philadelphia, Pennsylvania

Adam Waclawsky
Acadian Asset Management
Boston, Massachusetts

MASTER CUSTODIAN BANK

The Master Custodian bank settles all financial investment transactions and provides custody services for TCRS assets.

Gary Lane
State Street Corporation
Boston, Massachusetts

THE MEDICAL ADVISORS

The Medical Advisors evaluate applications for disability retirement to determine whether the applicants are totally and permanently disabled and unable to engage in gainful employment. Additionally, the panel reviews medical data submitted by disabled retirees who are subject to periodic evaluation. The Medical Advisors consist of the following:

Suzanne Fletcher, M.D.
Brentwood, Tennessee

Barry R. Siegel, M.D.
Memphis, Tennessee

Eva Misra, M.D.
Knoxville, Tennessee

Patsy Bramlett, C.R.C., L.P.C.
Decatur, Alabama

Effective January 1, 2019, TCRS contracted with the University of Massachusetts Medical School to serve as the Medical Advisor.

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CONSULTING ACTUARY

An independent consulting firm performs an actuarial valuation every year to determine the funding status of the TCRS and recommend employer contribution rates. The actuary also conducts an experience study every four years to evaluate and adjust actuarial assumptions and methods.

Justin Thacker
Findley, Inc.
Brentwood, Tennessee

OTHER PROFESSIONAL SERVICES

State statute provides that the state Attorney General and Reporter will be the legal advisor of the Board and that the Office of the Comptroller of the Treasury will conduct an annual audit of the TCRS. These officers are as follows:

Herbert Slatery, III
Attorney General/Reporter
Nashville, Tennessee

Justin P. Wilson
Comptroller of the Treasury
Nashville, Tennessee



TREASURER’S OFFICE

State Treasurer David H. Lillard, Jr., JD, LLM
 Chief Operating Officer Mary Jo Price, JD
 Deputy Chief Operating Officer Kevin Bradley, CPA, CGFM, AAP, CGMA
 Communications Director Shelli King
 Government and Legislative Affairs Manager Ashley Fuqua
 Executive Assistant to the Treasurer Heather Sczpeczenski

TCRS INVESTMENTS

Chief Investment Officer Michael Brakebill, CFA, CAIA
 Deputy Chief Investment Officer Derrick Dagnan, CFA
 Assistant CIO and Director of Cash Management Tim McClure, CTP, CGFM, CFP
 Equity Director Carrie Green, CFA
 Fixed Income Director Thomas Kim, CFA
 Real Estate Director J.P. Rachmaninoff, CPA
 Private Equity Director Daniel Crews, CFA

RETIREMENT ADMINISTRATION

TCRS Director Jamie Wayman, CPA, CEBS
 TCRS Assistant Director Erica Nale, CEBS
 Administrator of Old Age and Survivors Insurance Mary Griffin, JD
 Manager of Member Services Mia Robinson
 Manager of Financial Services Sarah Card

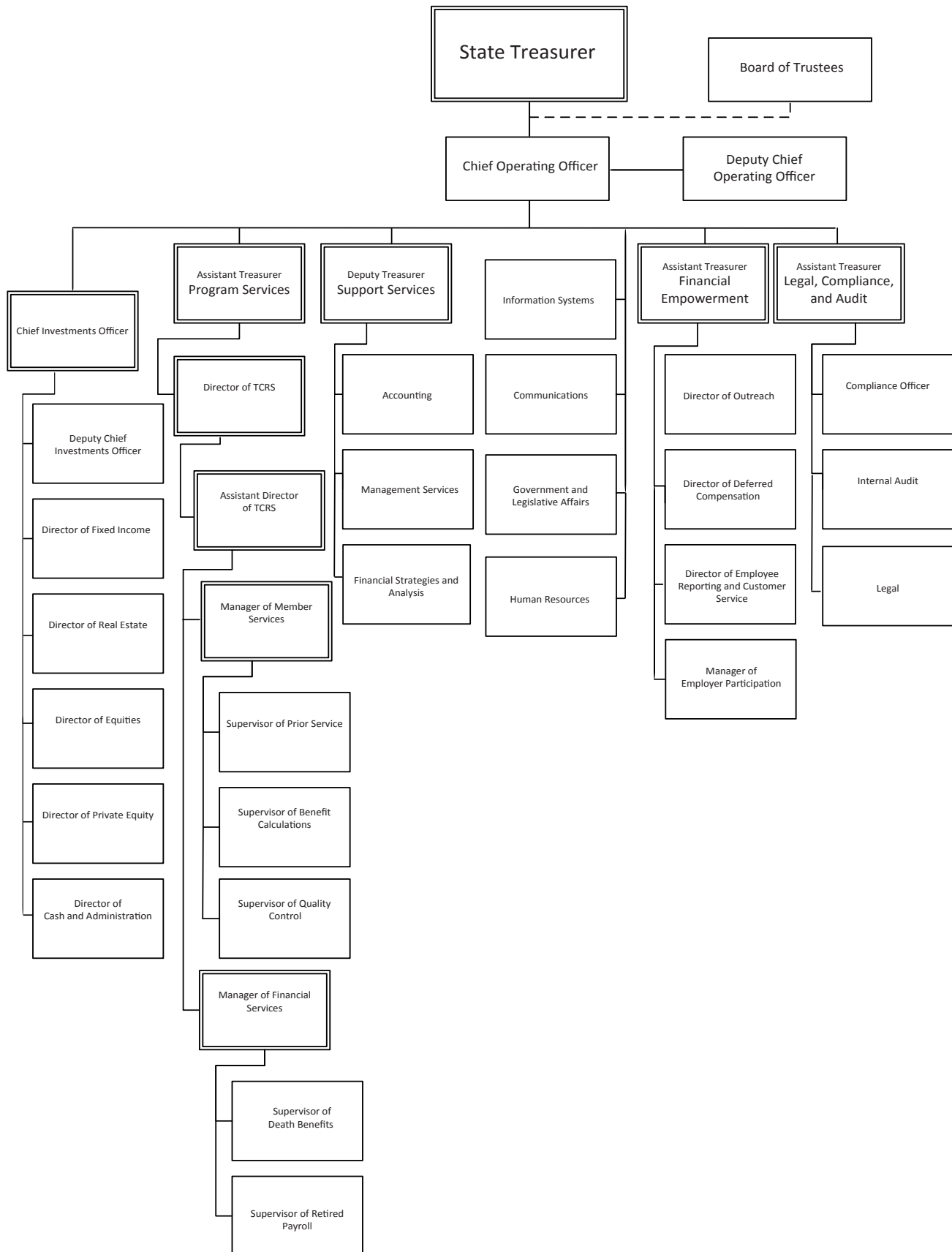
TREASURY DIVISIONS

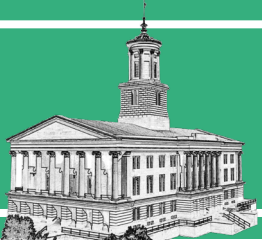
Deputy Treasurer, Support Services Rick DuBray, CPA
 Assistant Treasurer, Financial Empowerment Ashley Nabors
 Assistant Treasurer, Legal, Compliance and Audit Alison Cleaves, JD
 Assistant Treasurer, Program Services Steve Summerall, CEBS
 Director of Compliance Jennifer Selliers, CCEP
 Director of Deferred Compensation Hunter Bethea
 Director of Accounting Brian Derrick, CPA
 Assistant Director of Accounting Connie Gibson, CPA
 Senior Director of Information Systems Edmund McFadden
 Director of Management Services Kerry Hartley, CPA
 Director of Human Resources Whitney Goetz

*The Treasurer is housed on the 1st floor of the State Capitol Building.
 Divisions are housed on the 13th, 14th and 15th floors of the Andrew Jackson Building.*



ORGANIZATIONAL CHART





Financial Section

Independent Auditor's Report

Management's Discussion and Analysis

Financial Statements

Notes to the Financial Statements

Required Supplementary Information

Notes to Required Supplementary Information

Schedule of Administrative Expenses

Schedule of Investment Expenses

Schedule of Expenses for Consultants





JUSTIN P. WILSON
Comptroller

JASON E. MUMPOWER
Deputy Comptroller

Independent Auditor's Report

Members of the General Assembly
Members of the Board of Trustees
The Honorable David H. Lillard, Jr., Treasurer

Report on the Financial Statements

We have audited the accompanying statement of fiduciary net position of the Tennessee Consolidated Retirement System, pension trust funds of the State of Tennessee, as of June 30, 2019, the related statement of changes in fiduciary net position for the year then ended, and the related notes to the financial statements, which collectively comprise the Tennessee Consolidated Retirement System's basic financial statements.

Management's Responsibility for the Financial Statements

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

Auditor's Responsibility

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

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express

(continued)



no such opinion. An audit also includes evaluating the appropriateness of accounting principles used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion. Tennessee statutes, in addition to audit responsibilities, entrust certain other responsibilities to the Comptroller of the Treasury. Those responsibilities include serving as a member of the board of trustees of the Tennessee Consolidated Retirement System. We do not believe that the Comptroller's service in this capacity affected our ability to conduct an independent audit of the Tennessee Consolidated Retirement System.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the Tennessee Consolidated Retirement System as of June 30, 2019, and the changes in fiduciary net position thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note A, the financial statements present only the Tennessee Consolidated Retirement System, pension trust funds, and do not purport to, and do not, present fairly the financial position of the State of Tennessee as of June 30, 2019, and the changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, schedule of changes in net pension liability, schedule of net pension liability, schedule of investment returns, and schedule of pension plan contributions, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, which 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.

Other Information

Our audit was conducted for the purpose of forming an opinion on the basic financial statements as a whole. The accompanying financial information, listed as supporting schedules in the table

(continued)



of contents, is presented for purposes of additional analysis and is 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 financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated in all material respects in relation to the basic financial statements as a whole.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated December 13, 2019, on our consideration of the Tennessee Consolidated Retirement System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, and contracts, and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Tennessee Consolidated Retirement System's internal control over financial reporting and compliance.



Deborah V. Loveless, CPA, Director
Division of State Audit
December 13, 2019



The Management of the Tennessee Consolidated Retirement System (TCRS) provides this discussion and analysis as an overview of the TCRS' financial activities for the fiscal year ended June 30, 2019. This section should be read in conjunction with the Independent Auditor's Report, the audited financial statements, and the accompanying notes.

FINANCIAL HIGHLIGHTS

- The net position for the TCRS plans (total assets minus total liabilities) at June 30, 2019 was \$52.1 billion, increasing \$2.4 billion (4.9 percent) from the plan net position at June 30, 2018. The net position is restricted for future benefit obligations. This increase in plan net position is mainly due to investment income.
- Net investment income for fiscal year 2019 was \$3.7 billion. During fiscal year 2019, the TCRS received a time-weighted rate of return on its portfolio of 7.54 percent, compared to 8.19 percent for fiscal year 2018.
- Contribution revenue for fiscal year 2019 totaled \$1.5 billion, representing an increase of 1.9 percent compared to fiscal year 2018.
- Total benefits and refunds paid for fiscal year 2019 were \$2.7 billion, representing an increase of 5.0 percent over fiscal year 2018 total benefits and refunds paid of \$2.6 billion. The growth is primarily due to the retiring members' benefits exceeding the benefits of long-term retired members whose benefits ceased due to death. Additionally, a 2.1 percent cost of living adjustment was given in July 2018.
- Total administrative expenses for fiscal year 2019 were \$19.9 million, representing a decrease of 4.9 percent from fiscal year 2018 administrative expenses of \$20.9 million.

OVERVIEW OF THE FINANCIAL STATEMENTS

The TCRS financial statements consist of the *Statement of Fiduciary Net Position*, the *Statement of Changes in Fiduciary Net Position*, and the *Notes to the Financial Statements*. In addition, *Required Supplementary Information* and the *Notes to the Required Supplementary Information* are presented, which includes this *Management's Discussion and Analysis*. These financial statements, notes to the financial statements and required supplementary information were prepared in conformity with GASB Statement No. 67, Financial Reporting for Pension Plans. Collectively, this information presents the combined net position held in trust for pensions for each of the plans administered by TCRS as of June 30, 2019.

The *Statement of Fiduciary Net Position* and the *Statement of Changes in Fiduciary Net Position* report information about the fiduciary net position (total assets in excess of total liabilities) as of the end of the fiscal year and the changes in the fiduciary net position during the fiscal year. These statements include all assets and liabilities using the accrual basis of accounting. Under the accrual basis of accounting, the current year's revenues and expenses are included in the financial activity, regardless of when cash is received or paid. The difference between the total assets and total liabilities on the *Statement of Fiduciary Net Position*, or net position restricted for pensions, provides a measurement of the financial position of the TCRS as of the end of the fiscal year. The *Statement of Changes in Fiduciary Net Position* provides information on the activities that caused the financial position to change during the fiscal year. Over time, increases or decreases in the fiduciary net position of the TCRS are one indicator of whether the system's financial health is improving or deteriorating.

(continued)



The *Notes to the Financial Statements* are essential to the reader's understanding of the financial statements and provide additional information regarding the TCRS, such as descriptions of the plans administered by the TCRS, including contribution and benefit provisions, and information about the accounting policies and investment activities.

ANALYSIS OF ASSETS, LIABILITIES AND PLAN NET POSITION

At June 30, 2019, the TCRS had a net position (total assets in excess of total liabilities) of \$52.1 billion, an increase of \$2.4 billion (4.9 percent) from \$49.7 billion at June 30, 2018. The assets of the TCRS consist primarily of investments. Condensed financial information comparing the TCRS' fiduciary net position for the past two fiscal years follows:

FIDUCIARY NET POSITION

	June 30, 2019	June 30, 2018	Increase (Decrease) Amount	Percentage Change
ASSETS				
Cash and cash equivalents	\$ 24,556,868	\$ 24,651,654	\$ (94,786)	(0.4)%
Cash collateral for securities on loan	3,689,733,021	5,506,029,184	(1,816,296,163)	(33.0)%
Member and employer receivables	110,393,746	121,384,215	(10,990,469)	(9.1)%
Investments	52,012,463,913	49,585,627,177	2,426,836,736	4.9%
Capital assets	16,892,344	20,606,232	(3,713,888)	(18.0)%
TOTAL ASSETS	<u>55,854,039,892</u>	<u>55,258,298,462</u>	<u>595,741,430</u>	1.1%
LIABILITIES				
Death benefits, refunds and other payables	29,675,714	29,672,855	2,859	0.0%
Cash collateral for securities on loan	3,689,733,021	5,506,029,184	(1,816,296,163)	(33.0)%
TOTAL LIABILITIES	<u>3,719,408,735</u>	<u>5,535,702,039</u>	<u>(1,816,293,304)</u>	(32.8)%
NET POSITION RESTRICTED FOR PENSIONS	<u>\$ 52,134,631,157</u>	<u>\$ 49,722,596,423</u>	<u>\$ 2,412,034,734</u>	4.9%

(continued)



ANALYSIS OF REVENUES AND EXPENSES

Employer contribution rates for the TCRS did increase during fiscal year 2019; therefore, the 1.9 percent increase in contributions from fiscal year 2018 to fiscal year 2019 was due to increases in rates in addition to increases in salaries. Gross investment income for fiscal year 2019 decreased \$188 million (4.8 percent) from fiscal year 2018 as a result of a lower rate of return in fiscal year 2019.

Investment expenses for fiscal year 2019 totaled \$156 million for a 23.0 percent increase over fiscal year 2018. These expenses were split between portfolio management investment expenses of \$58.4 million and \$97.6 million in expenses attributed to the securities lending program. The TCRS investment portfolio earned a time-weighted rate of return of 7.54 percent and net investment income of \$3.7 billion.

Total benefits paid during the year ended June 30, 2019 were \$2.7 billion, an increase of 5.0 percent over fiscal year 2018 total benefits which can be attributed to an increase in the number of retirees and a 2.1 percent cost of living adjustment given in July 2018. Total refunds paid increased \$1.6 million, an increase of 3.9 percent, in fiscal year 2019 from fiscal year 2018. This increase is related to a higher average amount paid per refund issued.

Administrative expenses for the year ended June 30, 2019 were \$19.9 million, a decrease of 4.9 percent from fiscal year 2018 administrative expenses. This decrease can be attributed to reduced information system consultant expenses for system maintenance.

Condensed financial information comparing the TCRS' revenues and expenses for the past two fiscal years follows:

Revenue by Type

(expressed in thousands)

	Year ended June 30, 2019		Year ended June 30, 2018	
	Amount	% of Total	Amount	% of Total
Employee Contributions	\$ 360,046	7.0%	\$ 341,430	6.5%
Employer Contributions	1,101,918	21.5%	1,092,454	20.7%
Other Contributions	2,479	0.1%	2,604	0.0%
Net Investment Income	3,655,645	71.4%	3,854,223	72.8%
Total	<u>\$ 5,120,088</u>	<u>100.0%</u>	<u>\$ 5,290,711</u>	<u>100.0%</u>

Expenses by Type

(expressed in thousands)

	Year ended June 30, 2019		Year ended June 30, 2018	
	Amount	% of Total	Amount	% of Total
Benefit Payments	\$ 2,645,419	97.7%	\$ 2,520,303	97.6%
Refunds	42,760	1.6%	41,160	1.6%
Administrative	19,874	0.7%	20,904	0.8%
Total	<u>\$ 2,708,053</u>	<u>100.0%</u>	<u>\$ 2,582,367</u>	<u>100.0%</u>

(continued)



MANAGEMENT'S DISCUSSION AND ANALYSIS
FOR THE YEAR ENDED JUNE 30, 2019 (CONTINUED)



**TENNESSEE CONSOLIDATED RETIREMENT SYSTEM
CHANGES IN FIDUCIARY NET POSITION**

	For the Year Ended June 30, 2019	For the Year Ended June 30, 2018	FY19 - FY18 Increase (Decrease) Amount	FY19 - FY18 Percentage Change
ADDITIONS				
Contributions	\$ 1,464,443,270	\$ 1,436,488,560	\$ 27,954,710	1.9%
Investment income	3,691,615,838	3,879,465,675	(187,849,837)	(4.8)%
Less: Investment expense	(58,468,800)	(62,297,089)	(3,828,289)	(6.1)%
Net income from securities lending activities	22,497,494	37,054,116	(14,556,622)	(39.3)%
Net investment income	3,655,644,532	3,854,222,702	(198,578,170)	(5.2)%
TOTAL ADDITIONS	5,120,087,802	5,290,711,262	(170,623,460)	(3.2)%
DEDUCTIONS				
Annuity benefits	2,639,940,918	2,514,935,060	125,005,858	5.0%
Death benefits	5,478,252	5,368,116	110,136	2.1%
Refunds	42,759,556	41,159,513	1,600,043	3.9%
Administrative expenses	19,874,342	20,903,787	(1,029,445)	(4.9)%
TOTAL DEDUCTIONS	2,708,053,068	2,582,366,476	125,686,592	4.9%
NET INCREASE (DECREASE)	2,412,034,734	2,708,344,786	(296,310,052)	(10.9)%
NET POSITION RESTRICTED FOR PENSIONS				
BEGINNING OF YEAR	49,722,596,423	47,014,251,637	2,708,344,786	5.8%
END OF YEAR	\$ 52,134,631,157	\$ 49,722,596,423	\$ 2,412,034,734	4.9%

(continued)



ECONOMIC FACTORS, FUTURE FUNDING PROVISIONS, OVERALL OUTLOOK

For the year ended June 30, 2019 the portfolio delivered a return of 7.54 percent which was above the actuarial assumed return of 7.25 percent. The fund gained 9.02% for the trailing three-year period and 9.41% for the trailing ten-year period. Accordingly, according to the Verus performance benchmark, the fund beat 61% of its peers for the trailing three-year period and 65% for the trailing ten-year period.

Strong absolute returns in Private Equity (17.51%) and U.S. Fixed Income (11.01%) were the most additive to the portfolio and all asset classes produced positive returns for the year. Other notable contributors were Real Estate (7.82%), Domestic Equities (7.20%) and Strategic Lending (6.04%).

International markets produced relatively modest returns led by investments in Canada (5.12%) followed by Emerging Markets (3.34%) and International Developed Stocks (0.4%).

An actuarial valuation was performed as of June 30, 2017 that determined the employer contribution rates for the period July 1, 2018 through June 30, 2019. An actuarial experience study to establish demographic and economic assumptions was completed effective June 30, 2016, was adopted by the Board of Trustees during fiscal year 2017, and was utilized in the June 30, 2018 actuarial valuation.

CONTACTING THE TCRS

This report is designed to provide a financial overview of the TCRS to state legislators, members of the Board of Trustees of the TCRS, state officials, participating employers, members of the TCRS 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 Tennessee Treasury Department, Consolidated Retirement System, 502 Deaderick Street, Nashville, TN 37243-0201.



STATEMENT OF FIDUCIARY NET POSITION
JUNE 30, 2019



STATEMENT OF FIDUCIARY NET POSITION
JUNE 30, 2019

(Expressed in Thousands)

	<u>Public Employee Retirement Plan</u>	<u>Teacher Retirement Plan</u>	<u>Teacher Legacy Pension Plan</u>	<u>Total</u>
ASSETS				
Cash and cash equivalents	\$ 12,624	\$ 139	\$ 11,794	\$ 24,557
Cash collateral for securities on loan	1,896,776	20,885	1,772,072	3,689,733
Receivables				
Member receivable	9,742	4,940	17,443	32,125
Employer receivable	41,017	1,908	35,344	78,269
Total receivables	<u>50,759</u>	<u>6,848</u>	<u>52,787</u>	<u>110,394</u>
Investment in Tennessee Retiree Group Trust	26,737,960	294,413	24,980,091	52,012,464
Capital assets (net)	<u>8,683</u>	<u>96</u>	<u>8,113</u>	<u>16,892</u>
TOTAL ASSETS	<u>28,706,802</u>	<u>322,381</u>	<u>26,824,857</u>	<u>55,854,040</u>
LIABILITIES				
Accounts payable				
Death benefits and refunds payable	1,934	158	1,243	3,335
Federal withholding payable	8,814	97	8,235	17,146
Retiree insurance premium payable	4,727	52	4,416	9,195
Cash collateral for securities on loan	<u>1,896,776</u>	<u>20,885</u>	<u>1,772,072</u>	<u>3,689,733</u>
TOTAL LIABILITIES	<u>1,912,251</u>	<u>21,192</u>	<u>1,785,966</u>	<u>3,719,409</u>
NET POSITION RESTRICTED FOR PENSIONS	<u>\$ 26,794,551</u>	<u>\$ 301,189</u>	<u>\$ 25,038,891</u>	<u>\$ 52,134,631</u>

See accompanying Notes to the Financial Statements.



STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED JUNE 30, 2019



STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED JUNE 30, 2019

(Expressed in Thousands)

	Public Employee Retirement Plan	Teacher Retirement Plan	Teacher Legacy Pension Plan	Total
ADDITIONS				
Contributions				
Member contributions	\$ 138,197	\$ 52,930	\$ 168,919	\$ 360,046
Employer contributions	730,655	20,529	350,734	1,101,918
Other contributions	2,479	0	0	2,479
Total contributions	871,331	73,459	519,653	1,464,443
Investment income	1,895,695	18,658	1,777,263	3,691,616
Less: Investment expense	(30,025)	(296)	(28,148)	(58,469)
Net income from investing activities	1,865,670	18,362	1,749,115	3,633,147
Securities lending activities				
Securities lending income	61,670	607	57,817	120,094
Less: Securities lending expense	(50,117)	(493)	(46,986)	(97,596)
Net income from securities lending activities	11,553	114	10,831	22,498
Net investment income	1,877,223	18,476	1,759,946	3,655,645
TOTAL ADDITIONS	2,748,554	91,935	2,279,599	5,120,088
DEDUCTIONS				
Annuity benefits	1,390,667	7	1,249,267	2,639,941
Death benefits	2,844	16	2,618	5,478
Refunds	24,055	2,184	16,521	42,760
Administrative expense	12,654	2,018	5,202	19,874
TOTAL DEDUCTIONS	1,430,220	4,225	1,273,608	2,708,053
NET INCREASE	1,318,334	87,710	1,005,991	2,412,035
FIDUCIARY NET POSITION RESTRICTED FOR PENSIONS				
BEGINNING OF YEAR	25,476,217	213,479	24,032,900	49,722,596
END OF YEAR	\$ 26,794,551	\$ 301,189	\$ 25,038,891	\$ 52,134,631

See accompanying Notes to the Financial Statements



The Tennessee Consolidated Retirement System (TCRS) is a public employee retirement system comprised of defined benefit pension plans covering Tennessee state employees, employees of the state's higher education systems, teachers, and employees of political subdivisions in Tennessee. The TCRS was established in 1972 by a statutory enactment of the Tennessee General Assembly. The provisions of the TCRS are codified in *Tennessee Code Annotated* Title 8, Chapters 34-37. In accordance with Tennessee Code Annotated Title 8, Chapter 34, Section 202, all funds invested, securities, cash, and other property of the TCRS are held in trust and can be expended only for the purposes of the trust. Although the assets for all pension plans within the TCRS are commingled for investment purposes, the assets of each separate plan may legally be used only for the payment of benefits to the members of that plan and for its administration, in accordance with the terms of the plan.

A: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Reporting entity: The TCRS is included in the State of Tennessee financial reporting entity as a discretely presented component unit. The State appoints the majority of the TCRS Board of Trustees, its governing body, and approves its operating budget. The TCRS is presented as such in the *Tennessee Comprehensive Annual Financial Report*. That report is available on the state's website at www.tn.gov/finance/rd-doa/fa-accfin-cafr.html.

Measurement focus and basis of accounting: The accompanying financial statements have been prepared in accordance with generally accepted accounting principles (GAAP) as prescribed by the Governmental Accounting Standards Board (GASB). The financial statements have been prepared using the flow of economic resources measurement focus and the accrual basis of accounting. Under the accrual method, revenues are recorded when earned, and expenses are recorded at the time liabilities are incurred regardless of the timing of related cash flows.

Plan member and employer contributions are recognized in the period of time for which they are due, in accordance with legal provisions. Benefits and refunds are recognized when due and payable in accordance with the terms of each plan.

Cash and cash equivalents: Cash and cash equivalents includes cash, cash management pools, and cash invested in a short-term, open-end mutual fund under the contractual arrangement for master custody services. Cash received by the TCRS, that cannot be invested immediately in securities or is needed for operations, is invested in the State Pooled Investment Fund sponsored by the State of Tennessee and administered by the State Treasurer. That report is available on the state's website at treasury.tn.gov.

Method used to value investments: Assets of the TCRS are invested in the Tennessee Retiree Group Trust (TRGT). A report of TRGT is available on the state's website at treasury.tn.gov. As of June 30, 2019, the TCRS owns 99.6 percent of the net asset value in the TRGT. The TRGT is not registered with the Securities and Exchange Commission (SEC) as an investment company. The State of Tennessee has not obtained a credit quality rating for the TRGT from a nationally recognized credit ratings agency. The fair value of investment positions in the TRGT is determined daily based on the fair value of the pool's underlying portfolio. Furthermore, the State had not obtained or provided any legally binding guarantees to support the value of participant shares during the fiscal year. There are no restrictions on the sale or redemption of shares.

Investments are reported at fair value. Securities traded on a national exchange are valued at the last reported sales price. Investment income consists of realized and unrealized appreciation (depreciation) in the fair value of investments and interest and dividend income. Interest income is recognized when earned. Securities and securities transactions are recorded in the financial statements on trade-date basis.

The fair value of assets of the TRGT held at June 30, 2019 represents the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. Assets held are categorized for

(continued)



fair value measurement within the fair value hierarchy established by GAAP. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and give the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements).

- Level 1 - Unadjusted quoted prices for identical assets or liabilities in active markets that can be accessed at the measurement date.
- Level 2 - Quoted prices for similar assets or liabilities in active markets; quoted prices for identical or similar assets or liabilities in markets that are not active; assets or liabilities that have a bid-ask spread price in an inactive dealer market, brokered market and principal-to-principal market; and Level 1 assets or liabilities that are adjusted.
- Level 3 - Valuations derived from valuation techniques in which significant inputs are unobservable.

Investments where fair value is measured using the Net Asset Value (“NAV”) per share have no readily determinable fair value and have been determined to be calculated consistent with FASB principles for investment companies.

Where inputs used in the measurement of fair value fall into different levels of the hierarchy, fair value of the instrument in its entirety are categorized based on the lowest level input that is significant to the valuation. This assessment requires professional judgement and as such management developed a fair value committee that worked in conjunction with our custodian and investment professionals to make these valuations. All assets held were valued individually and aggregated into classes so to be represented in the table below.

Short-term securities generally include investments in money market-type securities reported at cost plus accrued interest.

Equity and equity derivative securities classified in Level 1 are valued using last reported sales prices quoted in active markets that can be accessed at the measurement date. Equity and equity derivative securities classified in Level 2 are securities whose values are derived daily from associated traded securities. Equity securities classified in Level 3 are valued with last trade data having limited trading volume.

US Treasury Bills, Bonds, Notes and Futures classified in Level 1 are valued using last reported sales prices quoted in active markets that can be accessed at the measurement date. Debt and debt derivative securities classified in Level 2 are valued using a bid-ask spread price from multiple independent brokers, dealers, or market principals, which are known to be actively involved in the market. Level 3 debt securities are valued using proprietary information, a single pricing source, or other unobservable inputs related to similar assets or liabilities.

Real estate investments classified in Level 3 are valued using the last valuations provided by external investment advisors or independent external appraisers. Generally, all direct real estate investments are appraised by a qualified independent appraiser(s) with the professional designation of Member of the Appraisal Institute (“MAI”), or its equivalent, every three (3) years beginning from the acquisition date of the property. The appraisals are performed using generally accepted valuation approaches applicable to the property type.

Investments in private mutual funds, traditional private equity funds, strategic lending funds and real estate funds that report using GAAP, the fair value, as well as the unfunded commitments, was determined using the prior quarter’s NAV, as reported by the fund managers, plus the current cash flows. These assets were then categorized by investment strategy. In instances where the fund investment reported using non-GAAP standards, the investment was valued using the same method, but was classified in Level 3.

(continued)



NOTES TO THE FINANCIAL STATEMENTS
JUNE 30, 2019 (CONTINUED)



INVESTMENTS MEASURED AT FAIR VALUE

As of June 30, 2019

Expressed in Thousands

Investments at Fair Value Level	GAAP Hierarchy Level 1	GAAP Hierarchy Level 2	GAAP Hierarchy Level 3	NAV	Total Investments
Government Agencies		\$ 108,293	\$ 10,000		\$ 118,293
Government Bonds	\$ 3,814,103	66,991			3,881,094
Government Inflation Indexed	489,810				489,810
Government Mortgage Backed		3,906,818	11,130		3,917,948
Government Asset Backed		105,371			105,371
Municipal Bonds		59,168			59,168
Commercial Mortgage Backed		545,068	84,198		629,266
Corporate Asset Backed Securities		582,667	293,904		876,571
Corporate Bonds		4,450,768	39		4,450,807
Corporate Equities	26,188,191		24,856		26,213,047
Preferred Stocks	46,063	6,150			52,213
Limited Partnership Units			552,760	\$ 5,413,069	5,965,829
Real Estate			3,196,123	1,055,995	4,252,118
Derivatives		789			789
TOTAL TRGT INVESTMENTS AT FAIR VALUE	\$ 30,538,167	\$ 9,832,083	\$ 4,173,010	\$ 6,469,064	51,012,324
Cash and Cash Equivalents					1,231,635
Cash Collateral on Loaned Securities					3,704,620
Investment Income Receivable					152,508
Derivatives Receivable					245,167
Investments Sold					243,227
TOTAL ASSETS OF THE TRGT					\$ 56,589,481

(continued)



The following table sets forth the additional disclosures of the TRGT’s investments, which are stated at fair value based on the net asset value “NAV” (expressed in thousands), as a practical expedient, reported by the investment managers or general partners:

Asset Classification	Strategy	Number of Funds	NAV	Remaining Life	Redemption Terms	Redemption Restrictions
Limited Partnerships	Traditional Private Equity and Strategic Lending	106	\$ 5,413,069	Various	N/A	Various transfer and sale restrictions
Real Estate	Real Estate Commingled Investments	27	\$ 1,055,995	N/A	N/A	Various transfer and sale restrictions

Traditional Private Equity and Strategic Lending: The private equity asset class is categorized into two component portfolios: traditional and strategic lending. Generally speaking, the types of private equity strategies include: venture capital, buyout, natural resource, secondary, special situations, tactical, structured credit, and high yield debt. The majority of these investments have an approximate life of 10 years or greater and are considered illiquid. During the life of the partnerships, distributions are received as underlying partnership investments are realized. Transfer or sale of the partnership interest are restricted over the life of the partnership. The TRGT has no plans to liquidate any of these investments.

Real Estate Commingled Investments: The real estate asset class is comprised of two different investment types: direct investments and commingled investments. A commingled investment is a pooled investment vehicle comprised of real estate investments that is overseen by an external investment manager or general partner. Generally speaking, the commingled real estate investment strategies include: office, retail, industrial, multi-family, and diversified. The majority of these investments have an approximate life of 10 years or greater and are considered illiquid. During the life of the pooled investment vehicle, distributions are received as underlying investments are realized. Transfer or sale of the interest are restricted over the life of the investment. The TRGT has no plans to liquidate any of these investments.

Capital assets: Capital assets consist of internally generated computer software, reported at historical cost less any applicable amortization. Capital assets are defined by the state as assets with an initial individual cost of \$5,000 or more and an estimated useful life in excess of two years. The computer software was valued at \$16.9 million at year end and is being amortized using the straight-line method over the ten year estimated life of the system. The amortization expense for the current year was \$3.7 million.

(continued)



B: PLAN DESCRIPTIONS

Plan administration: The Tennessee Treasury Department, an agency in the legislative branch of state government, administers the plans of the TCRS.

At June 30, 2019, there were three defined benefit pension plans within the TCRS. The Public Employee Retirement Plan is an agent, multiple-employer defined benefit pension plan for state government employees and for political subdivisions electing to participate in the TCRS. The Teacher Legacy Pension Plan is a cost-sharing, multiple-employer defined benefit pension plan for teachers of local education agencies (LEAs). The Teacher Legacy Pension Plan closed to new membership on June 30, 2014, but will continue providing benefits to existing members and retirees. Beginning July 1, 2014, the Teacher Retirement Plan became effective for teachers employed by LEAs after June 30, 2014. The Teacher Retirement Plan is a separate cost sharing, multiple employer defined benefit pension plan.

The general administration and responsibility for proper operation of the TCRS plans are vested in a 20 member Board of Trustees, consisting of 18 voting members and two non-voting members. The Board has nine ex-officio members, two of whom are non-voting. The seven voting ex-officio members are the State Treasurer, Secretary of State, Comptroller of the Treasury, Commissioner of Finance and Administration, Commissioner of Human Resources, Director of the TCRS, and the Administrative Director of the Courts. The two non-voting ex-officio members are the chair and vice-chair of the Legislative Council on Pensions and Insurance.

Three active teacher members, one from each grand division of the state, and a retired teacher member are selected for three year terms by the Speaker of the House of Representatives and the Speaker of the Senate. Two active state employee members, who are from departments other than those represented by ex-officio members, are elected by state employees for three year terms. A board member is appointed for a two year term by each of the following organizations: Tennessee County Services, Tennessee Municipal League, and the Tennessee County Officials Association. Two members, a public safety employee and a retired state employee, are appointed by the Governor for two year terms. All members must be vested members of the TCRS, except for ex-officio members.

Plan membership: At June 30, 2019 the membership of the pension plans consisted of the following:

	<u>Public Employee Retirement Plan</u>	<u>Teacher Retirement Plan</u>	<u>Teacher Legacy Pension Plan</u>	<u>Total</u>
Inactive Plan Members or Beneficiaries Currently Receiving Benefits	110,655	12	52,400	163,067
Inactive Employees Entitled to But Not Yet Receiving Benefits	131,102	7,103	30,234	168,439
Active Plan Members	<u>142,259</u>	<u>23,345</u>	<u>56,294</u>	<u>221,898</u>
Total membership	384,016	30,460	138,928	553,404
Number of participating employers	652	275	275	927

Membership above includes all plans whether open or closed.

(continued)



Benefits provided: The TCRS provides retirement, disability, and death benefits. The benefits of the TCRS are established by state law (Tennessee Code Annotated, Title 8, Chapters 34-37). In general, the benefits may be amended prospectively by the General Assembly for employees becoming members of the TCRS after June 30, 2014. Amendments of benefits for employees becoming members before July 1, 2014 can be restricted by precedent established by the Tennessee Supreme Court.

Teacher Legacy Pension Plan

Members of the Teacher Legacy Pension Plan are eligible to retire at age 60 with 5 years of service credit or after 30 years of service credit regardless of age. Plan members are entitled to receive unreduced service retirement benefits, which are determined by a formula using the member's highest five consecutive year average compensation and the member's years of service credit. Service related disability benefits are provided regardless of length of service. Five years of service is required for non-service related disability eligibility. The service related and non-service related disability benefits are determined in the same manner as a service retirement benefit but are reduced 10 percent and include projected service credits. A variety of death benefits are available under various eligibility criteria. Member and beneficiary annuitants are entitled to automatic cost of living adjustments (COLAs) after retirement. A COLA is granted each July for annuitants retired prior to the 2nd of July of the previous year. The COLA is based on the change in the consumer price index (CPI) during the prior calendar year, capped at 3 percent, and applied to the current benefit. No COLA is granted if the change in the CPI is less than one-half percent. A one percent COLA is granted if the CPI change is between one-half percent and one percent.

Teacher Retirement Plan

Members of the Teacher Retirement Plan are eligible to retire at age 65 with 5 years of service credit or pursuant to the rule of 90 where age and years of service total 90. Plan members are entitled to receive unreduced service retirement benefits, which are determined by a formula using the member's highest five consecutive year average compensation and the member's years of service credit. Service related disability benefits are provided regardless of length of service. Five years of service is required for non-service related disability eligibility. The service related and non-service related disability benefits are determined in the same manner as a service retirement benefit but are reduced 10 percent and include projected service credits. A variety of death benefits are available under various eligibility criteria. Member and beneficiary annuitants are entitled to automatic cost of living adjustments (COLAs) after retirement. A COLA is granted each July for annuitants retired prior to the 2nd of July of the previous year. The COLA is based on the change in the consumer price index (CPI) during the prior calendar year, capped at 3 percent, and applied to the current benefit. No COLA is granted if the change in the CPI is less than one-half percent. A one percent COLA is granted if the CPI change is between one-half percent and one percent. The Teacher Retirement Plan includes provisions to control employer contributions and unfunded liabilities. As such, plan provisions are automatically changed when employer contributions and unfunded liabilities exceed statutory limits.

Public Employee Retirement Plan

For state employees, there are two major tiers of benefits and eligibility requirements. State employees becoming members before July 1, 2014 are eligible to retire at age 60 with 5 years of service credit or after 30 years of service credit regardless of age. State employees becoming members after June 30, 2014 are eligible to retire at age 65 with five years of service or pursuant to the rule of 90 where age and years of service total 90. Plan members are entitled to receive unreduced service retirement benefits, which are determined by a formula using the member's highest five consecutive year average compensation and the member's years of service credit. Service related disability benefits are provided regardless of length of service. Five years of service is required for non-service related disability eligibility. The service related and non-service related disability benefits are determined in the same manner as a service retirement benefit but are reduced 10 percent and include projected service credits. A variety of death benefits are available under various eligibility criteria. Member and beneficiary annuitants are entitled to automatic COLAs after retirement. A COLA is granted each July for annuitants retired prior to the 2nd of July of the previous year.

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The COLA is based on the change in the CPI during the prior calendar year, capped at 3 percent, and applied to the current benefit. No COLA is granted if the change in the CPI is less than one-half percent. A one percent COLA is granted if the CPI change is between one-half percent and one percent. There are additional classes of employees that include state judges, elected members of the general assembly, and public safety officers which have different benefit structures and eligibility requirements. These classifications represent an immaterial percentage of the state employee membership.

For political subdivision employees, there are various tiers of benefits and eligibility requirements. Each political subdivision adopts the benefit structure that the entity provides to its employees. Unreduced service retirement benefits are determined using a multiplier of the member's highest 5 consecutive year average compensation multiplied by the member's years of service credit. Plan members are eligible for service related disability benefits regardless of length of service. Five years of service is required for non-service related disability eligibility. The service related and non-service related disability benefits are determined in the same manner as a service retirement benefit but are reduced 10 percent and include projected service credits. A variety of death benefits are available under various eligibility criteria. If adopted as a benefit provision by the political subdivision, member and beneficiary annuitants are entitled to automatic COLAs after retirement. A COLA is granted each July for annuitants retired prior to the 2nd of July of the previous year. The COLA is based on the change in the CPI during the prior calendar year, capped at 3 percent, and applied to the current benefit. No COLA is granted if the change in the CPI is less than one-half percent. A one percent COLA is granted if the CPI change is between one-half percent and one percent. There are additional classes of employees, local judges, elected officials, and public safety officers, which may have different benefit structures and eligibility requirements. These classifications represent an immaterial percentage of the political subdivisions' membership.

Contributions: Pursuant to Tennessee Code Annotated Title 8, Chapter 37, the Board of Trustees adopted an actuarially determined contribution (ADC) for each participating employer, as recommended by an independent actuary following an actuarial valuation.

For the Teacher Legacy Pension Plan, LEAs are required by statute to contribute the ADC. The ADC is the estimated amount necessary to finance the costs of benefits earned by plan members during the year, the unfunded accrued liability, and the cost of administration. Teachers are required by statute to contribute 5 percent of salary. For the year ended June 30, 2019, the required ADC for LEAs was 10.46 percent of covered payroll.

For the Teacher Retirement Plan, LEAs are required by statute to contribute the greater of the ADC or 4 percent. The ADC is the estimated amount necessary to finance the costs of benefits earned by plan members during the year, the unfunded accrued liability, and the cost of administration. Teachers are required by statute to contribute 5 percent of salary. For the year ended June 30, 2019, the required ADC for LEAs was 1.94 percent of covered payroll while actual contributions were 4 percent of covered payroll.

For the Public Employee Retirement Plan, each governmental entity is required by statute to contribute the ADC except that the contribution rate for state employees hired after June 30, 2014 is the greater of the ADC or 4 percent. The ADC is the estimated amount necessary to finance the costs of benefits earned by plan members during the plan year, the unfunded accrued liability, and the cost of administration. For the year ended June 30, 2019, the required ADC varied for each participating employer, with approximately ninety-six percent of all employer rates less than twenty (20) percent. By statute, state employees hired before July 1, 2014 are noncontributory while employees hired after June 30, 2014 contribute 5 percent of salary. As adopted by the governmental entity, political subdivision employees may be noncontributory, contribute 2.5 percent of salary, or contribute 5 percent of salary.

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Reserves: The statute governing the Teacher Retirement Plan and certain employers in the Public Employee Retirement Plan provide for a minimum employer contribution rate of 4 percent. The statute further provides that the amount of the employer contributions in excess of the actuarially determined contribution rate is deposited into a stabilization reserve for each plan. The statute may be amended by the Tennessee General Assembly. Assets in the stabilization reserve are commingled for investment purposes and receive a pro rata share of investment earnings. The amount in the stabilization reserve is not considered in calculating the actuarially determined employer contribution rate for each plan. The statute provides that the assets in the stabilization reserve will be utilized should the actuarially determined contribution rate exceed 4 percent. In such case, the required employer contribution in excess of 4 percent will be transferred from the stabilization reserve to the account of the Teachers Retirement Plan or certain Public Employee Retirement Plan employers. By statute, the Board of Trustees may adopt a policy to suspend the deposits into the stabilization reserve in any given year when the stabilization reserve reaches a certain level that is determined by the Board. If deposits are suspended, then the employer contribution will be the actuarially determined contribution rate for that year rather than the higher 4 percent. The Board has not adopted a policy at this time.

From July 1, 2014 – June 30, 2018, the funds contributed to the stabilization reserves were held by TCRS in the pension trust fund. As of June 30, 2019, there was \$55,402,861 in the stabilization reserve on behalf of the Teachers Retirement Plan and \$50,929,207 in the various stabilization reserves on behalf of the Public Employee Retirement Plan held by TCRS. Effective July 1, 2018, all future stabilization reserve contributions are held in a separate trust outside of TCRS for the benefit of each employer that participates in the stabilization reserve trust. The amounts reflected in the Stabilization Reserve Trust can only be moved to the entity's pension trust at the direction of the entity (employer) with the approval of the Board of Trustees of the Pension Stabilization Reserve Trusts.

C: DEPOSITS AND INVESTMENTS

Statutory Authority: The Tennessee Retiree Group Trust (TRGT) was established in 2015 by a statutory enactment of the Tennessee General Assembly. The provisions of the TRGT are codified in Tennessee Code Annotated (TCA) Title 8, Chapters 34-37. Pursuant to this statute the Tennessee Consolidated Retirement System (TCRS) and its board of directors with the State Treasurer (Treasurer) as custodian, authorized by TCA 8-37-104 adopted this group trust for the purpose of pooling funds of TRGT with other assets in the custody of the Treasurer, solely for investment purposes. The assets invested consist exclusively of assets of exempt pension and profit-sharing trusts and individual retirement accounts, custodial accounts, retirement income accounts, governmental plans and tax-exempt trusts under the Internal Revenue Code of 1986 and Rev. Rul. 81-100, as modified by Rev. Ruls. 2004-67, 2008-40 and 2011-1 (referred to herein as "Retirement Assets"). The Custodian shall be responsible for the managing and directing the investment of the Group Trust Funds in the same manner as it invests funds of the TCRS. As of June 30, 2019, the TCRS owns 99.6 percent of the net asset value (NAV) in the TRGT.

The TRGT is authorized to invest in securities in accordance with the investment policy of the TCRS. That policy allows the Trust to invest in bonds, debentures, preferred stock and common stock, real estate and in other good and solvent securities subject to the approval of the Board of Trustees, but further subject to the following statutory restrictions and provisions:

- a. The total sum invested in common and preferred stocks shall not exceed seventy-five percent (75 percent) of the total of the funds of the trust.
- b. The total sum invested in notes and bonds or other fixed income securities exceeding one year in maturity shall not exceed seventy-five percent (75 percent) of the total funds of the trust.
- c. Within the restrictions in (a) and (b) above, fifteen percent (15 percent) of the total of the funds of the retirement system may be invested in securities of the same kinds, classes, and investment grades as those otherwise eligible

(continued)



for investment in various approved foreign countries. However upon action of the TCRS Board of Trustees with subsequent approval by the Council on Pensions and Insurance, limit has been authorized at an amount not to exceed twenty-five percent (25 percent).

d. Within the restrictions in (a) and (b) above, funds may be invested in Canadian securities which are substantially of the same kinds, classes and investment grades as those otherwise eligible for investment.

e. The total amount of securities loaned under a securities lending program cannot exceed thirty percent (30 percent) of total assets.

f. The total sum invested in alternative assets shall not exceed forty percent (40 percent) of the market value of total assets.

State statute also authorizes the TRGT to invest in forward contracts to hedge its foreign currency exposure and to purchase or sell domestic equity index futures contracts for the purpose of asset allocation relating to the domestic equity portfolio. The total amount of the financial futures contract obligation shall not exceed ten percent (10 percent) of the market value of the TRGT's total assets. Position sizes will be measured by notional amounts. Options will be measured in their notional equivalents.

Investment policy: The TRGT investment authority is established pursuant to Tennessee Code Annotated Title 8, Chapter 37. The statute provides the Board of Trustees with the responsibility to establish the investment policy of the TRGT. The investment policy may be amended by the Board. The TRGT assets are managed on a total return basis with a long-term objective of achieving and maintaining a fully funded status for the benefits provided by the TCRS. The following was the Board's adopted asset allocation policy as of June 30, 2019:

Authorized Asset Class	Target Allocation
U.S. equity	31%
Canadian equity	2%
Developed market international equity	12%
Emerging market international equity	4%
Private equity	10%
U.S. fixed income	20%
Strategic lending	10%
Real estate	10%
Short-term securities	1%
Total	100%

Securities Lending: The TRGT is authorized to engage in securities lending agreements by TCA 8-37-104(a) (6) with the terms established in the investment policy whereby TRGT loans securities to brokers and dealers (borrower) and in turn, TRGT receives collateral as either cash or securities. TRGT pays the borrower interest on the collateral received and invests the collateral with the goal of earning a higher yield than the interest rate paid to the borrower. Loans are limited to no more than thirty percent (30%) of the market value of the total assets in the TRGT portfolio and provided further that such loans are secured by collateral. Securities received as collateral

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hereunder shall have a market value equal to at least one hundred two percent (102%) of the market value of the loaned domestic security or one hundred five percent (105%) of any foreign security. Cash received as collateral shall equal at least one hundred percent (100%) of the market value of the loaned securities and may be invested by or on behalf of the TRGT in any instrument the TRGT may be directly invested. Cash Collateral is held in the TRGT name and is not subject to custodial credit risk. During the year there were no violations of legal or contractual provisions by the TRGT.

The TRGT securities lending program is managed by a third party lending agent, Deutsche Bank AG. The TRGT may loan any debt or equity securities which is owned by TRGT. Our securities lending agent manages the average maturities of securities on loan against the average maturities of securities on collateral invested. The maturity gap has a limit of 33 days. This is monitored by investment staff on a periodic basis to ensure compliance.

At June 30, 2019, the TRGT had the following securities on loan and received the collateral as shown below:

SECURITIES LENDING

As of June 30, 2019

Securities on Loan	Fair Value of Securities on Loan	Cash Collateral Received
Fixed	\$ 1,867,405,398	\$ 1,928,328,206
Equity	1,720,172,451	1,776,291,886
Total	\$ 3,587,577,849	\$ 3,704,620,092

The TRGT has the ability to sell the collateral securities only in the case of a borrower default.

Credit Risk: Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The credit quality distribution for the TRGT’s investments in fixed income securities at year end is included in the schedule below. Securities are rated using Standard and Poor’s and/or Moody’s and are presented below using the Standard and Poor’s rating scale. The State Pooled Investment Fund has not obtained a credit quality rating from a nationally recognized credit ratings agency.

TRGT’s investment policy specifies that bond issues subject for purchase are investment grade bonds rated by one of the Nationally Recognized Statistical Rating Organizations (NRSROs). There is no requirement to divest an asset if it is downgraded after purchase. For short-term investments, the investment policy provides for the purchase of only the highest quality debt issues. Commercial paper should be rated in the highest tier by all rating agencies which rate the paper, with a minimum of two ratings required. Commercial paper cannot be purchased if a rating agency has the commercial paper on a negative credit watch. The investment policy also requires preparation of a credit analysis report on the corporation prior to purchasing commercial paper.

As noted below, the TRGT does not utilize its own bank accounts but invests in the State Pooled Investment Fund for its operating cash purposes. Required risk disclosures relative to the State Pooled Investment Fund are presented in the State of Tennessee Treasurer’s Report. That report is available on the state’s website at *treasury.tn.gov*.



At June 30, 2019, the TRGT had the following investments:

**CREDIT QUALITY DISTRIBUTION FOR SECURITIES WITH CREDIT EXPOSURE
AS A PERCENTAGE OF TOTAL INVESTMENTS**

As of June 30, 2019

Expressed in Thousands

Rating	Fair Value	Percentage of Total Investments
AAA	\$ 626,504	1.228%
AA	453,876	0.890%
A	1,149,465	2.253%
BBB	2,986,260	5.854%
BB	331,563	0.650%
B	77,768	0.152%
CCC	22,714	0.045%
CC	250	0.000%
C	852	0.002%
D	771	0.002%
NR	4,655,038	9.125%
	<u>10,305,061</u>	
U. S. Government Agencies and Obligations explicitly guaranteed by the U. S. Government	5,363,229	
Total Fixed Income Securities	<u>15,668,290</u>	
Equity	26,213,047	
Real Estate	4,252,118	
Private Equities	3,287,938	
Strategic Lending	2,677,891	
Preferred Stock not Classified as Fixed Income	52,213	
Derivative Instruments (not rated)	789	
Short term investment fund with custodian (NR)	(6,126)	
Short term investments classified as cash (NR)	<u>(1,133,836)</u>	
Total Investments of the TRGT	<u>\$ 51,012,324</u>	

(continued)



Interest Rate Risk: Interest rate risk is the risk that future changes in prevailing market rates of interest will have an adverse effect on the fair value of debt investments. The fair values of securities with long terms to maturity may be highly sensitive to interest rate changes. The investment policy for the TRGT states that the maturity of its debt securities may range from short-term instruments, including investments in the State Pooled Investment Fund, to long-term bonds, with consideration of liquidity needs. However, the policy does not specifically address limits on investment maturities. Duration is a measure of a debt investment’s exposure to fair value changes arising from changing interest rates. It uses the present value of cash flows weighted for those cash flows as a percentage of the investment’s full price. The TRGT had the following investments and effective duration at June 30, 2019.

EFFECTIVE DURATION OF DEBT INVESTMENTS

As of June 30, 2019

Expressed in Thousands

Investment Type	Fair Value As of June 30, 2019	Effective Duration (years)
Government Agencies	\$ 118,293	6.48
Government Bonds	3,881,094	14.76
Government Inflation Indexed	489,810	8.31
Government Mortgage Backed	3,917,948	2.82
Government Asset Backed	105,371	6.29
Municipal Bonds	59,168	10.23
Commercial Mortgage Backed	629,266	3.36
Corporate Asset Backed	876,571	1.02
Corporate Bonds	4,450,807	10.72
Short Term Investments	1,139,962	0.00
Total TRGT Debt Investments	\$ 15,668,290	8.62

Asset-Backed Securities: The TRGT invests in various collateralized mortgage obligations (CMOs) which are mortgage-backed securities. These securities are based on cash flows from interest and principal payments on underlying mortgages and could therefore be more sensitive to prepayments by mortgagees as a result of a decline in interest rates. The fair value of CMOs at June 30, 2019 was \$629,265,624 of which \$451,778,200 were CMOs that are generally more sensitive to interest rate changes.

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Foreign Currency Risk: Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or deposit. The investment policy limits the asset allocation for international investments to twenty-five percent of total assets. The TRGT's exposure to foreign currency risk was as follows:

FOREIGN CURRENCY-DENOMINATED INVESTMENTS

As of June 30, 2019

Expressed in Thousands

Currency	Total Fair Value June 30, 2019	Equity	Cash
Australian Dollar	\$ 394,697	\$ 394,311	\$ 386
British Pound Sterling	1,421,101	1,419,582	1,519
Canadian Dollar	1,189,449	1,176,442	13,007
Danish Krone	224,464	223,974	490
Euro Currency	2,332,490	2,328,590	3,900
Hong Kong Dollar	218,593	218,480	113
Japanese Yen	1,445,108	1,436,645	8,463
New Israeli shekel	13,951	13,951	0
New Zealand Dollar	4,855	4,855	0
Norwegian Krone	22,551	22,443	108
Singapore Dollar	94,834	94,657	177
Swedish Krona	171,654	171,605	49
Swiss Franc	647,731	647,731	0
Total	\$ 8,181,478	\$ 8,153,266	\$ 28,212

Custodial Credit Risk: Custodial Credit Risk for deposits is the risk that in the event of a bank failure, the TRGT deposits may not be returned to TRGT. The TRGT does not have an explicit policy with regards to Custodial Credit Risk for deposits. At year end, the TRGT had uninsured and uncollateralized cash deposits of \$28,211,960 in foreign currency held by our master custodian, State Street Bank, in State Street's name. These deposits were used for investments pending settlement.

Rate of Return: For the year, the money-weighted rate of return on investments in the TRGT, net of investment expense, was 7.76 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Derivatives:

Futures - The TRGT may buy or sell fixed income and equity index futures contracts for the purposes of making asset allocation changes in an efficient and cost effective manner and to improve liquidity. Gains (losses) on futures hedge losses (gains) produced by any deviation from the TRGT target allocation. The gains and losses resulting from daily fluctuations in the fair value of the outstanding futures contract are settled daily, on the following day, and a receivable or payable is established for any unsettled gain or loss as of the financial statement date. As of June 30, 2019, the TRGT was under contract for fixed income and equity index futures and the resulting payable is reflected in the financial statements at fair value.

(continued)



NOTES TO THE FINANCIAL STATEMENTS
JUNE 30, 2019 (CONTINUED)



Mortgages - The TRGT is authorized to invest in To Be Announced (TBA) mortgage backed securities similar to the foreign currency forward contracts. The TRGT enters into agreements to purchase pools of mortgage backed securities prior to the actual security being identified. The TRGT will roll this agreement prior to settlement date to avoid taking delivery of the security. Any unrealized gain on TBA mortgage backed securities has been reflected in the financial statements as an investment. Any unrealized loss on TBA mortgage backed securities has been included in the payable established for the mortgages. The notional amounts of these agreements have been included in the financial statements as a receivable and a payable. The TRGT invests in these derivatives to adjust its exposure to mortgage coupon risk and to replicate the return on mortgage backed securities portfolios without actually purchasing the security.

The fair value balances and notional amounts of derivative instruments outstanding at year end, classified by type, and the changes in fair value of derivative instrument types for the year ended as reported in the financial statements are as follows:

DERIVATIVE SUMMARY

As of June 30, 2019

Expressed in thousands

	<u>Changes in Fair Value</u>		<u>Fair Value at June 30, 2019</u>		
	Financial Statement Classification	Amount	Financial Statement Classification	Amount	Notional Amount
Futures Contracts	Investment Income	\$ 64,209	Derivative Instruments Receivable	\$ 1,459	\$ 1,973,634
TBA Mortgage Backed Securities	Investment Income	\$ 789	Derivative Instruments Assets	\$ 789	\$ 237,232

(continued)



NOTES TO THE FINANCIAL STATEMENTS
JUNE 30, 2019 (CONTINUED)



Actuarial assumptions: The total pension liability was determined by an actuarial valuation as of June 30, 2018 rolled-forward to a measurement date and a reporting date of June 30, 2019, using the following actuarial assumptions applied to all prior periods included in the measurement:

Inflation	2.5 percent
Salary Increases	Graded salary ranges from 8.72 to 3.46 percent based on age, including inflation, averaging 4.00 percent
Investment Rate of Return	7.25 percent, net of pension plan investment expense, including inflation
Cost of Living Adjustment	2.25 percent

Mortality assumptions utilize the RP-2014 industry standard base table for annuitants and non-annuitants for post-retirement and pre-retirement mortality, respectively, adjusted for TCRS experience from the June 30, 2016 actuarial experience study plus some adjustment for expected future improvement in life expectancy.

The actuarial assumptions used in the June 30, 2018 actuarial valuation were based on the results of an actuarial experience study performed for the period July 1, 2012 through June 30, 2016. The demographic assumptions were adjusted to more closely reflect actual and expected future experience.

The long-term expected rate of return on pension plan investments was established by the TCRS Board of Trustees in conjunction with the June 30, 2016 actuarial experience study. This return was selected from a range of values developed using historical market returns and future capital market projections. The future capital market projections were produced using a building-block method in which a best-estimate of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) is developed for each major asset class. These best-estimates are combined to produce the future capital market projection by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation of 2.5%. The best-estimates of geometric real rates of return and the TCRS investment policy target asset allocation for each major asset class are summarized in the following table:

Authorized Asset Class	Long-Term Expected Real Rate of Return	Target Allocation
U.S. equity	5.69%	31%
Developed market international equity	5.29%	14%
Emerging market international equity	6.36%	4%
Private equity and strategic lending	5.79%	20%
U.S. fixed income	2.01%	20%
Real estate	4.32%	10%
Short-term securities	0.00%	1%
		100%

The long-term expected rate of return on pension plan investments was established by the TCRS Board of Trustees as 7.25 percent based on a comparison of historical market returns and future capital projections.

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Discount rate: The discount rate used to measure the total pension liability was 7.25 percent. The projection of cash flows used to determine the discount rate assumed that employee contributions from plan members will be made at the statutorily required contribution rates and that employer contributions from LEAs will be made at the actuarially determined rate as required by statute. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of net pension liability (asset) to changes in the discount rate: The following presents the Teacher Legacy Pension Plan's and Teacher Retirement Plan's net pension liability (asset) for LEAs using the discount rate of 7.25 percent, as well as what its net pension liability (asset) would be if it were calculated using a discount rate that is one percentage point lower (6.25%) or one percentage point higher (8.25%) than the current rate:

Plan	1 percent Decrease (6.25%)	Current Discount Rate (7.25%)	1 percent Increase (8.25%)
Teacher Legacy Pension Plan	\$ 2,544,294,427	\$ (589,791,087)	\$ (3,176,603,141)
Teacher Retirement Plan	\$ 32,445,585	\$ (46,151,046)	\$ (104,181,969)



SCHEDULE OF CHANGES IN THE TEACHER LEGACY PENSION PLAN'S NET PENSION LIABILITY
Fiscal Year Ended June 30

Total pension liability	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Service Cost	\$ 345,065,162	\$ 345,257,426	\$ 351,528,106	\$ 359,568,654	\$ 393,173,920	\$ 404,576,942
Interest	1,695,569,610	1,636,816,010	1,618,619,959	1,582,470,751	1,578,251,721	1,483,656,307
Change of benefit terms	0	0	0	0	0	0
Difference between expected and actual experience	72,474,157	(119,208,468)	(296,555,977)	(764,354,573)	46,576,630	0
Change of assumptions	0	346,381,384	0	0	0	0
Benefit payments, including refunds of member contributions	(1,268,406,149)	(1,218,622,546)	(1,172,892,841)	(1,138,014,028)	(1,096,410,122)	(1,037,013,093)
Net change in total pension liability	<u>844,702,780</u>	<u>990,623,806</u>	<u>500,699,247</u>	<u>39,670,804</u>	<u>921,592,149</u>	<u>851,220,156</u>
Total pension liability - beginning	<u>23,604,396,800</u>	<u>22,613,772,994</u>	<u>22,113,073,747</u>	<u>22,073,402,943</u>	<u>21,151,810,794</u>	<u>20,300,590,638</u>
Total pension liability - ending (a)	<u>24,449,099,580</u>	<u>23,604,396,800</u>	<u>22,613,772,994</u>	<u>22,113,073,747</u>	<u>22,073,402,943</u>	<u>21,151,810,794</u>
Plan fiduciary net position						
Contributions-employer	350,734,176	318,336,627	319,576,407	327,521,593	338,301,211	348,474,887
Contributions-members	168,919,223	176,442,688	177,940,219	181,763,296	187,121,567	195,520,938
Net investment income	1,759,945,606	1,867,629,821	2,365,586,643	560,785,122	646,526,936	3,054,117,822
Benefit payments, including refunds of member contributions	(1,268,406,149)	(1,218,622,546)	(1,172,892,841)	(1,138,014,028)	(1,096,410,122)	(1,037,013,093)
Administrative expense	(5,201,742)	(5,789,356)	(5,347,136)	(6,893,993)	(5,635,689)	(2,663,319)
Net change in plan fiduciary net position	<u>1,005,991,114</u>	<u>1,137,997,234</u>	<u>1,684,863,292</u>	<u>(74,838,010)</u>	<u>69,903,903</u>	<u>2,558,437,235</u>
Plan fiduciary net position - beginning	<u>24,032,899,553</u>	<u>22,894,902,319</u>	<u>21,210,039,027</u>	<u>21,284,877,037</u>	<u>21,214,973,134</u>	<u>18,656,535,899</u>
Plan fiduciary net position - ending (b)	<u>25,038,890,667</u>	<u>24,032,899,553</u>	<u>22,894,902,319</u>	<u>21,210,039,027</u>	<u>21,284,877,037</u>	<u>21,214,973,134</u>
Net pension liability (asset)- ending (a) - (b)	<u>\$ (589,791,087)</u>	<u>\$ (428,502,753)</u>	<u>\$ (281,129,325)</u>	<u>\$ 903,034,720</u>	<u>\$ 788,525,906</u>	<u>\$ (63,162,340)</u>

This schedule is intended to show information for ten years. Additional years information will be shown as it becomes available.



SCHEDULE OF CHANGES IN THE TEACHER RETIREMENT PLAN'S NET PENSION LIABILITY
Fiscal Year Ended June 30

	2019	2018	2017	2016	2015
Total pension liability					
Service Cost	\$ 74,297,210	\$ 60,633,198	\$ 43,440,149	\$ 28,980,449	\$ 15,581,497
Interest	14,804,562	9,275,807	5,159,135	2,175,079	583,011
Change of benefit terms	0	0	0	0	0
Difference between expected and actual experience	1,446,372	763,491	2,054,643	(1,477,409)	0
Change of assumptions	0	2,496,211	0	0	0
Benefit payments, including refunds of member contributions	(2,206,627)	(1,628,598)	(1,021,752)	(283,467)	(34,531)
Net change in total pension liability	<u>88,341,517</u>	<u>71,540,109</u>	<u>49,632,175</u>	<u>29,394,652</u>	<u>16,129,977</u>
Total pension liability - beginning	<u>166,696,913</u>	<u>95,156,804</u>	<u>45,524,629</u>	<u>16,129,977</u>	<u>0</u>
Total pension liability - ending (a)	<u>255,038,430</u>	<u>166,696,913</u>	<u>95,156,804</u>	<u>45,524,629</u>	<u>16,129,977</u>
Plan fiduciary net position					
Contributions-employer	20,529,121	34,957,065	26,262,053	17,538,589	8,310,132
Contributions-members	52,929,975	43,730,696	32,848,220	21,855,921	10,390,077
Net investment income	18,475,708	13,554,381	10,058,396	1,011,283	294,742
Benefit payments, including refunds of member contributions	(2,206,627)	(1,628,598)	(1,021,752)	(283,467)	(34,531)
Administrative expense	(2,018,230)	(1,846,534)	(1,417,125)	(819,972)	(280,047)
Net change in plan fiduciary net position	<u>87,709,947</u>	<u>88,767,010</u>	<u>66,729,792</u>	<u>39,302,354</u>	<u>18,680,373</u>
Plan fiduciary net position - beginning	<u>213,479,529</u>	<u>124,712,519</u>	<u>57,982,727</u>	<u>18,680,373</u>	<u>0</u>
Plan fiduciary net position - ending (b)	<u>301,189,476</u>	<u>\$213,479,529</u>	<u>124,712,519</u>	<u>57,982,727</u>	<u>18,680,373</u>
Net pension liability (asset) - ending (a) - (b)	<u>\$ (46,151,046)</u>	<u>\$ (46,782,616)</u>	<u>\$ (29,555,715)</u>	<u>\$ (12,458,098)</u>	<u>\$ (2,550,396)</u>

This schedule is intended to show information for ten years. Additional years information will be shown as it becomes available.



SCHEDULE OF THE TEACHER LEGACY PENSION PLAN'S NET PENSION LIABILITY (ASSET)

Fiscal Year Ended June 30

	2019	2018	2017	2016	2015	2014
Total pension liability	\$ 24,449,099,580	\$ 23,604,396,800	\$ 22,613,772,994	\$ 22,113,073,747	\$ 22,073,402,943	\$ 21,151,810,794
Plan fiduciary net position	25,038,890,667	24,032,899,553	22,894,902,319	21,210,039,027	21,284,877,037	21,214,973,134
Net pension liability (asset)	\$ (589,791,087)	\$ (428,502,753)	\$ (281,129,325)	\$ 903,034,720	\$ 788,525,906	\$ (63,162,340)
Plan fiduciary net position as a percentage of the total pension liability	102.41%	101.82%	101.24%	95.92%	96.43%	100.30%
Covered payroll	\$ 3,352,756,393	\$ 3,501,703,581	\$ 3,536,976,053	\$ 3,622,228,641	\$ 3,742,270,034	\$ 3,925,131,835
Net pension liability (asset) as a percentage of covered payroll	(17.59)%	(12.24)%	(7.95)%	24.93%	21.07%	(1.61)%

This schedule is intended to show information for ten years. Additional years' information will be shown as it becomes available.

(continued)



SCHEDULE OF THE TEACHER RETIREMENT PLAN’S NET PENSION LIABILITY (ASSET)

Fiscal Year Ended June 30

	2019	2018	2017	2016	2015
Total pension liability	\$ 255,038,430	\$ 166,696,913	\$ 95,156,804	\$ 45,524,629	\$ 16,129,977
Plan fiduciary net position	301,189,476	213,479,529	124,712,519	57,982,727	18,680,373
Net pension liability (asset)	<u>\$ (46,151,046)</u>	<u>\$ (46,782,616)</u>	<u>\$ (29,555,715)</u>	<u>\$ (12,458,098)</u>	<u>\$ (2,550,396)</u>
Plan fiduciary net position as a percentage of the total pension liability	118.10%	128.06%	131.06%	127.37%	115.81%
Covered payroll	\$ 1,056,859,310	\$ 873,677,206	\$ 655,205,868	\$ 441,775,131	\$ 207,753,299
Net pension liability (asset) as a percentage of covered payroll	(4.37)%	(5.35)%	(4.51)%	(2.82)%	(1.23)%

This schedule is intended to show information for ten years. Additional years' information will be shown as it becomes available.

(continued)

**SCHEDULE OF THE TEACHER LEGACY PENSION PLAN'S CONTRIBUTIONS**
Fiscal Year Ended June 30

	Actuarially-Determined Contribution	Contributions in Relation to the Actuarially-Determined Contribution	Contribution Deficiency	Covered Payroll	Contributions as a Percentage of Covered Payroll
2019	\$ 350,734,176	\$ 350,734,176	\$ 0	\$ 3,352,756,393	10.46%
2018	318,336,627	318,336,627	0	3,501,703,581	9.08%
2017	319,576,407	319,576,407	0	3,536,976,053	9.04%
2016	327,521,593	327,521,593	0	3,622,228,641	9.04%
2015	338,301,211	338,301,211	0	3,742,270,034	9.04%
2014	348,474,888	348,474,888	0	3,931,983,889	8.86%
2013	344,534,643	344,534,643	0	3,879,878,989	8.88%
2012	343,594,496	343,594,496	0	3,796,077,699	9.05%
2011	339,833,421	339,833,421	0	3,754,600,827	9.05%
2010	236,545,072	236,545,072	0	3,683,968,661	6.42%

(continued)



SCHEDULE OF THE TEACHER RETIREMENT PLAN'S CONTRIBUTIONS
Fiscal Year Ended June 30

	Actuarially- Determined Contribution	Contributions in Relation to the Actuarially- Determined Contribution	Contribution Deficiency (Excess)	Covered Payroll	Contributions as a Percentage of Covered Payroll
2019	\$ 20,529,122	\$ 20,529,122	\$ 0	\$ 1,056,859,310	1.94%
2018	14,251,505	34,957,065	(20,705,560)	873,677,206	4.00%
2017	10,221,212	26,262,053	(16,040,841)	655,205,868	4.01%
2016	11,044,378	17,538,589	(6,494,211)	441,775,131	3.97%
2015	5,193,832	8,310,132	(3,116,300)	207,753,299	4.00%

This schedule is intended to show information for ten years. Additional years' information will be shown as it becomes available.

(continued)



SCHEDULE OF THE PUBLIC EMPLOYEES RETIREMENT PLAN, THE TEACHER LEGACY PENSION PLAN, AND THE TEACHER RETIREMENT PLAN INVESTMENT RETURNS

Fiscal Year Ended June 30

	2019	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense	7.76%	8.40%	11.30%	2.78%	3.29%	16.49%

This schedule is intended to show information for ten years. Additional years' information will be shown as it becomes available.



Method and assumptions used in calculations of actuarially determined contributions.

The actuarially determined contributions for the fiscal year ended June 30, 2019 for Local Education Agencies for the Teacher Legacy Plan were calculated as a result of an actuarial valuation performed as of June 30, 2017. The actuarially determined contributions for the fiscal year ended June 30, 2019 for Local Education Agencies for the Teacher Retirement Plan were calculated as a result of an actuarial valuation performed as of June 30, 2017. The following actuarial methods and assumptions were used to determine contribution rates reported in the schedule:

	<u>Teacher Legacy Pension Plan</u>	<u>Teacher Retirement Plan</u>
Actuarial cost method	Entry Age Normal	Entry Age Normal
Amortization method	Level Dollar Amortization	Level Dollar Amortization
Remaining amortization period	3.38 years	N/A
Inflation	2.5 percent	2.5 percent
Salary increases	Graded salary ranges from 8.72 percent to 3.46 percent, including inflation, averaging 4.00 percent	Graded salary ranges from 8.72 percent to 3.46 percent, including inflation, averaging 4.00 percent
Investment rate of returns	7.25 percent, net of pension plan investment expense, including inflation	7.25 percent, net of pension plan investment expense, including inflation



SCHEDULE OF ADMINISTRATIVE EXPENSES
FOR THE YEAR ENDED JUNE 30, 2019



SCHEDULE OF ADMINISTRATIVE EXPENSES
For the Year Ended June 30, 2019

	<u>Public Employee Retirement Plan</u>	<u>Teacher Retirement Plan</u>	<u>Teacher Legacy Pension Plan</u>	<u>TOTAL</u>
PERSONNEL SERVICES				
Salaries and wages	\$ 2,407,268	\$ 383,932	\$ 989,539	\$ 3,780,739
Employee benefits	931,873	148,623	383,058	1,463,554
TOTAL PERSONNEL SERVICES	<u>3,339,141</u>	<u>532,555</u>	<u>1,372,597</u>	<u>5,244,293</u>
PROFESSIONAL SERVICES				
Accounting	360,690	57,526	148,266	566,482
Actuarial services	295,688	47,159	121,547	464,394
Information systems	2,983,066	475,766	1,226,228	4,685,060
Management services	198,683	31,688	81,671	312,042
Medical review	55,986	8,929	23,014	87,929
Administrative, Internal Audit, Legal, Personnel	2,510,625	400,417	1,032,025	3,943,067
TOTAL PROFESSIONAL SERVICES	<u>6,404,738</u>	<u>1,021,485</u>	<u>2,632,751</u>	<u>10,058,974</u>
COMMUNICATION				
Travel	31,685	5,053	13,025	49,763
Telephone	143,250	22,847	58,885	224,982
Printing	43,605	6,954	17,924	68,483
Postage	156,330	24,933	64,261	245,524
TOTAL COMMUNICATION	<u>374,870</u>	<u>59,787</u>	<u>154,095</u>	<u>588,752</u>
MISCELLANEOUS				
Office space	95,337	15,205	39,189	149,731
Supplies and maintenance	8,260	1,317	3,395	12,972
Amortization of intangible assets	2,364,702	377,144	972,042	3,713,888
Other services and charges	67,322	10,737	27,673	105,732
TOTAL MISCELLANEOUS	<u>2,535,621</u>	<u>404,403</u>	<u>1,042,299</u>	<u>3,982,323</u>
TOTAL ADMINISTRATIVE EXPENSES	<u>\$ 12,654,370</u>	<u>\$ 2,018,230</u>	<u>\$ 5,201,742</u>	<u>\$ 19,874,342</u>



SCHEDULE OF INVESTMENT EXPENSES
FOR THE YEAR ENDED JUNE 30, 2019



The Tennessee Consolidated Retirement System (TCRS) is a participant in the Tennessee Retiree Group Trust (TRGT) and owns 99.6% of the net asset value. All TRGT participants share equally in the gains, losses, and expenses of the trust. All participants are charged an annual investment expense of 13 basis points (0.13%) and this amount is deducted from the net asset value NAV of TRGT daily. For financial statement purposes, plan administrative expenses, actual and accrued, are totaled and evaluated against the fee collected. Any amount in excess or a deficiency is rebated to/charged to plan participants based on their date of participation in that fiscal year. The expenses reflected in this schedule reflect all plan administrative expenses for TRGT. The expenses on the Statement of Changes in Fiduciary Net Position reflect the 13 basis point charges accrued throughout the fiscal year less a rebate of excess fees collected. They approximate 99.6% of actual expenses on this schedule.

Direct Expenses

Salaries and other personnel costs	\$	7,378,603
Travel		155,213
Telephone		41,907
Printing & Postage		1,208
Office space		80,855
Supplies and maintenance		16,529
Other services and charges		56,092
Total Direct Expenses		<u>7,730,407</u>

Indirect Expenses

Accounting		466,429
Legal services		183,325
Data processing		80,932
Information systems		1,252,417
Management services		73,634
Administration, Internal Audit, Personnel		1,264,053
Total Indirect Expenses		<u>3,320,790</u>

Total Internal Administrative Investment Expenses

11,051,197

Investment Activity Expenses

Alternative asset fees		204,560
External investment manager fees		27,731,965
Investment consulting fees		1,738,154
Investment custodian fees		2,111,677
Legal fees		473,533
Real estate manager fees		14,088,618
Other investment professional fees		1,262,399
Total Investment Activity Expenses		<u>47,610,906</u>

Total Investment Expenses of TRGT

\$ 58,662,103



**SCHEDULES OF EXPENSES FOR CONSULTANTS
FOR THE YEAR ENDED JUNE 30, 2019**



**SCHEDULES OF EXPENSES FOR CONSULTANTS
For the Year Ended June 30, 2019**

	<u>Public Employee Retirement Plan</u>	<u>Teacher Retirement Plan</u>	<u>Teacher Legacy Pension Plan</u>	<u>TOTAL</u>
ACTUARIAL SERVICES				
Findley Inc	\$ 295,688	\$ 47,159	\$ 121,547	\$ 464,394
TOTAL ACTUARIAL SERVICES	<u>295,688</u>	<u>47,159</u>	<u>121,547</u>	<u>464,394</u>
CALL CENTER SERVICES				
Empower	938,536	149,686	385,797	1,474,019
TOTAL CALL CENTER SERVICES	<u>938,536</u>	<u>149,686</u>	<u>385,797</u>	<u>1,474,019</u>
INFORMATION SYSTEMS SERVICES				
Deloitte Consulting LLP	381,548	60,853	156,841	599,242
TOTAL INFORMATION SYSTEMS SERVICES	<u>381,548</u>	<u>60,853</u>	<u>156,841</u>	<u>599,242</u>
MEDICAL REVIEW SERVICES				
Suzanne Fletcher, M.D.	6,829	1,089	2,807	10,725
Patsy Bramlett, CRC, LPC	254	41	105	400
Barry Siegel, M.D.	2,436	389	1,001	3,826
Eva Misra, M.D.	7,529	1,201	3,095	11,825
University of Massachusetts Worcester	38,937	6,210	16,006	61,153
TOTAL MEDICAL REVIEW SERVICES	<u>55,985</u>	<u>8,930</u>	<u>23,014</u>	<u>87,929</u>
TOTAL EXPENSES FOR CONSULTANTS	<u>\$ 1,671,757</u>	<u>\$ 266,628</u>	<u>\$ 687,199</u>	<u>\$ 2,625,584</u>

Note: For information regarding fees paid to investment professionals, refer to the Investment Section of this report.



Investment Section

Report by Investment Consultant

Letter from TCRS Chief Investment Officer

Statutory Investment Authority

Investment Performance Review

Asset Allocation

Largest Holdings

Investment Summary

Schedules of Investment Fees and Commissions





September 9, 2019

Attn: Mr. Jamie Wayman, Director
 Tennessee Consolidated Retirement System
 Andrew Jackson Building
 Nashville, TN 37243-0230

Re: 2019 CAFR Performance Letter

Dear Jamie:

For the year ended June 30, 2019, TCRS earned a return of 7.54%, underperforming its policy index (7.60%) but beating its as-allocated index (7.40%). Strong absolute returns in Private Equity (17.51%) and U.S Fixed Income (11.01%) were most additive to the portfolio during a period where all asset classes posted positive returns. International Equity was the weakest asset class with a 1.09% return. TCRS met or exceeded all of its benchmarks at the asset class level except for U.S. Equity.


TCRS ranked in the top decile of its peer group (Investment Metric’s Public DB > \$1 billion) for the fiscal year ended June 30, 2019. The Plan’s relative to overweight to U.S. equities versus its peers and its long duration bias in fixed income both contributed to the Plan’s strong peer ranking. Longer term, the Plan remained above median in its peer group for the three, five and ten-year periods ended June.

As of June 30, 2019, the System’s asset allocation and one-year respective returns were:

Asset Class	% of Assets	One Year Return
Domestic Equity	31.0%	7.20%
Canada Index Fund	2.0%	5.12%
International Developed Market	13.5%	0.40%
International Emerging Market	3.9%	3.34%
Domestic Fixed Income	26.0%	11.01%
Inflation-Indexed Fixed Income	0.9%	5.03%
Real Estate	8.8%	7.82%
Private Equity	6.3%	17.51%
Strategic Lending	5.6%	6.04%
Cash and Cash Equivalents	1.9%	1.41%
Total	100.0%	8.19%

Important events in the U.S. during fiscal year 2019 included a change to a more accommodative monetary policy and the ongoing uncertainty surrounding trade policy. The U.S. economy stood out globally, and the U.S. dollar was strong. Yields fell with increased concerns about an inverted yield curve. Global negative-yielding debt rose from \$8.16 trillion to \$12.92 trillion.

TCRS’ well-funded, cost-effective Plan incorporates sensible diversification to weather a variety of market environments. We believe that positioning in the TCRS portfolio is conducive to withstanding more volatile markets in the event of an eventual end to the economic expansion.

Best Regards,

 Margaret S. Jadallah
 Managing Director



DAVID H. LILLARD, JR.
STATE TREASURER

STATE OF TENNESSEE

MARYJO PRICE
CHIEF OPERATING OFFICER

MICHAEL BRAKEBILL
CHIEF INVESTMENT OFFICER



JAMIE WAYMAN
DIRECTOR OF TCRS

TREASURY DEPARTMENT
STATE CAPITOL
NASHVILLE, TENNESSEE 37243-0225

November 7, 2019

Dear Members,

I am pleased to present the Investment Section of the TCRS Comprehensive Annual Financial Report for the fiscal year ended June 30, 2019.

The Tennessee Retiree Group Trust (TRGT) was established in 2015 and contained \$52.2 billion in assets as of June 30, 2019. Assets for the TCRS are comingled in the TRGT for investment purposes and TCRS represents \$52.0 billion, or 99.6%, of the TRGT.

TRGT assets are invested to preserve principal value, to achieve a superior rate of return within acceptable risk levels and to provide the liquidity necessary to pay beneficiaries in a timely manner. The portfolio is diversified among domestic and international stocks and bonds, real estate, private equity and short term securities. A diversified portfolio is used to manage risk and to minimize significant exposure to unpredictable events. Staff consults with the TRGT general investment consultant periodically to determine the optimal, long-term mix of assets to best meet the plan's investment objectives. The investment performance for TCRS was computed using a market value based, time-weighted rate of return and is based on it being a sub-component of the TRGT.

The 2019 fiscal year was a modest year for investors and the TRGT gained 7.54% for the fiscal year with an annualized gain of 9.41% for the trailing ten-year period. The one-year and the ten-year returns each exceeded the actuarial required return and the portfolio was managed in a manner to protect capital in an adverse environment.

The experienced investment staff of the Tennessee Treasury is committed to providing superior investment returns in a financially-sound manner with the highest ethical and professional standards. With the leadership of our Board, our Treasurer and our dedicated staff, this goal will be met.

Sincerely,

Michael Brakebill
Chief Investment Officer



Statutory Investment Authority

The investment authority for the Board of Trustees of TCRS is set out in *Tennessee Code Annotated*, Section 8-37-104. Pursuant to this authority and the investment terms, conditions and limitations outlined therein, the Board of Trustees approves the TCRS' investment policy. The Board approved TCRS' revised and restated investment policy on November 18, 2016.

The Tennessee Retiree Group Trust (TRGT) was established in 2015 by a statutory enactment of the Tennessee General Assembly. The provisions of the TRGT are codified in *Tennessee Code Annotated* (TCA) Title 8, Chapters 34-37. Pursuant to this statute the Tennessee Consolidated Retirement System (TCRS) and its Board of Trustees with the State Treasurer (Treasurer) as custodian, authorized by TCA 8-37-104 adopted this group trust for the purpose of pooling funds of TCRS with other assets in the custody of the Treasurer, solely for investment purposes. The Custodian shall be responsible for the managing and directing the investment of the Group Trust Funds in accordance with the investment policies of the TCRS.

TCRS' primary investment objective, as set by the Board, is to establish a stable, diversified investment portfolio that, in the long-term, will meet or exceed the assumed actuarial rate of return, as adopted by the Board, in order to provide sufficient liquidity to pay beneficiaries in a timely manner.

TCRS' policies and the strategies implemented by the Treasury Investment Division staff serve to benefit plan members in several ways. The emphasis on a conservative asset allocation and high quality securities helps to ensure the soundness of the system and the ability to provide the needed funds upon a member's retirement.

Funds in the retirement system are actively managed, primarily by the Treasury Investment Division, through a diversified portfolio of high-quality domestic and international bonds, domestic and international stocks, real estate, private equity, and short-term instruments. Pursuant to *Tennessee Code Annotated*, Section 8-37-114, the Treasury Investment Division engages outside investment managers. In those instances, the Investment Division endeavors to use emerging investment managers to the greatest extent feasible within the bounds of financial and fiduciary prudence, as prescribed under Tennessee

Code Annotated, Section 8-37-113. During fiscal year 2018-2019, no assets were under the control of emerging investment managers.

To assist in the fiduciary responsibility for managing the TRGT portfolio during fiscal year 2019, Verus served as the general investment consultant for TRGT. The Townsend Group served as the real estate investment consultant and Torrey Cove served as the private equity consultant.

State Street Bank and Trust Company was the master bank custodian for TRGT, providing safekeeping and accounting services for the investment portfolio during fiscal year 2019.

Cost of Investment Operation

The cost to operate the investment program for TRGT is about thirteen basis points (0.13%). This cost includes the cost of personnel, operational cost, master bank custodian cost, record keeping, and external manager fees. Commission costs for publicly listed securities and management fees for private equity investments are capitalized, meaning commission costs and management fees are not included in the expenses, but are recorded in the value of the assets. Recent peer comparisons of investment management fees and expenses indicate the investment program is managed very cost effectively.

Performance Measurement

Verus provided performance measurement for the TRGT, which delivered a return of 7.54% during the fiscal year. Strong absolute returns in Private Equity (17.51%) and U.S. Fixed Income (11.01%) were the most additive to the portfolio and all asset classes produced positive returns for the year. Other notable contributors were Real Estate (7.82%), Domestic Equities (7.20%) and Strategic Lending (6.04%). International markets produced relatively modest returns led by investments in Canada (5.12%) followed by Emerging Markets (3.34%) and International Developed Stocks (0.4%).



TRGT INVESTMENT PERFORMANCE REVIEW

Periods Ending June 30, 2019

	Annualized Returns		
	Current Year	3-Year	5-Year
Pension Plan Portfolio	7.54%	9.02%	6.60%
Policy Index (1)	7.60%	8.90%	6.59%
As-Allocated Index	7.40%	8.64%	6.39%
Domestic Equity	7.20%	13.33%	9.45%
S & P 1500 Index	9.32%	13.91%	10.45%
Canadian Equity	5.12%	9.26%	1.42%
S & P TSX 60 Index	5.55%	9.28%	1.43%
Domestic Fixed Income	11.01%	3.11%	4.49%
Citigroup LPF Index	10.72%	2.65%	4.30%
Inflation Hedge Bonds	5.03%	2.19%	1.94%
Citigroup TIPS Index	4.93%	2.12%	1.85%
International Equity	1.09%	9.56%	3.35%
International Equity Custom Index	0.75%	8.99%	2.20%
Real Estate	7.82%	9.00%	10.50%
NCREIF Index	6.82%	7.07%	9.12%
Private Equity	17.51%	17.96%	16.83%
Private Equity Custom Index	2.79%	13.06%	11.87%
Strategic Lending Portfolio	6.04%	8.21%	5.36%
SL Benchmark	5.82%	6.48%	4.30%

Verus

Ranking of TCRS Portfolio	<u>Percentile Rankings</u>	<u>Risk Adjusted Basis</u>
	Last three years	39
Last five years	16	21

The percentile ranking is the position of the TRGT portfolio as compared with other public funds with one being the best and 100 being the worst. The investment performance for TRGT was computed using a market, time weighted rate of return by an independent consultant.

(1) Effective 1/1/2019, Policy Index is 31% S&P 1500/ 2% S&P TSX 60/ 13% MSCI EAFE IMI net/ 4% MSCI Emerging Markets net/ 25% Citigroup LPF/ 10% NCREIF 1Q Lag/ 7% Cambridge Associates, Custom Private Equity Benchmark/ 7% Strategic Lending/ 1% 91 Day T-Bill.



TRGT ASSET ALLOCATION

As of June 30, 2019

Asset Class	Fair Value	Percentage
Domestic Equity	\$ 16,105,685,761	31%
Domestic Fixed Income	14,915,567,685	29%
International Equity	7,599,004,152	15%
International Fixed Income	46,062,659	0%
Short-Term Securities	3,267,230,004	6%
Real Estate	4,252,118,306	8%
Private Equities & Strategic Lending	5,965,828,854	11%
Totals	<u>\$ 52,151,497,421</u>	<u>100%</u>

This table describes the asset allocation of the entire TRGT investment portfolio. TCRS is comingled with the TRGT portfolio and owns 99.6% of net asset value in TRGT.

This schedule classifies Canadian investments as domestic securities, convertible bonds as fixed income securities and preferred stock as fixed income securities. For investment purposes, convertible bonds and preferred stock are considered equity securities. Accordingly, the asset allocation percentages in this schedule will vary from the investment consultant's asset allocation percentages.

**TRGT LARGEST STOCK HOLDINGS***As of June 30, 2019**by Fair Value*

Shares	Security Name	Fair Value
4,230,869	MICROSOFT CORP	\$ 566,767,211
257,169	AMAZON.COM INC	486,982,933
2,432,614	APPLE INC	481,462,963
1,460,773	FACEBOOK INC CLASS A	281,929,189
2,430,956	JPMORGAN CHASE + CO	271,780,881
213,211	ALPHABET INC CL C	230,461,902
986,234	BERKSHIRE HATHAWAY INC CL B	210,235,502
1,364,350	JOHNSON + JOHNSON	190,026,668
1,522,747	CHEVRON CORP	189,490,637
1,328,652	WALT DISNEY CO/THE	185,532,965

TRGT LARGEST BOND HOLDINGS*As of June 30, 2019**by Fair Value*

Par Value	Security Name	Yield	Maturity	Moody's Rating	Fair Value
\$ 239,550,000	United States Treasury Note	2.51%	11/15/2045	Aaa	\$ 262,157,531
236,336,000	United States Treasury Note	2.59%	2/15/2046	Aaa	235,098,928
189,590,000	United States Treasury Note	2.51%	5/15/2045	Aaa	207,327,034
205,975,000	United States Treasury Note	2.54%	8/15/2046	Aaa	194,598,099
152,365,000	United States Treasury Note	2.01%	2/15/2029	Aaa	160,673,654
136,500,000	United States Treasury Note	2.54%	8/15/2047	Aaa	142,461,212
123,700,000	United States Treasury Note	2.51%	11/15/2044	Aaa	135,142,250
134,446,000	FED HOME LN DISCOUNT NT	2.00%	7/1/2019	Aaa	134,446,000
120,285,000	United States Treasury Note	1.93%	8/15/2027	Aaa	123,202,851
119,075,000	United States Treasury Note	1.88%	5/15/2026	Aaa	117,195,848

A complete portfolio listing is available upon request.

Key to Ratings: All ratings presented are from Moody's Investors Service with the exception of some of the government agency securities. Moody's does not rate these securities. Standard & Poor's does provide rating for the securities (AAA is Standard & Poor's highest rating.) Government Securities are not rated per se' but are considered the best quality securities.

Moody's rates securities as follows:

Aaa	Best Quality
Aa	High Quality
A	Upper Medium Quality
Baa	Medium Quality
NR	Not Rated



TRGT INVESTMENT SUMMARY

June 30, 2019

	Domestic		International		Total	
	Fair Value	%		%	Fair Value	%
Fixed Income						
Government Bonds	\$ 4,370,903,748	8.38%	\$ 0	0.00%	\$ 4,370,903,748	8.38%
Corporate Bonds	4,550,660,660	8.73%	0	0.00%	4,550,660,660	8.73%
Municipal/Provincial Bonds	59,168,162	0.11%	0	0.00%	59,168,162	0.11%
Total Bonds	8,980,732,570	17.22%	0	0.00%	8,980,732,570	17.22%
Corporate Asset Backed	876,571,075	1.68%	0	0.00%	876,571,075	1.68%
Commercial Mortgage Backed	629,265,624	1.21%	0	0.00%	629,265,624	1.21%
Government Agencies	299,712,965	0.57%	0	0.00%	299,712,965	0.57%
Government Mortgage Backed Securities	4,017,764,912	7.70%	0	0.00%	4,017,764,912	7.70%
Government Asset Backed	105,370,539	0.20%	0	0.00%	105,370,539	0.20%
Preferred Stock	6,150,000	0.02%	46,062,659	0.09%	52,212,659	0.11%
Total Fixed Income	14,915,567,685	28.60%	46,062,659	0.09%	14,961,630,344	28.69%
Common Stock						
Consumer Discretionary	1,638,840,674	3.14%	926,971,758	1.78%	2,565,812,432	4.92%
Consumer Staples	1,068,541,291	2.05%	693,698,550	1.33%	1,762,239,841	3.38%
Energy	713,616,823	1.37%	513,338,446	0.98%	1,226,955,269	2.35%
Financials	2,185,177,518	4.19%	1,301,809,671	2.50%	3,486,987,189	6.69%
Healthcare	2,134,918,804	4.09%	774,321,686	1.48%	2,909,240,490	5.57%
Industrials	1,716,084,769	3.29%	1,382,070,656	2.65%	3,098,155,425	5.94%
Information Technology	3,417,059,207	6.55%	600,707,110	1.15%	4,017,766,317	7.70%
Materials	498,321,122	0.96%	504,087,759	0.97%	1,002,408,881	1.93%
Private Placements	186,167	0.00%	12,290,219	0.02%	12,476,386	0.02%
Real Estate	29,829,673	0.06%	141,082,465	0.27%	170,912,138	0.33%
Rights/Warrants	0	0.00%	72,527	0.00%	72,527	0.00%
Telecommunication Services	1,356,301,882	2.60%	408,162,185	0.78%	1,764,464,067	3.38%
Utilities	508,358,752	0.97%	233,131,866	0.45%	741,490,618	1.42%
Corporate Equities	816,947,211	1.57%	58,036,836	0.12%	874,984,047	1.69%
Depository Receipts	21,423,169	0.04%	49,222,418	0.09%	70,645,587	0.13%
Shares Beneficial	78,699	0.00%	0	0.00%	78,699	0.00%
Total Equities	16,105,685,761	30.88%	7,599,004,152	14.57%	23,704,689,913	45.45%

(continued)



INVESTMENT SUMMARY (CONTINUED)



TRGT INVESTMENT SUMMARY (CONTINUED)

June 30, 2019

	Domestic		International		Total	
	Fair Value	%	Fair Value	%	Fair Value	%
Short-Term Investments						
Commercial Paper	752,745,668	1.45%	0	0.00%	752,745,668	1.45%
Pooled Funds and Mutual Funds	2,514,484,336	4.82%	0	0.00%	2,514,484,336	4.82%
Total Short Term Investments	<u>3,267,230,004</u>	<u>6.27%</u>	<u>0</u>	<u>0.00%</u>	<u>3,267,230,004</u>	<u>6.27%</u>
Real Estate	4,252,118,306	8.15%	0	0.00%	4,252,118,306	8.15%
Private Equities & Strategic Lending	<u>5,457,629,657</u>	<u>10.47%</u>	<u>508,199,197</u>	<u>0.97%</u>	<u>5,965,828,854</u>	<u>11.44%</u>
Total Investments	<u>43,998,231,413</u>	<u>84.37%</u>	<u>8,153,266,008</u>	<u>15.63%</u>	<u>52,151,497,421</u>	<u>100.00%</u>
Derivatives	789,404		0		789,404	
Short Term Investments Classified as Cash Equivalents	<u>(1,139,962,673)</u>		0		<u>(1,139,962,673)</u>	
Total Investments of the Tennessee Retiree Group Trust	<u>\$ 42,859,058,144</u>		<u>\$ 8,153,266,008</u>		<u>\$ 51,012,324,152</u>	

Note: TCRS owns 99.6% of the net asset value of the Tennessee Retiree Group Trust.



TRGT Schedule of Fees

	Average Assets Under Management	Fees
Asset Management		
External Investment Manager Fees	\$ 7.2 Billion	\$ 28,062,762
Real Estate Asset Management	4.3 Billion	14,256,672
Private Equities & Strategic Lending Asset Management	6.0 Billion	-
Total Asset Management		<u>\$ 42,319,434</u>
Other Investment Services Fees		
Custodian Bank	\$ 51.2 Billion	\$ 2,136,865
General Investment Consultant	51.2 Billion	472,599
Real Estate Investment Consultant	4.3 Billion	253,239
Private Equities & Strategic Lending Investment Consultant	6.0 Billion	922,913
Total Investment Services Fees		<u>\$ 3,785,616</u>

(continued)



SCHEDULES OF INVESTMENT FEES AND COMMISSIONS
FOR THE YEAR ENDED JUNE 30, 2019 (CONTINUED)



TRGT Schedules of Commissions

Domestic Exchange Traded Shares

Broker Name	DOMESTIC		
	Number of Shares Traded	Total Commissions	Commission per Share
Instinet, LLC	80,630,759	\$ 1,612,615	0.0200
RBC Capital Markets Corporation	14,019,018	280,380	0.0200
RJ Equity Partners	10,839,031	216,781	0.0200
Barclays Capital	10,119,727	202,394	0.0200
JP Morgan	5,953,634	119,072	0.0200
Capis	4,612,668	184,507	0.0400
UBS Securities LLC	5,879,279	117,586	0.0200
ISI Group INC	5,127,212	101,435	0.0198
OTHER BROKERS*	19,692,789	409,236	0.0208
Totals	156,874,117	\$ 3,244,006	

Program Trades where total commission cost includes trading commission, liquidity fees, and market impact fees.

Broker Name	DOMESTIC		
	Number of Shares Traded	Total Commissions	Commission per Share
Morgan Stanley & Company, Inc.	59,870,592	\$ 449,030	0.0075
Barclays Capital	21,362,055	427,241	0.0200
UBS Securities LLC	43,132,839	323,501	0.0075
Merrill Lynch	30,555,146	229,166	0.0075
Goldman Sachs Group, Inc.	41,504,815	311,289	0.0075
C S FBCO	10,265,528	205,311	0.0200
Capis	9,307,692	186,154	0.0200
RBC Capital Markets	18,812,555	131,354	0.0070
Wells Fargo	17,247,957	129,363	0.0075
OTHER BROKERS*	30,981,333	232,362	0.0075
Totals	283,040,512	\$ 2,624,771	

*LESS THAN \$100,000 TOTAL COMMISSION PER BROKERAGE FIRM

(continued)



**SCHEDULES OF INVESTMENT FEES AND COMMISSIONS
FOR THE YEAR ENDED JUNE 30, 2019 (CONTINUED)**



International Exchange Traded Shares

Broker Name	INTERNATIONAL		
	Number of Shares Traded	Total Commissions	Commission per Share
UBS Securities LLC	82,982,745	\$ 383,466	0.0046
HSBC Bank	69,817,695	350,209	0.0050
JP Morgan Chase & Company	22,811,840	320,990	0.0141
Jefferies International	22,861,437	312,385	0.0137
Goldman Sachs Group, Inc.	46,842,052	256,193	0.0055
Citigroup Global Markets, Inc.	31,120,802	235,280	0.0076
Macquarie Group Limited	8,665,832	215,993	0.0249
Investment Technology Group	18,199,701	186,437	0.0102
Bank of America Merrill Lynch	31,062,708	160,204	0.0052
Deutsche Bank Securities, Inc.	12,846,094	153,753	0.0120
SMBC NIKKO Securities America, Inc.	5,920,375	149,170	0.0252
Morgan Stanley & Company, Inc.	14,834,711	132,712	0.0089
RBC Capital Markets	14,980,035	116,039	0.0077
Credit Suisse	10,337,022	113,770	0.0110
Societe Generale	16,757,281	101,287	0.0060
OTHER BROKERS*	174,266,016	1,187,613	0.0068
TOTALS	<u>584,306,346</u>	<u>\$ 4,375,501</u>	

Shares for international stocks are based on the actual foreign shares traded while the commission is expressed in U.S. dollars. Therefore, commissions per share between domestic and international are not comparable.

*LESS THAN \$100,000 TOTAL COMMISSION PER BROKERAGE FIRM



Actuarial Section

Actuarial Introduction

Actuary's Certification Letter

Summary of Actuarial Assumptions and Methods

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Actuarial Balance Sheet

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Services for Active and Retired Members

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ACTUARIAL VALUATIONS

Actuarial valuations of the TCRS are performed by an independent actuarial consulting firm to assess the funded status of the system and to determine employer contribution rates for its various components. The valuation performed as of June 30, 2017 set employer rates effective July 1, 2018 through June 30, 2019. The June 30, 2018 valuation established contribution rates beginning July 1, 2019. The Board of Trustees of the system is responsible for adopting the employer contribution rates after reviewing the actuarial results.

FUNDING OF PENSIONS

It is the policy of the state to fund pensions by actuarially-determined contributions which are intended to provide funding for both the normal liability cost and the unfunded actuarial accrued liability cost. This policy seeks to ensure that sufficient assets will be available to pay the benefits as promised by the pension plan.

ACCRUED LIABILITY

Unfunded accrued liability is equal to the excess of the Entry Age Normal Past Service Liability over the valuation assets for each group. A tier approach is utilized with new actuarial gains and losses from each actuarial valuation.

SPECIFICS

Valuations are based on demographic data (employees' ages, salaries and service credits), economic projections (salary increases, interest rates and investment earnings) and decrement estimates (mortality and disability rates).

The economic projections and decrement estimates used for valuation purposes utilized the assumptions recommended by the actuary and adopted by the Board of Trustees based on an actuarial experience study conducted every four years. The earnings rate assumption adopted by the Board is subject to the approval of the Council on Pensions and Insurance.

QUADRENNIAL EXPERIENCE STUDY

A quadrennial experience study was conducted as of June 30, 2016. The system made adjustments to the mortality assumptions to reflect TCRS experience, including an assumption for future mortality improvement. In addition, the system lowered the long-term inflation assumption, which also lowered other economic assumptions such as the discount rate, COLA and salary scale for all groups. Assumptions developed from the June 30, 2016 experience study were used in the June 30, 2018 actuarial valuation. The next experience study will occur as of June 30, 2020.

FUNDING POLICY

The TCRS Board of Trustees adopted a funding policy for TCRS on September 26, 2014. The policy outlines the procurement of actuarial services, the assumptions to be used in the experience study, the components of the actuarial valuation, and performance of an actuarial audit. The funding policy can be found in the Reporting and Investment Policies section of the TCRS website at treasury.tn.gov/TCRS/.



Justin C. Thacker, F.S.A.
Direct Line: (615) 665-5387
Email: Justin.Thacker@Findley.com

November 8, 2019

Mr. David H. Lillard, Jr.
Chairman, Board of Trustees
Tennessee Consolidated Retirement System
502 Deaderick Street
Nashville, Tennessee 37243-0201

Re: Actuary's Certification Letter

Dear Mr. Lillard:

The purpose of this letter is to certify the actuarial adequacy of contributions being made by the State of Tennessee, Local Education Agencies and participating Political Subdivisions to the Tennessee Consolidated Retirement System and to discuss the approach currently being taken toward meeting the financing objectives of the Plan.

The most recent actuarial valuation for funding purposes completed as of the year ending June 30, 2019 for the Tennessee Consolidated Retirement System was performed as of June 30, 2018. In addition, a valuation for accounting purposes pursuant to GASB 67 and 68 was performed as of June 30, 2018 and was used to satisfy June 30, 2019 reporting date requirements. These valuations were based on a set of actuarial assumptions (described in detail in the section headed "Summary of Actuarial Assumptions and Methods") which was adopted by the Board of Trustees on the recommendation of the actuary after a study of actual experience under the TCRS during the four-year period ending June 30, 2016. Actuarial valuations are performed annually for both funding and accounting purposes.

The Tennessee Consolidated Retirement System implemented a new hybrid plan design for all new employees hired on or after July 1, 2014. Employees hired prior to this date continue to participate in the legacy plans. The funding and accounting valuations reflect this change and provide separate reporting for each plan. There have been no significant changes in the level of benefits provided by the plans since the date of the preceding valuation.

In performing the 2018 valuations, we relied on employee data and asset information provided by the administrative staff of the Tennessee Consolidated Retirement System. In the case of employee data, each individual record was audited for reasonableness and internal consistency, although the validity of the information was not traced to source documents. With respect to plan assets, a general review for consistency with the information furnished for prior valuations was performed.

(continued)



Mr. David H. Lillard, Jr.
Chairman, Board of Trustees
November 8, 2019
Page Two

Certain tables presented in the Comprehensive Annual Financial Report are derived from the 2018 actuarial valuation reports prepared by Findley. The tables were prepared by the staff of the Tennessee Consolidated Retirement System and examined by our firm. These tables include the following –

Financial Section

- Schedules of Changes in Net Pension Liability
- Schedules of Net Pension Liability
- Schedule of Contributions

Actuarial Section

- Summary of Actuarial Assumptions and Methods
- Actuarial Data
- Actuarial Balance Sheet
- Short-Term Solvency Test
- Summary of Accrued and Unfunded Accrued Liabilities
- Selected Actuarial Funding Information
- Analysis of Financial Experience

The Schedule of Retired Member Activity in the Actuarial Data section was prepared by our firm using information gathered from prior actuarial valuations.

The 2018 actuarial funding valuations were prepared in accordance with accepted actuarial standards, including the overall appropriateness of the assumptions and methods, and conformed to appropriate Standards of Practice as promulgated from time to time by the Actuarial Standards Board. The funding valuations were also in accordance with the pension funding policy adopted by the TCRS Board of Trustees. In addition, the 2018 actuarial valuations for accounting purposes were prepared in accordance with the Governmental Accounting Standards Board Statements 67 and 68. I am a Member of the American Academy of Actuaries and a consulting actuary with Findley of Brentwood, Tennessee, with experience in performing valuations for public retirement systems and have met the Qualification Standards of the American Academy of Actuaries. All calculations were performed either by me or by other qualified actuaries under my direct supervision.

Based upon the valuation results and the contribution rates adopted by the Board of Trustees, it is our opinion that the Tennessee Consolidated Retirement System continues to fund its liabilities in accordance with standard actuarial principles of advance funding, continuing a program first adopted in 1975.

Sincerely,

Justin C. Thacker, F.S.A.



The following assumptions were adopted by the Board of Trustees for use with actuarial valuations beginning with the July 1, 2017 valuation. The assumptions used are based on the consulting actuary's recommendations resulting from the June 30, 2016 actuarial experience study.

General Actuarial Methods

- **Actuarial Cost Method (Entry Age Normal)** — Unfunded accrued liability tiers by year are being amortized over various periods not to exceed 20 years using the level dollar amortization method in accordance with the funding policy. The amortization period related to local government unfunded accrued liabilities varies by entity.
- **Treatment of Actuarial Gains and Losses** — Under the Entry Age Normal method, a tier approach is utilized with new actuarial gains and losses from each actuarial valuation. Each new tier of unfunded accrued liabilities is amortized over a period in accordance with the TCRS funding policy.
- **Asset Valuation Method** — Assets are valued on a basis which reflects a ten-year moving average of the fair value. The actuarial value of assets must be within 80-120 percent of the fair value of assets.
- **Valuation Data** — The administrative staff of TCRS furnishes the actuary with demographic data relating to the active life members and the retired life members. The fair value of system assets are also provided by retirement system staff. All data is reviewed for reasonableness and consistency from year to year, but is not audited by the actuary.
- **Post-Retirement Adjustments** — Retirement benefits are assumed to increase at the geometric rate of 2.25 percent annually, reflecting the 1997 adoption of compounded cost-of-living adjustments.

Economic Assumptions

- **Investment Return Rate** — 7.25 percent per annum, compounded annually.
- **Employee Salary Increases** — Graded scale that reflects the plan experience pattern of declining escalation rates as participant ages increase. No explicit assumption is made regarding the portion attributable to the effects of inflation on salaries. Active membership is assumed to remain constant. For the legacy pension plan, increase in Social Security Wage Base — 3.0 percent annual increase.

(continued)



Decrement Assumptions

Post-Retirement Mortality— Mortality assumptions utilize the RP-2014 industry standard base table for annuitants adjusted for TCRS experience, with mortality improvements projected six years beyond each actuarial valuation date for the Legacy Plan and projected generationally for the Hybrid Plan.

Pre-Retirement Mortality— Mortality assumptions utilize the RP-2014 industry standard base table for non-annuitants adjusted for TCRS experience, with mortality improvements projected fifteen years beyond each actuarial valuation date for the Legacy Plan and projected generationally for the Hybrid Plan.

Withdrawal Due to Disability — Sample rates of disability based on experience:

Male			
Age	Teachers	State	Political Subdivisions
Age 30	0.01%	0.07%	0.03%
Age 40	0.08%	0.16%	0.08%
Age 50	0.17%	0.27%	0.38%

Female			
Age	Teachers	State	Political Subdivisions
Age 30	0.01%	0.04%	0.03%
Age 40	0.08%	0.14%	0.08%
Age 50	0.17%	0.33%	0.38%

Turnover Assumption — Tables for probabilities of separation due to termination of employment are developed utilizing a “two-year select and ultimate” approach.

Teachers			
	1st Year Employment	2nd Year Employment	Ultimate
Male			
Age 30	18.0%	13.5%	6.0%
Age 40	18.0%	13.5%	2.0%
Age 50	19.7%	14.2%	2.0%
Female			
Age 30	18.0%	13.5%	7.6%
Age 40	18.0%	13.5%	2.3%
Age 50	19.7%	14.2%	1.6%

State			
	1st Year Employment	2nd Year Employment	Ultimate
Male			
Age 30	23.0%	18.6%	9.6%
Age 40	18.6%	13.8%	2.6%
Age 50	14.8%	11.1%	2.2%
Female			
Age 30	23.0%	18.6%	10.3%
Age 40	18.6%	13.8%	3.4%
Age 50	14.8%	11.1%	2.3%

Political Subdivisions			
	1st Year Employment	2nd Year Employment	Ultimate
Male			
Age 30	21.8%	17.9%	7.4%
Age 40	19.2%	15.9%	3.5%
Age 50	17.0%	13.0%	2.8%
Female			
Age 30	21.8%	17.9%	11.1%
Age 40	19.2%	15.9%	5.4%
Age 50	17.0%	13.0%	3.8%

(continued)



Retirement — The probabilities of retirement for members eligible to retire:

Male			
Age	Teachers	State	Political Subdivisions
Age 60	15.0%	8.5%	10.5%
Age 61	16.0%	11.0%	15.0%
Age 62	22.0%	16.0%	20.0%
Age 63	16.0%	12.0%	17.5%
Age 64	18.0%	14.0%	17.5%
Age 65	35.0%	22.0%	24.0%
Age 70	16.0%	15.5%	18.0%
Age 75	100.0%	100.0%	100.0%

Female			
Age	Teachers	State	Political Subdivisions
Age 60	17.0%	9.0%	11.0%
Age 61	20.0%	12.0%	13.0%
Age 62	26.0%	18.0%	18.0%
Age 63	19.5%	12.0%	16.0%
Age 64	24.0%	14.0%	16.0%
Age 65	37.5%	22.0%	22.0%
Age 70	34.0%	17.0%	19.0%
Age 75	100.0%	100.0%	100.0%

In addition, for members younger than age 60, a loading factor of 12.5 percent for teachers and 7.5 percent for state and political subdivision employees is added during the year the member is first eligible for unreduced retirement. After age 60, for those members with 15 or more years of service, an 8.0 percent load is added for teachers and 2.0 percent for state employees and political subdivision employees.



SCHEDULE OF ACTIVE MEMBER VALUATION DATA

Actuarial Valuation July 1	Number	Annual Payroll In Thousands	Average Annual Pay	Average Annual Percentage Increase In Average Pay
2005 SETHEEPP	132,026	\$ 5,245,988	\$ 39,735	3.49%
PSPP	74,124	1,890,968	25,511	2.96%
2007 SETHEEPP	136,337	5,742,858	42,123	2.96%
PSPP	76,388	2,081,965	27,255	3.36%
2009 SETHEEPP	136,158	6,054,528	44,467	2.74%
PSPP	78,792	2,282,081	28,963	3.09%
2011 SETHEEPP	135,588	6,058,348	44,682	0.24%
PSPP	79,488	2,354,939	29,626	1.14%
2013 SETHEEPP	132,900	6,236,930	46,929	2.48%
PSPP	77,064	2,374,948	30,818	1.99%
2015 TLPP	69,125	3,542,059	51,241	0.84%
TRP	5,524	225,219	40,771	N/A
PERP	134,426	4,987,326	37,101	1.70%
2016 TLPP	65,458	3,465,946	52,949	3.33%
TRP	11,079	464,122	41,892	2.75%
PERP	136,524	5,241,126	38,390	3.47%
2017 TLPP	62,320	3,414,741	54,794	3.48%
TRP	15,607	674,906	43,244	3.23%
PERP	139,397	5,566,390	39,932	4.02%
2018 TLPP	59,487	3,460,664	58,175	6.17%
TRP	19,634	905,280	46,108	6.62%
PERP	140,238	5,816,152	41,473	3.86%

SCHEDULE OF RETIRED MEMBER VALUATION DATA

Actuarial Valuation July 1	Number	Annual Allowances In Thousands	Average Annual Allowances	Average Annual Percentage Increase In Annual Allowances
2005 SETHEEPP	65,094	\$ 939,549	\$ 14,434	4.63%
PSPP	24,799	143,275	5,777	4.24%
2007 SETHEEPP	70,703	1,117,789	15,810	4.66%
PSPP	27,527	174,211	6,329	4.67%
2009 SETHEEPP	77,310	1,281,514	16,576	2.39%
PSPP	30,565	205,326	6,718	3.03%
2011 SETHEEPP	83,041	1,457,974	17,557	2.92%
PSPP	33,544	241,910	7,212	3.61%
2013 SETHEEPP	90,414	1,682,792	18,612	2.96%
PSPP	37,157	286,338	7,706	3.37%
2015 TLPP	47,979	1,103,163	22,993	1.30%
TRP	0	0	0	N/A
PERP	94,704	1,143,883	12,079	1.60%

(continued)



SCHEDULE OF RETIRED MEMBER VALUATION DATA *(continued)*

Actuarial Valuation July 1	Number	Annual Allowances In Thousands	Average Annual Allowances	Average Annual Percentage Increase In Annual Allowances
2016 TLPP	49,336	1,142,552	23,159	0.72%
TRP	1	0	0	N/A
PERP	100,011	1,218,115	12,180	0.84%
2017 TLPP	50,230	1,187,624	23,644	2.09%
TRP	2	2	797	N/A
PERP	103,277	1,286,131	12,453	2.24%
2018 TLPP	50,922	1,227,139	24,098	1.92%
TRP	3	2	801	0.50%
PERP	106,448	1,353,198	12,712	2.08%

SCHEDULE OF RETIRED MEMBER ACTIVITY

Actuarial Valuation July 1	Added to Rolls		Removed from Rolls		Rolls - End of Year		Percentage Increase in Annual Allowances	Average Annual Allowances
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances		
2005 SETHEEPP	8,453	\$ 179,572	4,359	\$ 56,689	65,094	\$ 939,549	17.59%	\$ 14,434
PSPP	3,705	29,169	1,976	11,048	24,799	143,275	18.85%	5,777
2007 SETHEEPP	9,427	219,034	4,826	64,619	70,703	1,117,789	18.97%	15,810
PSPP	4,396	38,751	2,245	12,559	27,527	174,211	21.59%	6,329
2009 SETHEEPP	10,677	212,772	4,826	64,619	77,310	1,281,514	14.65%	16,576
PSPP	4,752	39,522	2,245	12,559	30,565	205,326	17.86%	6,718
2011 SETHEEPP	10,090	233,149	4,359	56,689	83,041	1,457,974	13.77%	17,557
PSPP	4,955	47,632	1,976	11,048	33,544	241,910	17.82%	7,212
2013 SETHEEPP	12,199	289,437	4,826	64,619	90,414	1,682,792	15.42%	18,612
PSPP	5,858	56,987	2,245	12,559	37,157	286,338	18.37%	7,706
2015 TLPP	6,582	167,537	2,376	45,115	47,979	1,103,163	12.48%	22,993
TRP	0	0	0	0	0	0	N/A	N/A
PERP	15,885	203,829	4,979	48,335	94,704	1,143,883	15.73%	12,079
2016 TLPP	2,305	58,165	948	18,776	49,336	1,142,552	3.57%	23,159
TRP	1	0	0	0	1	0	N/A	0
PERP	7,884	100,366	2,577	26,134	100,011	1,218,115	6.49%	12,180
2017 TLPP	2,137	69,114	1,243	24,042	50,230	1,187,624	3.94%	23,644
TRP	1	1	0	0	2	2	237.95%	797
PERP	6,538	102,361	3,272	34,345	103,277	1,286,131	5.58%	12,453
2018 TLPP	1,805	62,874	1,113	23,359	50,922	1,227,139	3.33%	24,098
TRP	1	0	0	0	3	2	50.75%	801
PERP	6,127	99,291	2,956	32,224	106,448	1,353,198	5.21%	12,712

Legislative changes modified the plans presented beginning July 1, 2014. The July 1, 2015 Actuarial Valuation was the first performed after this change.

Note: Timing differences exist between the data utilized for statistical information and that used for actuarial valuation purposes.

Notes applicable to the schedules in this section:

- SETHEEPPP - State Employees, Teachers, Higher Education Employees Pension Plan
- PSPP - Political Subdivisions Pension Plan
- TLPP - Teacher Legacy Pension Plan
- TRP - Teacher Retirement Plan
- PERP - Public Employee Retirement Plan



ACTUARIAL BALANCE SHEET



**ACTUARIAL BALANCE SHEET
as of June 30, 2018**

	<u>Teacher Legacy Pension Plan</u>	<u>Teacher Retirement Plan</u>	<u>Public Employee Retirement Plan</u>	<u>Total</u>
ASSETS				
Present assets creditable to:				
Employer accumulation fund	\$ 19,663,115,437	\$ 48,453,534	\$ 22,813,334,291	\$ 42,524,903,262
Members' accumulation fund	3,509,632,277	111,482,711	1,706,815,076	5,327,930,064
Total present assets	<u>23,172,747,714</u>	<u>159,936,245</u>	<u>24,520,149,367</u>	<u>47,852,833,326</u>
Present value of prospective contributions payable to:				
Employer accumulation fund				
Normal	1,680,191,346	151,856,750	2,846,939,816	4,678,987,912
Accrued liability	<u>503,884,213</u>	<u>8,253,746</u>	<u>2,344,674,537</u>	<u>2,856,812,496</u>
Total employer accumulation	<u>2,184,075,559</u>	<u>160,110,496</u>	<u>5,191,614,353</u>	<u>7,535,800,408</u>
Member's accumulation fund	<u>1,653,080,602</u>	<u>619,879,656</u>	<u>1,160,421,977</u>	<u>3,433,382,235</u>
Total prospective contributions	<u>3,837,156,161</u>	<u>779,990,152</u>	<u>6,352,036,330</u>	<u>10,969,182,643</u>
TOTAL ASSETS	<u>\$ 27,009,903,875</u>	<u>\$ 939,926,397</u>	<u>\$ 30,872,185,697</u>	<u>\$ 58,822,015,969</u>
LIABILITIES				
Present value of prospective benefits payable on account of:				
Present retired members and beneficiaries	\$ 13,754,852,811	\$ 29,570	\$ 14,539,125,310	\$ 28,294,007,691
Present active members	12,739,176,328	926,689,836	14,295,028,571	27,960,894,735
Former members	515,874,736	13,206,991	2,038,031,816	2,567,113,543
TOTAL LIABILITIES	<u>\$ 27,009,903,875</u>	<u>\$ 939,926,397</u>	<u>\$ 30,872,185,697</u>	<u>\$ 58,822,015,969</u>



Short-Term Solvency Test

The financing objective of the Tennessee Consolidated Retirement System is to pay for the benefits provided by the plan through contributions that remain approximately level from year to year as a percentage of payroll, except that the strategy to fund the unfunded accrued liability is to make level-dollar payments over an established amortization period. A short-term solvency test is one means of checking a system's progress under its funding program. In a short-term solvency test, the plan's present assets are compared with: (1) active member contributions on deposit;

(2) the liabilities for future benefits to present retired lives; and (3) the liabilities for service already rendered by active members. In a system that has been following the approach of level percent of payroll financing for some time, the liabilities for active member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) should be fully covered by present assets. In addition, the liabilities for service already rendered by active members (liability 3) should be partially covered by the remainder of present assets. Generally, if the system has been using level cost financing, the funded portion of liability 3 will increase over time.

Dollar Amounts Expressed in Millions

		Actuarial Accrued Liabilities for:				Portion of Actuarial Accrued Liabilities Covered by Assets		
Actuarial Valuation July 1		(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Members (Employer Financed)	Valuation Assets	(1)	(2)	(3)
2013	SETHEEPP	\$ 3,759.9	\$ 18,747.4	\$ 11,616.3	\$ 31,851.0	100%	100%	80%
	PSPP	1,196.3	3,075.7	1,991.6	7,398.3	100%	100%	100%
	Total	\$ 4,956.2	\$ 21,823.1	\$ 13,607.9	\$ 39,249.3	100%	100%	92%
2015	TLPP	\$ 3,340.9	\$ 12,534.5	\$ 5,433.7	\$ 21,040.2	100%	100%	95%
	TRP	10.4	0	4.3	15.7	100%	100%	100%
	PERP	1,753.7	12,202.0	9,292.9	21,682.8	100%	100%	83%
	Total	\$ 5,105.0	\$ 24,736.5	\$ 14,730.9	\$ 42,738.7	100%	100%	88%
2016	TLPP	\$ 3,229.3	\$ 12,858.9	\$ 5,728.3	\$ 21,681.8	100%	100%	98%
	TRP	32.6	0	15.0	49.90	100%	100%	100%
	PERP	1,606.6	12,944.2	9,554.9	22,512.8	100%	100%	83%
	Total	\$ 4,868.5	\$ 25,803.1	\$ 15,298.2	\$ 44,244.5	100%	100%	89%
2017	TLPP	\$ 3,351.9	\$ 13,485.7	\$ 6,003.4	\$ 22,330.7	100%	100%	92%
	TRP	66.0	0.0	32.4	96.11	100%	100%	93%
	PERP	1,640.8	13,940.9	10,231.2	23,379.2	100%	100%	76%
	Total	\$ 5,058.6	\$ 27,426.6	\$ 16,267.0	\$ 45,806.1	100%	100%	82%
2018	TLPP	\$ 3,509.6	\$ 13,754.9	\$ 6,412.1	\$ 23,172.7	100%	100%	92%
	TRP	111.5	0.0	56.7	159.9	100%	100%	85%
	PERP	1,706.8	14,539.1	10,618.9	23,936.8	100%	100%	72%
	Total	\$ 5,327.9	\$ 28,294.0	\$ 17,087.7	\$ 47,269.4	100%	100%	80%



SUMMARY OF ACCRUED AND UNFUNDED ACCRUED LIABILITIES



The unfunded accrued liability represents the excess of the accrued actuarial liability over the actuarial value of assets. For funding purposes, the Board of Trustees of TCRS has adopted the frozen initial liability method.

Under this method, the unfunded accrued liability is being funded by level-dollar contributions. Also, actuarial gains and losses are absorbed in normal cost rather than as part of the unfunded liability. The statute governing TCRS allows the Board of Trustees to reestablish the unfunded accrued liability for actuarial gains and losses.

For the July 1, 2013 actuarial valuation, the Board reestablished the unfunded accrued liability. In an inflationary economy

where the covered payroll continues to grow, the level-dollar amounts which are being contributed to fund the unfunded accrued liability will, if expressed as a percentage of payroll, continue to decrease.

While concern is generally expressed regarding the dollar amount of the unfunded accrued liability, an analysis should also include the method being used to fund this liability as well as a review of this liability expressed as a percentage of active member payroll. The smaller the ratio of unfunded liabilities to the active member payroll, the stronger the system. A review of this ratio over a period of years will give an indication of whether the system is becoming financially stronger or weaker with respect to its unfunded liabilities.

SUMMARY OF ACCRUED AND UNFUNDED ACCRUED LIABILITIES

Dollar Amounts Expressed in Millions

Actuarial Valuation Jun 30	Actuarial Accrued Liabilities (AAL)	Valuation Assets	Ratio Assets to AAL	Unfunded Actuarial Accrued Liabilities (UAAL)	Active Member Payroll	UAAL as a Percentage of Active Member Payroll
2009						
SETHEEP	\$ 29,054.9	\$ 26,335.2	90.64%	\$ 2,719.7	\$ 6,054.5	44.92%
PSPP	\$ 6,143.8	\$ 5,304.5	86.34%	\$ 839.3	\$ 2,282.1	36.78%
2011						
SETHEEP	\$ 32,707.6	\$ 30,118.2	92.08%	\$ 2,589.4	\$ 6,058.3	42.74%
PSPP	\$ 7,361.7	\$ 6,562.6	89.15%	\$ 799.1	\$ 2,354.9	33.93%
2013						
SETHEEP	\$ 34,123.6	\$ 31,851.0	93.34%	\$ 2,272.6	\$ 6,236.9	36.44%
PSPP	\$ 7,789.8	\$ 7,398.3	94.97%	\$ 391.5	\$ 2,375.0	16.49%
2015						
TLPP	\$ 21,309.0	\$ 21,040.2	98.74%	\$ 268.8	\$ 3,542.1	7.59%
TRP	\$ 14.7	\$ 15.7	106.80%	\$ (1.0)	\$ 239.5	-0.42%
PERP	\$ 23,248.7	\$ 21,682.9	93.26%	\$ 1,565.8	\$ 5,009.6	31.26%
2016						
TLPP	\$ 21,816.5	\$ 21,681.8	99.38%	\$ 134.7	\$ 3,465.9	3.89%
TRP	\$ 47.6	\$ 49.9	104.83%	\$ (2.3)	\$ 493.2	-0.47%
PERP	\$ 24,105.8	\$ 22,512.8	93.39%	\$ 1,593.0	\$ 5,262.4	30.27%
2017						
TLPP	\$ 22,330.7	\$ 22,840.9	102.28%	\$ (510.2)	\$ 3,414.7	-14.94%
TRP	\$ 98.4	\$ 96.1	97.66%	\$ 2.3	\$ 715.0	0.32%
PERP	\$ 25,812.9	\$ 23,379.2	90.57%	\$ 2,433.7	\$ 5,598.0	43.47%
2018						
TLPP	\$ 23,676.6	\$ 23,172.7	97.87%	\$ 503.9	\$ 3,460.7	14.56%
TRP	\$ 168.2	\$ 159.9	95.09%	\$ 8.3	\$ 958.2	0.86%
PERP	\$ 26,864.8	\$ 24,520.1	91.27%	\$ 2,344.7	\$ 5,857.4	40.03%



SELECTED ACTUARIAL FUNDING INFORMATION

Actuarial Valuation Year	Earnings Assumptions	Salary Assumptions	Unfunded Liability (Asset)		State Amortization Period
			SETHEEP	PSPP	
2005	7.50%	4.75% (2)	39,806,610	326,114,462	10
2007	7.50%	4.75% (2)	1,025,156,148	577,645,568	20
2009	7.50%	4.75% (2)	2,719,767,478	839,320,076	20
2011	7.50%	4.75% (2)	2,589,446,292	799,102,966	9
2013	7.50%	4.25% (2)	2,272,526,399	391,589,555	13

Actuarial Valuation Year	Earnings Assumptions	Salary Assumptions	Unfunded Liability (Asset)			State Amortization Period	
			TLPP	TRP	PERP		
2015 (3)	7.50%	4.25% (2)	\$ 268,857,872	\$ (1,092,784)	\$ 1,565,808,774	14.37	(1)
2016	7.50%	4.25% (2)	134,716,133	(2,323,148)	1,592,928,253	8.46	(1)
2017	7.25%	4.00% (2)	510,205,267	2,307,714	2,433,632,446	13.64	(1)
2018	7.25%	4.00% (2)	503,884,213	8,253,746	2,344,674,537	12.85	(1)

Notes:

(1) At each actuarial valuation, the new tier of unfunded liability is established over a period not to exceed 20 years per the TCRS funding policy. The tier for prior years is amortized over a period not to exceed the remaining period.

(2) Graded scale

(3) The information in this schedule is based upon legislative changes. The legislative changes modified the plans presented beginning July 1, 2014.

**GAIN AND LOSS ANALYSIS, JUNE 30, 2017 VALUATION**

	Consolidated State	Teacher
Contribution Rate		
Effective Employer Contribution Rate Pursuant to 2016 Valuation	18.87%	9.08%
Investment Results		
Salary Increases: The annual weighted-average of salary increase during the 2016-2017 period was above the assumed age-based rate used in preparing the 2016 valuation report. This resulted in an increase in the contribution rate	0.07%	-0.12%
Cost of Living Escalation: COLA in 2017 was 2.1%, which is less than the assumed 2.5% per year	-0.16%	-0.14%
Prior Service Purchases: Employee purchases of prior service credits result in liabilities to the plan that are not fully offset by related employee contributions	0.10%	0.10%
Contributions Rate Change Delay: Since the contribution rate utilized during the fiscal year ending June 30, 2017 (from the 2015 valuation) for the State group was lower than the rate produced from the 2016 valuation, there was an increase in the current contribution rate for the State group to make up for the one-year delay.	0.40%	0.00%
Effect of turnover on total payroll: Total payroll declined during the review period for both groups as the reduction due to turnover was greater than the growth due to salary increases. The lower payroll base led to an increase in the contribution rate for both groups.	0.44%	0.04%
Other	-0.06%	-0.17%
Assumption Changes resulting from 2016 Experience Study	1.79%	0.94%
Re-amortization of unfunded liability	-2.90%	0.00%
Effective Employer Contribution Rate Pursuant to 2017 Valuation	19.23%	10.46%

ACTUARIAL VS. RECOMMENDED CONTRIBUTION RATES

The Board adopted the contribution rates as recommended by the actuary.



HISTORY AND ADMINISTRATION

The TCRS was established in 1972 by an Act of the Tennessee General Assembly. Seven existing retirement systems were consolidated to provide retirement, disability and death benefits to state employees, public school teachers, higher education employees and the employees of participating local governments. State laws governing the plan may be found in Chapters 34-37, 39 of Title 8, Tennessee Code Annotated. Amendments to the plan can only be made by legislation enacted by the General Assembly of the State of Tennessee.

A 20-member Board of Trustees has the responsibility to manage and oversee the operation of the consolidated system. The Board consists of nine ex-officio members from the executive, legislative and judicial branches of state government, nine representatives of the active TCRS membership and two representatives for retirees. Employee representation consists of three teachers, one from each grand division of the state; two state employees from departments other than those represented by ex-officio members; three representatives of local governments; one public safety officer; one retired state employee representative; and one retired teacher representative. Local government representatives are appointed for two-year terms by each of the following organizations: the Tennessee County Services Association, the Tennessee Municipal League and the Tennessee County Officials Association. All employee representatives must be vested members of TCRS.

TCRS is administered by the Treasury Department under the legislative branch of state government. By state law, the State Treasurer serves as chairman of the Board of Trustees and as custodian of the funds of the system. The Director of the retirement system is appointed by the Treasurer and serves as the chief administrative officer of the plan.

The state is responsible for the pension cost of state employees; pension costs for teachers are the responsibility of the local education agencies

in Tennessee; costs for the participation of local government employees are paid by political subdivisions. Administrative expenses are paid from employers' account balances. The operating budget is funded through fees charged to the employer.

MEMBERSHIP

Membership in the retirement system is a condition of employment for full-time state employees, K-12 teachers, higher education general employees and the employees of participating local governments. Membership is optional for part-time state employees and the part-time employees of political subdivisions which have authorized such coverage.

Interim teachers and part-time teachers have optional membership. The exempt faculty and staff of institutions of higher education may elect participation in either TCRS or an optional retirement program (ORP), a defined contribution plan for higher education faculty.

State employees, higher education employees and K-12 public school teachers hired after June 30, 2014 will participate in a Hybrid Pension Plan for State Employees and Teachers.

CONTRIBUTIONS

TCRS membership became noncontributory on July 1, 1981 for most state employees, teachers in state supported institutions of higher education and teachers employed in the Department of Education. At that time, the contributions, up to 5.0 percent of compensation payable to these employees, were assumed by the state, but this amount continued to be credited to the individual members' accounts from employer funds. State employees hired after July 1, 1981 join TCRS as noncontributory members with no funds credited to their individual accounts. Public school teachers contribute at a rate of 5.0 percent of gross salary. State employees, teachers in state supported institutions of higher education and teachers employed by the Department of Education hired after June 30, 2014 contribute at a rate of 5.0 percent of gross salary.

(continued)



Participating political subdivisions may either adopt noncontributory retirement provisions or require employee contributions, at 2.5% or 5.0% of salary. The contribution rate for local government employees is 5.0 percent up to the Social Security wage base and 5.5 percent above that base, unless the employing government has authorized a level 5.0 percent rate.

Individual accounts are maintained for all contributory members with interest credited annually at a rate of 5.0 percent. Since TCRS is a defined benefit plan, benefits are based upon the member's average final compensation and years of creditable service. The member's account balance including interest accrued has no bearing on the monthly benefit amount payable at retirement. Account balances plus interest are fully refundable upon termination of service or death.

Contributory members are covered by Section 414(h) of the Internal Revenue Code. Under this provision, retirement contributions are made on a tax-deferred basis, with income tax due only when contributions are returned to members as benefits or refunds. Political subdivisions may adopt the 414(h) provision for their employees.

The state also makes contributions on behalf of higher education faculty members who select membership in the ORP. These contributions are equal to 10 percent of salary up to Social Security wage base and 11 percent of any excess salary.

For ORP participants hired after June 30, 2014, the state will contribute 9.0 percent of salary to the ORP. The employee will contribute 5.0 percent of gross salary to the ORP.

BENEFITS

General

TCRS provides three valuable benefits to its members: disability, death and service retirement benefits. Disability benefits are available to qualified TCRS members who become totally and permanently disabled before meeting the requirements for service retirement. Two types of disability retirement are available: ordinary and accidental.

To qualify for ordinary disability, a member must have a minimum of five years of TCRS service credit. The ordinary disability benefit is equal to 90 percent of what the member would receive under service retirement. If a disabled retiree has less than 20 years of service credit, the service is projected to age 60 or 20 years, whichever comes first. When service is projected, the actual and projected service combined cannot exceed 20 years. If the member's actual service credit exceeds 20 years, the benefit is based on actual service only.

There is no minimum service requirement to qualify for an accidental disability benefit. However, the disability must be the result of a job-related accident that occurs without negligence on the part of the member during the performance of duty. Prior to the onset of Social Security benefits, an accidental disability benefit is equal to 50 percent of the member's average final compensation (AFC). Once Social Security benefits begin, the accidental benefit is 33.3 percent of AFC. For members joining TCRS on or after July 1, 1997, accidental disability benefits are determined in the same manner as ordinary disability using the projection of service method. Disability benefits are increased by 5.0 percent for state employees, teachers and employees of participating political subdivisions which have authorized the 5.0 percent benefit improvement. The accidental benefit is adjusted if the member's combined benefits from Social Security and/or workers' compensation exceed 75 percent of his AFC.



One of several death benefits may be payable to the designated beneficiary of an active member who dies prior to retirement. The type of death benefit payable will be determined by whether or not death occurred while in service, who is named as beneficiary and the member's length of service.

A member may designate one or more persons, his estate, an institution or any combination of such as his beneficiary. However, estates and institutions are only eligible for a lump-sum refund of the member's accumulated contributions and interest unless one of the beneficiaries named is the surviving spouse. Other death benefits offered by TCRS include a 100 percent Joint and Surviving Spouse Annuity for certain vested members, a 100 percent Joint and Survivor Annuity for any beneficiary under certain conditions and a Line-of-Duty Benefit. Any beneficiary of a member who had ten years of service and who is eligible for a lump-sum death benefit may elect a benefit to be paid over ten years.

Legacy Plan for Members Before July 1, 2014

All members hired prior to July 1, 2014, with the exception of state judges, joining TCRS after 1976 entered the same membership group. The benefit formula for this group provides 1.5 percent of AFC computed over five years for each year of service credit. If a member's AFC exceeds the Social Security integration level (SSIL) applicable at retirement, the formula provides an additional .25 percent of the amount of the excess for each service year. These benefits are increased by 5.0 percent for state employees, teachers and employees of participating political subdivisions which have authorized the 5.0 percent benefit improvement. State judges joining TCRS after September 1, 1990 become Group IV members. The benefit formula for Group IV members is 2.5 percent of AFC computed over five years for each year of service credit.

Members become eligible for regular service retirement at age 60 if vested or at any age with 30 years of service. Vested members are eligible for reduced early retirement benefits when they have reached age 55 or have completed 25 years of service. Members joining TCRS after June 30, 1979 attain vesting rights after five years of service; the vesting period for members who joined prior to July 1, 1979 is four years. Five-year vesting and 25-year retirement are benefits that are optional to local governments. Otherwise, vesting for local governments is ten years of service.

Hybrid Plan for Members After June 30, 2014

State employees, higher education employees and K-12 teachers, with the exception of state judges, the State Attorney General, elected District Attorneys General, and elected Public Defenders, becoming members after June 30, 2014 enter the same membership group. The benefit formula for this group provides 1.0 percent of AFC computed over five years for each year of service credit. The benefit formula for State judges, the State Attorney General, elected District Attorneys General, and elected Public Defenders provides 1.6 percent of AFC computed over five years for each year of service credit. Local governments have the option to join the State and Teacher Hybrid Retirement Plan. The hybrid plan also has a defined contribution component.

Members become eligible for regular service retirement at age 65 if vested or the Rule of 90. The Rule of 90 refers to a combination of age and service that total 90. Vested members are eligible for reduced early retirement benefits at age 60 if vested or the Rule of 80. Members attain vesting rights after five years of service.



SERVICES FOR ACTIVE MEMBERS

TCRS provides a number of services for active members through its various sections. Member self-service is available at www.mytcrs.com. Detailed member information, salary and service history, and the ability to apply for retirement benefits is available on the secured portal.

Outreach

- TCRS contracts with Empower Retirement Services to conduct employee presentations on all aspects of the retirement system.
- Employer seminars are conducted annually to educate payroll officers on legislation affecting TCRS and inform them of the employer contribution rates effective for the next fiscal year.

Membership

- Comprehensive membership statements are provided to all members annually at mytcrs.com.
- Welcome packets are mailed to all new members.
- Membership guides are available to members on the TCRS website.
- Member self-service can be accessed at www.mytcrs.com in order to update contact and beneficiary information.

Prior Service

- An automated calculation and eligibility system generates billings for members who wish to establish prior service.
- An installment program is available to purchase certain types of prior service.
- Prior Service may be purchased with a rollover from a tax-deferred 401(a) plan, 401(k) plan, 403(b) plan, 457 plan or a traditional or Roth IRA.

Benefits

- RetireReady TN website - TCRS and Deferred Compensation Information
- Customer Service Call Center
- Counseling Services - Retirement Counselors available to meet in all regions of the state

SERVICES FOR RETIRED MEMBERS

A number of services are made available to TCRS retirees.

- Retiree identification cards
- Semiannual retiree newsletter: The Retiree Advisor
- Direct deposit or debit card payments
- Deduction of medical insurance
- Deduction of dental insurance
- Deduction of Medicare supplement coverage
- Income tax information
- Certification of monthly benefits
- Certification of student discounts
- Retiree self-service at www.mytcrs.com allows a member to update account information, view and change direct deposit and tax withholding information, and a number of other easy actions.

SERVICES FOR EMPLOYERS

- Accounting entries, notes, and required supplementary information regarding pensions to comply with GASB Standard 68.
- Available online at publicreports.treasury.tn.gov
- Actuarial Report
- Employer education regarding reporting and participation in TCRS.



**TCRS Legacy Plan and Social Security Benefits
for Calendar Year 2019**

Five-Year AFC*	Projected Annual Retirement Income	15 Years Service	% of AFC	20 Years Service	% of AFC	25 Years Service	% of AFC	30 Years Service	% of AFC	35 Years Service	% of AFC
\$30,000	TCRS	\$ 7,088		\$ 9,450		\$ 11,813		\$ 14,175		\$ 16,538	
	Social Security	14,820		14,820		14,820		14,820		14,820	
	Total	\$ 21,908	73.0%	\$ 24,270	80.9%	\$ 26,633	88.8%	\$ 28,995	96.7%	\$ 31,358	104.5%
\$40,000	TCRS	\$ 9,450		\$ 12,600		\$ 15,750		\$ 18,900		\$ 22,050	
	Social Security	17,820		17,820		17,820		17,820		17,820	
	Total	\$ 27,270	68.2%	\$ 30,420	76.1%	\$ 33,570	83.9%	\$ 36,720	91.8%	\$ 39,870	99.7%
\$50,000	TCRS	\$ 11,813		\$ 15,750		\$ 19,688		\$ 23,625		\$ 27,563	
	Social Security	20,820		20,820		20,820		20,820		20,820	
	Total	\$ 32,633	65.3%	\$ 36,570	73.1%	\$ 40,508	81.0%	\$ 44,445	88.9%	\$ 48,383	96.8%
\$60,000	TCRS	\$ 14,175		\$ 18,900		\$ 23,625		\$ 28,350		\$ 33,075	
	Social Security	23,820		23,820		23,820		23,820		23,820	
	Total	\$ 37,995	63.3%	\$ 42,720	71.2%	\$ 47,445	79.1%	\$ 52,170	87.0%	\$ 56,895	94.8%
\$70,000	TCRS	\$ 16,538		\$ 22,050		\$ 27,563		\$ 33,075		\$ 38,588	
	Social Security	25,992		25,992		25,992		25,992		25,992	
	Total	\$ 42,530	60.8%	\$ 48,042	68.6%	\$ 53,555	76.5%	\$ 59,067	84.4%	\$ 64,580	92.3%

**TCRS Hybrid Plan and Social Security Benefits
for Calendar Year 2019**

Five-Year AFC*	Projected Annual Retirement Income	15 Years Service	% of AFC	20 Years Service	% of AFC	25 Years Service	% of AFC	30 Years Service	% of AFC	35 Years Service	% of AFC
\$30,000	TCRS	\$ 4,500		\$ 6,000		\$ 7,500		\$ 9,000		\$ 10,500	
	Social Security	14,820		14,820		14,820		14,820		14,820	
	Total	\$ 19,320	64.4%	\$ 20,820	69.4%	\$ 22,320	74.4%	\$ 23,820	79.4%	\$ 25,320	84.4%
\$40,000	TCRS	\$ 6,000		\$ 8,000		\$ 10,000		\$ 12,000		\$ 14,000	
	Social Security	17,820		17,820		17,820		17,820		17,820	
	Total	\$ 23,820	59.6%	\$ 25,820	64.6%	\$ 27,820	69.6%	\$ 29,820	74.6%	\$ 31,820	79.6%
\$50,000	TCRS	\$ 7,500		\$ 10,000		\$ 12,500		\$ 15,000		\$ 17,500	
	Social Security	20,820		20,820		20,820		20,820		20,820	
	Total	\$ 28,320	56.6%	\$ 30,820	61.6%	\$ 33,320	66.6%	\$ 35,820	71.6%	\$ 38,320	76.6%
\$60,000	TCRS	\$ 9,000		\$ 12,000		\$ 15,000		\$ 18,000		\$ 21,000	
	Social Security	23,820		23,820		23,820		23,820		23,820	
	Total	\$ 32,820	54.7%	\$ 35,820	59.7%	\$ 38,820	64.7%	\$ 41,820	69.7%	\$ 44,820	74.7%
\$70,000	TCRS	\$ 10,500		\$ 14,000		\$ 17,500		\$ 21,000		\$ 24,500	
	Social Security	25,992		25,992		25,992		25,992		25,992	
	Total	\$ 36,492	52.1%	\$ 39,992	57.1%	\$ 43,492	62.1%	\$ 46,992	67.1%	\$ 50,492	72.1%

* Average Final Compensation

A key component of the Hybrid Plan is a 401(k) plan, which allows the member to invest pre-tax or after-tax (Roth) dollars in investment options of his or her choice that are offered by the plan. A member is immediately vested in the 401(k) and can decide how the contributions should be invested given individual goals, risk tolerance, and timeline. The amount a member receives in retirement from his or her 401(k) account is based on the amount saved, plus any accumulated earnings from investments. The employer contributes 5% of the employee's earnable compensation directly to the 401(k) for the member to invest.

This chart is based on a date of retirement in 2019. Social security benefits have been calculated by Findley, Inc., actuarial consultants for the TCRS, utilizing the following assumptions: (1) retirement is taking place at age 65 in 2019; (2) the retiree has worked a full career (TCRS plus other employers, if necessary) of 35 years or more; and (3) salary increases throughout the retiree's career have followed the same pattern as National Average Earnings.



1972

Benefit formula improved from 1.12 percent of salary up to the SSIL to 1.5 percent of salary up to the SSIL.

1973

Annual cost-of-living increase based on the CPI with a cap of 1.5 percent adopted for retirees.

1974

Disability retirement eligibility requirement reduced from ten years to five years of service.

Maximum annual cost-of-living increase raised to 3.0 percent.

Provision to increase retirees' benefits whenever the benefit formula is improved.

Service credit authorized for unused accumulated sick leave.

1976

Service retirement eligibility requirements reduced from age 65 or 35 years of service to age 60 or 30 years of service.

Early retirement eligibility requirements reduced from age 60 or 30 years of service to age 55.

1978

A bonus cost-of-living increase granted to retirees at a lump-sum cost of \$15.3 million.

An optional retirement plan established for teachers in the Board of Regents system.

1980

Death benefits for members dying in-service with ten years of service improved by offering a 100 percent joint and survivor annuity of the member's accrued benefit for the spouse.

1981

Noncontributory retirement for state employees and higher education employees adopted. Employees' contributions, up to 5.0 percent, were assumed by the state.

1983

An actuarially-reduced retirement benefit at any age with 25 years of service authorized.

1984

Credit for out-of-state service for the purpose of determining retirement eligibility authorized.

Retirement credit for armed conflict approved.

Part-time employees permitted to participate in TCRS and members allowed to establish credit for previous part-time employment.

1985

\$22 million ad-hoc increase granted to retirees.

1987

Service credit for half of peacetime military service made available.

\$17 million ad-hoc increase granted to retirees.

Retirement incentive for state employees.

Section 414(h) of the IRC adopted, allowing employee contributions to be made on a tax-deferred basis.

1990

Retirement incentive for state employees.

1991

3.6 percent indexing of salaries for noncontributory employees extended one year. Each succeeding year up to 1997, the 3.6 percent indexing was extended. In 1997, it was extended indefinitely.

(continued)



1992

Minimum number of years required to qualify for retirement was reduced from ten years to five years.

1993

Salary portability for service in different classifications authorized effective January 1, 1994.

Benefit improvement up to 5.0 percent authorized.

1997

Compounded COLA for retirees approved.

1998

Group 2 and Group 3 service requirements amended to permit service retirement with 30 years of service, regardless of age.

Group 1 and Prior Class C benefit limitations increased to 80 percent.

Mandatory retirement established with supplemental bridge benefit for all state public safety officers.

1999

Group 1 benefit maximum increased to 90 percent.

2000

Group 2 benefit maximum increased to 80 percent.

2001

Line-of-Duty Death Benefits adopted to guarantee a minimum \$50,000 death benefit.

2005

Return-to-Work statutes were reformed, including a temporary employment increase to 120 days.

2006

Ad-hoc increase granted to members retired prior to 1989.

2007

Public Safety Officer benefits were enhanced.

2012

New pension plan design options offered to local governments.

2013

Hybrid retirement plan enacted for state employees and teachers hired after July 1, 2014.

2014

Allow teachers participating in the Legacy Pension Plan to transfer membership prospectively to the Hybrid Retirement Plan.

2016

Qualified Domestic Relations Orders (QDROs) recognized by the retirement system.

Allow employees of political subdivision's that transferred to the Hybrid Retirement Plan to transfer membership prospectively to the Hybrid Retirement Plan if the employee contributions are the same.

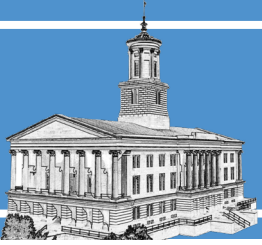
2017

Allow members to designate multiple beneficiaries at retirement.

2019

Added 25-year early retirement option for all public safety officers.

Changed service requirement for some death benefits from 10 years to vesting.



Statistical Section

Statistical Introduction

Historical Fair Value

Analysis of Member, Employer, and Stabilization Reserves

Schedules of Changes in Net Position

Schedules of Benefit Expenses

Schedules of Active Members

Schedules of Retired Members

Retired Members by Geographical Distribution

Average Benefit Payments Schedule

Prior Service Established

Prior Service Installment Plan

Refund Activity and Political Subdivision Participation

Historical Employer Contribution Rates

Schedules of Principal Participating Employers

Introduction to Political Subdivision Participation

Optional Provisions for Political Subdivisions

Local Government Plan Options

Political Subdivision Participants





STATISTICAL SECTION OVERVIEW

The statistical section presents additional information to provide financial statement users with added historical perspective, context, and detail to assist in using the information in the financial statements, notes to the financial statements, and required supplementary information to understand and assess the system's financial condition.

FINANCIAL TRENDS

The schedules presented on pages 89-92 show financial trends information that assists users in understanding and assessing how the system's financial position has changed over time. The financial trend schedules presented are:

- Historical Fair Value
- Analysis of Member and Employer Reserves
- Schedules of Changes in Net Position
- Schedules of Benefit Expenses

OPERATING INFORMATION

The remaining schedules presented on pages 93-124 contain benefits, service, and employer data to help the reader understand how the System's financial report relates to the services of the system and the activities it performs. In addition, a description of political subdivision participation and a listing of participating entities have been included in this section.



HISTORICAL FAIR VALUE
FISCAL YEARS 2010-2019
Expressed in Thousands

As of June 30	Fair Value
2010	\$ 28,574,195
2011	33,663,308
2012	34,912,773
2013	37,564,905
2014	42,905,157
2015	43,243,941
2016	43,306,209
2017	47,014,252
2018	49,722,596
2019	52,134,631



ANALYSIS OF RESERVES
FOR THE YEAR ENDED JUNE 30, 2019



The legislation which created the TCRS established two funds, the Member Reserve Fund and the Employer Reserve Fund, to account for the financial transactions of the pension plans. The Member Reserve Fund represents the accumulation of employee contributions plus interest. The Employer Reserve Fund represents the accumulation of employer contributions, investment income and transfers from the Member Reserve Fund for retirees. Benefit payments and interest credited to members' accounts are reductions to the Employer Reserve Fund. The Stabilization Reserve was created effective July 1, 2014 as part of the benefit plan adopted under the Teacher Retirement Plan and for employers under the Public Employee Retirement Plan that have adopted the new benefit structure. Under these plans, contributions in excess of the actuarially determined contribution (ADC) rate are set aside in this reserve to help keep contribution rates stable.

	Public Employee Retirement Plan	Teacher Retirement Plan	Teacher Legacy Pension Plan	Total
<i>June 30, 2018 Member Reserve Fund</i>	\$ 1,705,751,132	\$ 111,336,013	\$ 3,507,428,258	\$ 5,324,515,403
Member Contributions	138,197,256	52,929,975	168,919,223	360,046,454
Employer Provided Contributions	7,393,158	178	14,084	7,407,420
Interest	78,343,731	5,544,610	166,286,115	250,174,456
Refunded Account Balances	(23,143,522)	(2,183,629)	(16,521,282)	(41,848,433)
Transfers to Employer Fund of Retiring Members' Accounts	(149,420,135)	(51,211)	(262,473,873)	(411,945,219)
<i>June 30, 2019 Member Reserve Fund</i>	<u>1,757,121,620</u>	<u>167,575,936</u>	<u>3,563,652,525</u>	<u>5,488,350,081</u>
<i>June 30, 2018 Employer Reserve Fund</i>	23,723,066,378	50,580,052	20,525,471,295	44,299,117,725
Employer Contributions	730,654,756	20,529,121	350,734,176	1,101,918,053
Employer Refunds	(911,123)	0	0	(911,123)
Other Contributions	2,478,763	0	0	2,478,763
Investment Income	1,873,693,842	14,636,311	1,759,945,606	3,648,275,759
Transfers from Retiring Members' Account	149,420,135	51,211	262,473,873	411,945,219
Employer Provided Contributions	(7,393,158)	(178)	(14,084)	(7,407,420)
Interest Credited to Members' Account	(78,343,731)	(5,544,610)	(166,286,115)	(250,174,456)
Lump-Sum Death Benefits	(2,844,242)	(16,225)	(2,617,785)	(5,478,252)
Retirement and Survivors Annuities	(1,390,667,063)	(6,773)	(1,249,267,082)	(2,639,940,918)
Administrative Expenses	(12,654,370)	(2,018,230)	(5,201,742)	(19,874,342)
<i>June 30, 2019 Employer Reserve Fund</i>	<u>24,986,500,187</u>	<u>78,210,679</u>	<u>21,475,238,142</u>	<u>46,539,949,008</u>
<i>June 30, 2018 Stabilization Reserve Fund</i>	47,399,831	51,563,464	0	98,963,295
Investment Income	3,529,376	3,839,397	0	7,368,773
<i>June 30, 2019 Stabilization Reserve Fund</i>	<u>50,929,207</u>	<u>55,402,861</u>	<u>0</u>	<u>106,332,068</u>
<i>June 30, 2019 Assets held in Trust for Pension Benefits</i>	<u>\$ 26,794,551,014</u>	<u>\$ 301,189,476</u>	<u>\$ 25,038,890,667</u>	<u>\$52,134,631,157</u>



SCHEDULES OF CHANGES IN NET POSITION
Expressed in Thousands

Year Ending	Additions				Deductions			Total Change in Net Position
	Member Contributions	Employer Contributions	Other Contributions	Investment Income	Benefit Payments	Administrative Expenses	Refunds	
Public Employee Retirement Plan								
6/30/2019	\$ 138,197	\$ 730,655	\$ 2,479	\$ 1,877,223	\$ 1,393,511	\$ 12,654	\$ 24,055	\$ 1,318,334
6/30/2018	121,257	739,160	2,604	1,973,039	1,320,077	13,268	21,135	1,481,580
6/30/2017	106,509	662,559	2,458	2,473,302	1,255,600	11,748	21,030	1,956,450
6/30/2016	90,919	655,525	2,158	581,363	1,196,884	12,466	22,812	97,803
6/30/2015	77,020	664,834	384	664,440	1,121,540	9,148	25,790	250,200
6/30/2014	75,030	686,219	0	3,105,782	1,046,202	7,294	31,720	2,781,815
Teacher Retirement Plan								
6/30/2019	\$ 52,930	\$ 20,529	\$ 0	\$ 18,476	\$ 23	\$ 2,018	\$ 2,184	\$ 87,710
6/30/2018	43,731	34,957	0	13,554	31	1,847	1,598	88,766
6/30/2017	32,848	26,262	0	10,058	6	1,417	1,015	66,730
6/30/2016	21,856	17,539	0	1,012	0	820	284	39,303
6/30/2015	10,390	8,310	0	295	0	280	35	18,680
6/30/2014	0	0	0	0	0	0	0	0
Teacher Legacy Pension Plan								
6/30/2019	\$ 168,919	\$ 350,734	\$ 0	\$ 1,759,946	\$ 1,251,885	\$ 5,202	\$ 16,521	\$ 1,005,991
6/30/2018	176,442	318,337	0	1,867,630	1,200,195	5,789	18,427	1,137,998
6/30/2017	177,940	319,576	0	2,365,587	1,154,994	5,347	17,899	1,684,863
6/30/2016	181,763	327,522	0	560,785	1,115,822	6,894	22,192	(74,838)
6/30/2015	187,122	338,301	0	646,527	1,074,274	5,636	22,136	69,904
6/30/2014	195,521	348,475	0	3,054,118	1,014,688	2,663	22,326	2,558,437

As a result of plan reporting changes due to legislative enactments and GASB pronouncements, historical information is available for six years. Additional years will be added in the future.



SCHEDULES OF BENEFIT EXPENSES

Expressed in Thousands

<u>Year Ending</u>	<u>Service Retirement</u>	<u>Disability Retirement</u>	<u>Survivor Benefits</u>	<u>Death Benefits</u>	<u>Total Benefits</u>	<u>Refunds</u>	<u>Total</u>
Public Employee Retirement Plan							
6/30/2019	\$ 1,269,879	\$ 32,864	\$ 87,924	\$ 2,844	\$ 1,393,511	\$ 24,055	\$ 1,417,566
6/30/2018	1,203,055	31,135	83,297	2,590	1,320,077	21,135	1,341,212
6/30/2017	1,143,181	29,585	79,152	3,682	1,255,600	21,030	1,276,630
6/30/2016	1,089,920	28,207	75,464	3,293	1,196,884	22,812	1,219,696
6/30/2015	1,021,247	26,430	70,709	3,154	1,121,540	25,790	1,147,330
6/30/2014	953,255	24,670	66,002	2,275	1,046,202	31,720	1,077,922
Teacher Retirement Plan							
6/30/2019	\$ 6	\$ 0	\$ 1	\$ 16	\$ 23	\$ 2,184	\$ 2,207
6/30/2018	2	0	0	29	31	1,598	1,629
6/30/2017	1	0	0	5	6	1,015	1,021
6/30/2016	0	0	0	0	0	284	284
6/30/2015	0	0	0	0	0	35	35
6/30/2014	0	0	0	0	0	0	0
Teacher Legacy Pension Plan							
6/30/2019	\$ 1,140,760	\$ 29,523	\$ 78,984	\$ 2,618	\$ 1,251,885	\$ 16,521	\$ 1,268,406
6/30/2018	1,093,439	28,299	75,708	2,749	1,200,195	18,427	1,218,622
6/30/2017	1,052,681	27,244	72,885	2,184	1,154,994	17,899	1,172,893
6/30/2016	1,016,794	26,315	70,401	2,312	1,115,822	22,192	1,138,014
6/30/2015	978,801	25,331	67,771	2,371	1,074,274	22,136	1,096,410
6/30/2014	925,061	23,940	64,050	1,637	1,014,688	22,326	1,037,014

As a result of plan reporting changes due to legislative enactments and GASB pronouncements, historical information is available for six years. Additional years will be added in the future.



SCHEDULES OF ACTIVE MEMBERS
by Service Credit

Years of Service	Teachers Legacy Pension Plan	Public Employee Legacy Retirement Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
0-4	688	506	241	26,482	27,917
5-9	13,395	6,289	3,482	14,669	37,835
10-14	13,662	5,892	2,559	12,886	34,999
15-19	11,298	4,899	1,756	9,500	27,453
20-24	8,581	3,340	1,263	7,003	20,187
25-29	5,031	2,055	920	3,659	11,665
30-34	2,022	1,591	553	1,929	6,095
35-39	824	801	337	729	2,691
40-44	298	330	169	297	1,094
Over 44	85	109	76	85	355
Total	55,884	25,812	11,356	77,239	170,291

Years of Service	Teachers Hybrid Retirement Plan	Public Employee Hybrid Retirement Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
0-4	19,537	14,204	6,401	3,787	43,929
5-9	2,706	590	258	275	3,829
10-14	497	197	75	133	902
15-19	205	94	26	71	396
20-24	68	36	11	32	147
25-29	14	8	9	14	45
30-34	5	7	1	6	19
35-39	0	1	0	1	2
40-44	0	2	0	0	2
Over 44	0	0	0	1	1
Total	23,032	15,139	6,781	4,320	49,272

TCRS is a consolidated plan, therefore, employees shown on the hybrid schedule with more than 4 years of service worked for an employer prior to the implementation of the hybrid plan design.



SCHEDULE OF ACTIVE MEMBERS
FOR THE YEAR ENDED JUNE 30, 2019



SCHEDULES OF ACTIVE MEMBERS
By Enrollment Date

Date of Membership	Teachers Legacy Pension Plan		Public Employee Legacy Pension Plan		Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
1940's	0	0	1	0	1
1950's	0	1	0	2	3
1960's	25	23	22	6	76
1970's	443	463	273	343	1,522
1980's	3,469	3,017	1,158	2,842	10,486
1990's	15,042	6,096	2,352	11,497	34,987
2000's	24,508	10,409	4,259	22,069	61,245
2010's	12,397	5,803	3,291	40,480	61,971
Total	55,884	25,812	11,356	77,239	170,291

Date of Membership	Teachers Hybrid Retirement Plan		Public Employee Hybrid Retirement Plan		Total
	Teachers	State Employees	Higher Education Employees	Public Subdivision Employees	
1940's	0	0	0	0	0
1950's	0	0	0	0	0
1960's	0	0	0	0	0
1970's	0	1	0	1	2
1980's	3	7	2	10	22
1990's	47	72	28	69	216
2000's	359	279	79	185	902
2010's	22,623	14,780	6,672	4,055	48,130
Total	23,032	15,139	6,781	4,320	49,272



SCHEDULES OF ACTIVE MEMBERS

by Current Age

Current Age	Teacher Legacy Pension Plan	Public Employee Legacy Pension Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Less than 20	1	0	0	98	99
20-24	3	9	1	2,381	2,394
25-29	1,106	426	122	5,436	7,090
30-34	6,254	1,605	575	6,244	14,678
35-39	8,528	2,510	994	7,254	19,286
40-44	9,716	3,241	1,235	8,373	22,565
45-49	10,533	3,897	1,517	10,363	26,310
50-54	8,452	4,019	1,732	11,192	25,395
55-59	6,074	4,385	2,071	11,337	23,867
60-64	3,805	3,463	1,826	8,548	17,642
65-69	1,111	1,530	881	3,823	7,345
70 and above	301	727	402	2,190	3,620
Total	55,884	25,812	11,356	77,239	170,291

Current Age	Teachers Hybrid Pension Plan	Public Employee Hybrid Retirement Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Less than 20	1	52	6	6	65
20-24	1,817	1,258	343	391	3,809
25-29	8,142	3,400	1,133	668	13,343
30-34	4,123	2,669	1,072	579	8,443
35-39	2,650	1,877	898	572	5,997
40-44	2,150	1,536	831	538	5,055
45-49	1,756	1,414	764	489	4,423
50-54	1,202	1,150	671	416	3,439
55-59	723	986	544	340	2,593
60-64	352	582	372	219	1,525
65-69	94	158	106	69	427
70 and above	22	57	41	33	153
Total	23,032	15,139	6,781	4,320	49,272



SCHEDULES OF ACTIVE MEMBERS
FOR THE YEAR ENDED JUNE 30, 2019



SCHEDULES OF ACTIVE MEMBERS

by Age at Enrollment

Age at Enrollment	Teachers Legacy Pension Plan	Public Employee Legacy Pension Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Less than 20	104	582	155	1,236	2,077
20 - 24	19,846	5,258	1,839	11,324	38,267
25 - 29	16,057	6,406	2,190	12,559	37,212
30 - 34	7,725	3,962	1,790	11,315	24,792
35 - 39	5,607	3,309	1,581	11,418	21,915
40 - 44	3,570	2,497	1,359	9,762	17,188
45 - 49	1,709	1,764	1,055	7,535	12,063
50 - 54	784	1,112	788	5,448	8,132
55 - 59	319	613	407	3,706	5,045
60 - 64	110	216	149	1,861	2,336
65 - 69	44	74	30	739	887
70 and above	9	19	13	336	377
Total	55,884	25,812	11,356	77,239	170,291

Age at Enrollment	Teachers Hybrid Pension Plan	Public Employee Hybrid Retirement Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Less than 20	10	178	31	50	269
20 - 24	7,252	2,644	762	653	11,311
25 - 29	5,756	3,436	1,219	735	11,146
30 - 34	2,916	2,234	1,046	570	6,766
35 - 39	2,324	1,695	883	559	5,461
40 - 44	1,826	1,407	755	476	4,464
45 - 49	1,400	1,252	712	434	3,798
50 - 54	838	1,038	625	339	2,840
55 - 59	489	785	458	304	2,036
60 - 64	168	361	214	129	872
65 - 69	42	87	48	53	230
70 and above	11	22	28	18	79
Total	23,032	15,139	6,781	4,320	49,272



SCHEDULES OF ACTIVE MEMBERS
by Salary

<u>Annual Salary</u>	<u>Teachers Legacy Pension Plan</u>		<u>Public Employee Legacy Pension Plan</u>			<u>Total</u>
	<u>Teachers</u>	<u>State Employees</u>	<u>Higher Education Employees</u>	<u>Political Subdivision Employees</u>		
Less than \$10,000	56	144	66	3,856	4,122	
\$10,000-\$19,999	162	223	129	15,497	16,011	
\$20,000-\$29,999	448	1,308	1,111	15,838	18,705	
\$30,000-\$39,999	1,688	5,156	2,457	16,099	25,400	
\$40,000-\$49,999	15,008	5,813	2,259	12,112	35,192	
\$50,000+	38,522	13,168	5,334	13,837	70,861	
Total	55,884	25,812	11,356	77,239	170,291	

<u>Annual Salary</u>	<u>Teachers Hybrid Pension Plan</u>		<u>Public Employee Hybrid Retirement Plan</u>			<u>Total</u>
	<u>Teachers</u>	<u>State Employees</u>	<u>Higher Education Employees</u>	<u>Political Subdivision Employees</u>		
Less than \$10,000	127	1,528	458	640	2,753	
\$10,000-\$19,999	605	1,370	621	1,233	3,829	
\$20,000-\$29,999	818	2,533	1,498	982	5,831	
\$30,000-\$39,999	5,560	3,978	1,545	725	11,808	
\$40,000-\$49,999	11,420	2,742	1,100	460	15,722	
\$50,000+	4,502	2,988	1,559	280	9,329	
Total	23,032	15,139	6,781	4,320	49,272	



ACTIVE MEMBERS
Fiscal Years 2011-2019

Year	Teacher Legacy Pension Plan	Teachers Retirement Plan	Public Employee Retirement Plan						Total
	Teachers	Teachers (Hybrid)	State Employees	State Employees (Hybrid)	Higher Education Employees	Higher Education Employees (Hybrid)	Political Subdivision Employees	Political Subdivision Employees (Hybrid)	
2011	79,583	0	42,142	0	16,409	0	81,780	0	219,914
2012	73,449	0	42,171	0	16,693	0	78,180	0	210,493
2013	73,306	0	41,856	0	16,590	0	77,815	0	209,567
2014	78,506	0	40,581	0	16,829	0	78,144	0	214,060
2015	69,230	11,516	38,322	6,304	16,244	2,310	87,800	52	231,778
2016	65,614	11,159	33,070	8,208	14,439	2,966	77,546	712	213,714
2017	61,844	15,329	30,036	11,014	13,206	4,293	77,086	1,692	214,500
2018	59,026	19,417	27,844	13,192	12,228	5,625	77,162	2,940	217,434
2019	55,884	23,032	25,812	15,139	11,356	6,781	77,239	4,320	219,563



SCHEDULE OF RETIRED MEMBERS
By Type of Benefit Plan

Benefit Plan	Teachers Legacy Pension Plan	Public Employee Legacy Pension Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Regular	32,168	20,891	10,424	31,811	95,294
Option I	4,487	6,142	3,383	7,273	21,285
Option II	1,517	1,603	950	1,650	5,720
Option III	5,641	5,627	2,204	6,033	19,505
Option IV	4,144	3,074	1,461	2,511	11,190
S.S. Leveling	4,424	2,658	716	2,169	9,967
Others	31	106	6	47	190
Total	52,412	40,101	19,144	51,494	163,151

Benefit Plan	Teacher Hybrid Retirement Plan	Public Employee Hybrid Retirement Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Regular	9	6	6	3	24
Option I	3	2	0	0	5
Option II	0	0	0	1	1
Option III	0	1	0	1	2
Option IV	0	0	1	0	1
S.S. Leveling	0	0	0	0	0
Others	0	0	0	0	0
Total	12	9	7	5	33



SCHEDULE OF RETIRED MEMBERS
By Type of Retirement

Type of Retirement	Teachers Legacy Pension Plan	Public Employee Legacy Pension Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Early Retirement	6,528	5,491	2,919	7,262	22,200
Service Retirement	44,245	31,821	15,195	40,864	132,125
Disability	1,290	1,971	701	2,641	6,603
Total Retirees	52,063	39,283	18,815	50,767	160,928
Survivors	349	818	329	727	2,223
Total	52,412	40,101	19,144	51,494	163,151

Type of Retirement	Teachers Hybrid Retirement Plan	Public Employee Hybrid Retirement Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Early Retirement	2	5	4	2	13
Service Retirement	9	2	3	3	17
Disability	1	0	0	0	1
Total Retirees	12	7	7	5	31
Survivors	0	2	0	0	2
Total	12	9	7	5	33



SCHEDULE OF RETIRED MEMBERS

By Average Monthly Benefits

TEACHERS LEGACY PENSION PLAN

Average Monthly Benefit	Type of Retirement					Option Selected						
	Number of Retirees	Service	Early	Disability	Survivor	Regular	I	II	III	IV	SS	
											Leveling	Other
0-500	4,683	3,665	883	102	33	2891	563	161	567	283	214	4
501-1,000	6,150	3,871	1858	344	77	3664	738	188	759	455	338	8
1,001-1,500	7,162	4,799	1788	512	63	4139	742	215	856	574	627	9
1,501-2,000	8,891	7,419	1175	237	60	4786	736	223	1,104	733	1303	6
2,001-2,500	9,888	9,220	545	75	48	6017	679	233	1,132	860	966	1
2,501-3,000	7,143	6,905	192	16	30	4815	407	198	615	585	521	2
3,001-3,500	3,916	3,846	51	2	17	2684	275	121	286	296	253	1
3,501-4,000	2,080	2,044	25	2	9	1432	151	61	160	145	131	0
Over 4,000	2,499	2,476	11	0	12	1769	198	116	141	201	74	0
	52,412	44,245	6,528	1,290	349	32,197	4,489	1,516	5,620	4,132	4,427	31

STATE EMPLOYEES LEGACY PENSION PLAN

Average Monthly Benefit	Type of Retirement					Option Selected						
	Number of Retirees	Service	Early	Disability	Survivor	Regular	I	II	III	IV	SS	
											Leveling	Other
0-500	11,369	8,217	2,329	554	269	6,373	1,837	403	1,564	647	545	0
501-1,000	8,537	5,599	1,748	988	202	4,712	1,395	320	1,112	614	379	5
1,001-1,500	6,077	4,784	833	326	134	3,039	882	246	879	443	584	4
1,501-2,000	4,943	4,448	345	73	77	2,415	630	170	769	420	537	2
2,001-2,500	3,544	3,322	147	22	53	1,758	463	137	490	339	352	5
2,501-3,000	2,126	2,048	42	4	32	1,014	305	101	318	236	146	6
3,001-3,500	1,317	1,270	28	2	17	627	211	68	192	147	67	5
3,501-4,000	752	730	11	0	11	347	124	49	125	76	23	8
Over 4,000	1,436	1,401	10	2	23	638	291	107	163	141	25	71
	40,101	31,819	5,493	1,971	818	20,923	6,138	1,601	5,612	3,063	2,658	106

HIGHER EDUCATION LEGACY PENSION PLAN

Average Monthly Benefit	Type of Retirement					Option Selected						
	Number of Retirees	Service	Early	Disability	Survivor	Regular	I	II	III	IV	SS	
											Leveling	Other
0-500	6,310	4,669	1309	221	111	3828	986	226	714	331	223	2
501-1,000	4,002	2,712	890	334	66	2355	676	172	401	275	123	0
1,001-1,500	2,747	2,193	408	106	40	1469	465	146	320	223	124	0
1,501-2,000	1,798	1,579	168	28	23	874	313	105	247	171	88	0
2,001-2,500	1,207	1,101	74	9	23	536	211	75	156	159	69	1
2,501-3,000	848	796	37	2	13	383	156	49	120	95	45	0
3,001-3,500	571	543	13	1	14	250	137	42	61	56	25	0
3,501-4,000	468	449	9	0	10	219	106	32	58	46	7	0
Over 4,000	1,193	1,155	9	0	29	521	333	103	121	100	12	3
	19,144	15,197	2,917	701	329	10,435	3,383	950	2,198	1,456	716	6

(continued)



SCHEDULES OF RETIRED MEMBERS
FOR THE YEAR ENDED JUNE 30, 2019



SCHEDULE OF RETIRED MEMBERS
By Average Monthly Benefits (continued)

POLITICAL SUBDIVISION LEGACY PENSION PLAN													
Average Monthly Benefit	Number of Retirees	Type of Retirement				Option Selected							
		Service	Early	Disability	Survivor	Regular	I	II	III	IV	SS		
											Leveling	Other	
0-500	27,238	20,793	4,673	1,400	372	17,740	3,718	732	2,968	1,130	931	19	
501-1,000	12,398	9,537	1,743	935	183	8,035	1,676	356	1,340	567	408	16	
1,001-1,500	5,489	4,604	560	249	76	3,094	801	213	748	312	310	11	
1,501-2,000	2,826	2,553	179	43	51	1,406	450	127	450	192	200	1	
2,001-2,500	1,592	1,492	71	6	23	716	260	85	264	123	144	0	
2,501-3,000	853	811	27	4	11	345	161	60	125	70	92	0	
3,001-3,500	475	459	8	4	4	208	84	36	59	45	43	0	
3,501-4,000	245	234	6	0	5	97	45	20	35	25	23	0	
Over 4,000	378	373	3	0	2	187	75	23	35	39	19	0	
	51,494	40,856	7,270	2,641	727	31,828	7,270	1,652	6,024	2,503	2,170	47	

TEACHER HYBRID RETIREMENT PLAN													
Average Monthly Benefit	Number of Retirees	Type of Retirement				Option Selected							
		Service	Early	Disability	Survivor	Regular	I	II	III	IV	SS		
											Leveling	Other	
0-500	12	9	2	1	0	9	3	0	0	0	0	0	

STATE HYBRID RETIREMENT PLAN													
Average Monthly Benefit	Number of Retirees	Type of Retirement				Option Selected							
		Service	Early	Disability	Survivor	Regular	I	II	III	IV	SS		
											Leveling	Other	
0-500	8	2	4	0	2	5	2	0	1	0	0	0	
501-1,000	1	0	1	0	0	1	0	0	0	0	0	0	
Totals	9	2	5	0	2	6	2	0	1	0	0	0	

HIGHER EDUCATION HYBRID RETIREMENT PLAN													
Average Monthly Benefit	Number of Retirees	Type of Retirement				Option Selected							
		Service	Early	Disability	Survivor	Regular	I	II	III	IV	SS		
											Leveling	Other	
0-500	7	2	5	0	0	6	0	0	0	1	0	0	

POLITICAL SUBDIVISION HYBRID RETIREMENT PLAN													
Average Monthly Benefit	Number of Retirees	Type of Retirement				Option Selected							
		Service	Early	Disability	Survivor	Regular	I	II	III	IV	SS		
											Leveling	Other	
0-500	5	3	2	0	0	3	0	1	1	0	0	0	



SCHEDULE OF RETIRED MEMBERS

By Current Age

Current Age	Teachers Legacy Pension Plan	Public Employee Legacy Pension Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Under 40	84	135	53	136	408
40-44	53	100	26	106	285
45-49	130	184	65	232	611
50-54	420	505	174	634	1,733
55-59	2,437	2,652	951	3,142	9,182
60-64	7,485	6,388	2,639	8,070	24,582
65-69	13,076	9,319	4,008	12,202	38,605
70-74	12,606	8,816	4,107	11,049	36,578
75-79	7,431	5,472	3,097	7,425	23,425
80-84	4,350	3,528	2,119	4,833	14,830
85-89	2,695	1,924	1,229	2,505	8,353
90-94	1,270	873	515	880	3,538
95-99	310	178	139	241	868
Over 99	65	27	22	39	153
Total	52,412	40,101	19,144	51,494	163,151

Current Age	Teachers Hybrid Retirement Plan	Public Employee Hybrid Retirement Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Under 40	0	2	0	0	2
45-49	0	0	0	0	0
50-54	1	0	1	0	2
55-59	1	2	1	0	4
60-64	5	3	4	3	15
65-69	4	2	0	2	8
70-74	1	0	1	0	2
Total	12	9	7	5	33



SCHEDULE OF RETIRED MEMBERS

By Date of Retirement

Date of Retirement	Teachers Legacy Pension Plan	Public Employee Legacy Pension Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
1950's	1	0	0	0	1
1960's	16	5	0	0	21
1970's	238	134	40	85	497
1980's	1,978	1,150	573	1,014	4,715
1990's	7,903	5,539	3,118	5,567	22,127
2000's	18,267	12,594	6,383	15,342	52,586
2010's	24,009	20,679	9,030	29,486	83,204
Total	52,412	40,101	19,144	51,494	163,151

Date of Retirement	Teachers Hybrid Retirement Plan	Public Employee Hybrid Retirement Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
2010's	12	9	7	5	33
Total	12	9	7	5	33



SCHEDULE OF RETIRED MEMBERS
Based on Service Credit at Retirement

Years Of Service	Teachers Legacy Pension Plan	Public Employee Legacy Pension Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Under 10	4,905	9,147	4,986	17,297	36,335
10-14	4,352	6,074	2,950	9,198	22,574
15-19	4,903	4,510	2,192	7,479	19,084
20-24	6,027	4,376	2,026	6,145	18,574
25-29	7,047	3,975	1,985	4,836	17,843
30-34	15,252	7,086	2,872	4,428	29,638
35-39	6,706	2,958	1,341	1,447	12,452
40-44	2,601	1,356	552	498	5,007
Over 44	619	619	240	166	1,644
Total	52,412	40,101	19,144	51,494	163,151

Years of Service	Teachers Hybrid Retirement Plan	Public Employee Hybrid Retirement Plan			Total
	Teachers	State Employees	Higher Education Employees	Political Subdivision Employees	
Under 10	12	9	7	5	33
Total	12	9	7	5	33



RETIRED MEMBERS BY GEOGRAPHICAL DISTRIBUTION
FOR THE YEAR ENDED JUNE 30, 2019



UNITED STATES

Alabama	1,101	Ohio	259
Alaska	26	Oklahoma	108
Arizona	210	Oregon	77
Arkansas	539	Pennsylvania	131
California	274	Rhode Island	9
Colorado	180	South Carolina	562
Connecticut	22	South Dakota	21
Delaware	16	Tennessee	148,764
District of Columbia	18	Texas	724
Florida	2,175	Utah	38
Georgia	1,615	Vermont	6
Hawaii	22	Virginia	726
Idaho	30	Washington	97
Illinois	207	West Virginia	62
Indiana	214	Wisconsin	63
Iowa	45	Wyoming	17
Kansas	75		
Kentucky	1,003	Total U.S.	<u>163,141</u>
Louisiana	120		
Maine	43		
Maryland	130		
Massachusetts	49		
Michigan	174		
Minnesota	45		
Mississippi	1,641		
Missouri	248		
Montana	25		
Nebraska	18		
Nevada	73		
New Hampshire	18		
New Jersey	49		
New Mexico	78		
New York	103		
North Carolina	887		
North Dakota	4		

INTERNATIONAL COUNTRIES

Australia	2
Brazil	3
Canada-Manitoba	1
Canada-New Brunswick	3
Canada-Newfoundland	1
Canada-Nova Scotia	1
Canada-Ontario	4
Canada-Prince Edward Island	1
Chile	3
Ecuador	1
Egypt	1
France	1
Germany	2
Ghana	1
Greece	3
Ireland	1
Kenya	1
Netherlands	2
Philippines	1
Poland	1
Spain	1
Thailand	3
Total Foreign Countries	<u>38</u>

U.S. TERRITORIES

Puerto Rico	3
Virgin Islands, U.S.	1
U.S. Minor Outlying	1
Total U.S. Territories	<u>5</u>

GRAND TOTAL **163,184**



RETIRED MEMBERS BY GEOGRAPHICAL DISTRIBUTION
FOR THE YEAR ENDED JUNE 30, 2019



TENNESSEE COUNTIES

Anderson	2,120	Hamilton	7,196	Morgan	654
Bedford	876	Hancock	133	Obion	1,005
Benton	494	Hardeman	1,133	Overton	633
Bledsoe	524	Hardin	836	Perry	300
Blount	3,525	Hawkins	2,897	Pickett	167
Bradley	2,136	Haywood	699	Polk	330
Campbell	1,059	Henderson	534	Putnam	3,168
Cannon	408	Henry	1,098	Rhea	814
Carroll	880	Hickman	786	Roane	1,757
Carter	3,621	Houston	143	Robertson	1,623
Cheatham	916	Humphreys	508	Rutherford	4,996
Chester	560	Jackson	313	Scott	582
Claiborne	968	Jefferson	1,534	Sequatchie	389
Clay	177	Johnson	627	Sevier	1,883
Cocke	852	Knox	9,341	Shelby	16,205
Coffee	1,263	Lake	311	Smith	496
Crockett	418	Lauderdale	954	Stewart	417
Cumberland	1,392	Lawrence	1,179	Sullivan	2,540
Davidson	10,723	Lewis	376	Sumner	3,543
Decatur	334	Lincoln	904	Tipton	1,238
DeKalb	505	Loudon	1,140	Trousdale	232
Dickson	1,296	Macon	393	Unicoi	492
Dyer	733	Madison	3,376	Union	306
Fayette	1,135	Marion	647	Van Buren	237
Fentress	544	Marshall	724	Warren	1,103
Franklin	1,017	Maurry	1,789	Washington	2,591
Gibson	1,530	McMinn	1,100	Wayne	478
Giles	637	McNairy	702	Weakley	1,296
Grainger	520	Meigs	199	White	858
Greene	2,633	Monroe	843	Williamson	3,616
Grundy	390	Montgomery	3,809	Wilson	2,791
Hamblen	1,496	Moore	118	Total	148,764



AVERAGE BENEFIT PAYMENT SCHEDULE

Fiscal Year of Retirement

Teacher Legacy Pension Plan

	Years of Service Credit				
	Less than 15	15-19	20-24	25-29	30 or more
2019 Average Monthly Benefit	\$ 770	\$ 1,204	\$ 1,613	\$ 2,082	\$ 2,803
Number of Retirees	412	199	230	250	665
Average Final Salary	\$ 58,184	\$ 58,049	\$ 60,886	\$ 64,682	\$ 67,925
2018 Average Monthly Benefit	\$ 804	\$ 1,253	\$ 1,744	\$ 2,147	\$ 3,112
Number of Retirees	582	272	309	290	909
Average Final Salary	\$ 4,485	\$ 57,104	\$ 62,145	\$ 61,706	\$ 67,188
2017 Average Monthly Benefit	\$ 754	\$ 1,225	\$ 1,683	\$ 2,251	\$ 3,119
Number of Retirees	584	283	289	280	825
Average Final Salary	\$ 53,410	\$ 54,956	\$ 58,639	\$ 63,731	\$ 65,230
2016 Average Monthly Benefit	\$ 804	\$ 1,294	\$ 1,730	\$ 2,214	\$ 3,075
Number of Retirees	600	326	336	281	884
Average Final Salary	\$ 51,385	\$ 56,287	\$ 59,140	\$ 61,520	\$ 63,283
2015 Average Monthly Benefit	\$ 736	\$ 1,248	\$ 1,728	\$ 2,271	\$ 3,114
Number of Retirees	684	321	307	283	945
Average Final Salary	\$ 9,697	\$ 55,525	\$ 58,747	\$ 62,084	\$ 63,234
2014 Average Monthly Benefit	\$ 671	\$ 1,240	\$ 1,704	\$ 2,117	\$ 2,987
Number of Retirees	638	357	385	358	1,246
Average Final Salary	\$ 50,982	\$ 54,328	\$ 57,409	\$ 57,910	\$ 60,325
2013 Average Monthly Benefit	\$ 619	\$ 1,260	\$ 1,702	\$ 2,137	\$ 3,098
Number of Retirees	642	360	370	384	1,269
Average Final Salary	\$ 49,756	\$ 54,509	\$ 57,178	\$ 58,731	\$ 61,505
2012 Average Monthly Benefit	\$ 674	\$ 1,257	\$ 1,689	\$ 2,136	\$ 3,119
Number of Retirees	628	306	358	387	1,471
Average Final Salary	\$ 48,816	\$ 53,169	\$ 55,664	\$ 57,753	\$ 60,687
2011 Average Monthly Benefit	\$ 653	\$ 1,225	\$ 1,641	\$ 2,144	\$ 3,036
Number of Retirees	510	269	329	352	1,268
Average Final Salary	\$ 48,877	\$ 49,745	\$ 53,377	\$ 56,260	\$ 58,451
2010 Average Monthly Benefit	\$ 629	\$ 1,272	\$ 1,673	\$ 2,163	\$ 3,011
Number of Retirees	431	185	244	277	1,176
Average Final Salary	\$ 46,119	\$ 51,704	\$ 53,074	\$ 56,010	\$ 58,239

Note: This schedule represents the average monthly benefits under the maximum plan of members retiring with an unreduced service retirement benefit. It excludes members retiring with a reduced early retirement benefit or under disability.

(continued)



AVERAGE BENEFIT PAYMENT SCHEDULE
Fiscal Year of Retirement (continued)

Public Employee Retirement Plan

	Years of Service Credit				
	Less than 15	15-19	20-24	25-29	30 or more
2019 Average Monthly Benefit	\$ 756	\$ 856	\$ 1,178	\$ 1,445	\$ 2,378
Number of Retirees	2,129	595	480	389	1,015
Average Final Salary	\$ 45,695	\$ 40,016	\$ 43,580	\$ 44,277	\$ 56,156
2018 Average Monthly Benefit	\$ 705	\$ 817	\$ 1,090	\$ 1,590	\$ 2,499
Number of Retirees	2,640	698	508	442	1,140
Average Final Salary	\$ 42,188	\$ 36,865	\$ 33,836	\$ 46,125	\$ 53,537
2017 Average Monthly Benefit	\$ 676	\$ 844	\$ 1,115	\$ 1,415	\$ 2,463
Number of Retirees	2,636	676	562	436	1,048
Average Final Salary	\$ 40,424	\$ 36,554	\$ 39,353	\$ 39,924	\$ 52,417
2016 Average Monthly Benefit	\$ 619	\$ 829	\$ 1,092	\$ 1,443	\$ 2,506
Number of Retirees	2,894	730	621	531	1,500
Average Final Salary	\$ 38,187	\$ 35,969	\$ 37,853	\$ 40,131	\$ 52,675
2015 Average Monthly Benefit	\$ 626	\$ 822	\$ 1,175	\$ 1,503	\$ 2,451
Number of Retirees	3,307	771	570	533	1,186
Average Final Salary	\$ 37,107	\$ 38,008	\$ 40,286	\$ 42,099	\$ 51,559
2014 Average Monthly Benefit	\$ 577	\$ 766	\$ 1,085	\$ 1,418	\$ 2,415
Number of Retirees	2,514	673	539	514	1,085
Average Final Salary	\$ 36,323	\$ 34,283	\$ 37,646	\$ 39,676	\$ 50,969
2013 Average Monthly Benefit	\$ 548	\$ 785	\$ 1,038	\$ 1,504	\$ 2,451
Number of Retirees	2,516	663	580	573	1,242
Average Final Salary	\$ 35,783	\$ 33,840	\$ 35,208	\$ 41,695	\$ 51,269
2012 Average Monthly Benefit	\$ 546	\$ 790	\$ 1,026	\$ 1,506	\$ 2,447
Number of Retirees	2,520	615	544	504	1,118
Average Final Salary	\$ 35,204	\$ 33,923	\$ 35,260	\$ 41,765	\$ 51,155
2011 Average Monthly Benefit	\$ 583	\$ 779	\$ 1,091	\$ 1,426	\$ 2,410
Number of Retirees	1,927	524	511	408	975
Average Final Salary	\$ 36,710	\$ 32,978	\$ 35,652	\$ 40,230	\$ 49,551
2010 Average Monthly Benefit	\$ 563	\$ 788	\$ 1,073	\$ 1,365	\$ 2,275
Number of Retirees	1,718	438	474	396	918
Average Final Salary	\$ 35,095	\$ 33,777	\$ 35,317	\$ 38,156	\$ 48,038

Note: This schedule represents the average monthly benefits under the maximum plan of members retiring with an unreduced service retirement benefit. It excludes members retiring with a reduced early retirement benefit or under disability.

(continued)



AVERAGE BENEFIT PAYMENTS SCHEDULE
(CONTINUED)



AVERAGE BENEFIT PAYMENT SCHEDULE
Fiscal Year of Retirement (continued)

Teacher Hybrid Retirement Plan*

	<u>Years of Service Credit</u>	
	<u>Less than 15</u>	
2019 Average Monthly Benefit	\$	202
Number of Retirees		7
Average Final Salary	\$	52,115
2018 Average Monthly Benefit	\$	92
Number of Retirees		3
Average Final Salary	\$	56,185
2017 Average Monthly Benefit	\$	95
Number of Retirees		1
Average Final Salary	\$	37,094
2016 Average Monthly Benefit	\$	41
Number of Retirees		1
Average Final Salary	\$	39,323

Public Employee Hybrid Retirement Plan*

	<u>Years of Service Credit</u>	
	<u>Less than 15</u>	
2019 Average Monthly Benefit	\$	212
Number of Retirees		6
Average Final Salary	\$	57,776
2018 Average Monthly Benefit	\$	52
Number of Retirees		11
Average Final Salary	\$	36,684
2016 Average Monthly Benefit	\$	52
Number of Retirees		2
Average Final Salary	\$	72,747
2015 Average Monthly Benefit	\$	13
Number of Retirees		1
Average Final Salary	\$	43,305

*Because the Hybrid Retirement Plan was effective July 1, 2014, there are no retirees with greater than 15 years of service.

Note: This schedule represents the average monthly benefits under the maximum plan of members retiring with an unreduced service retirement benefit. It excludes members retiring with a reduced early retirement benefit or under disability.



PRIOR SERVICE ESTABLISHED
July 1, 2018 through June 30, 2019

	<u>Type of Service</u>	<u>No. of Members</u>	<u>Years of Service</u>	<u>Amount</u>
Teacher Legacy Pension Plan	Backpayment	36	49	\$ 204,127
	Military	0	0	0
	Redeposit	42	237	1,075,765
	Totals	78	286	\$ 1,279,892
Public Employee Legacy Pension Plan	Backpayment	237	416	\$ 3,729,143
	Military	0	0	0
	Redeposit	57	263	897,613
	Totals	294	679	\$ 4,626,756
Teacher Hybrid Retirement Plan	Backpayment	9	10	\$ 25,366
	Military	0	0	0
	Redeposit	1	3	8,636
	Totals	10	13	\$ 34,002
Public Employee Hybrid Retirement Plan	Backpayment	57	622	\$ 2,449,726
	Military	3	9	0
	Redeposit	0	0	0
	Totals	60	631	\$ 2,449,726
Grand Totals	Backpayment	339	1,097	\$ 6,408,362
	Military	3	9	0
	Redeposit	100	503	1,982,014
	Totals	442	1,609	\$ 8,390,376



Treasury allows members to establish their prior service by making monthly installment payments in the form of Automated Clearing House (ACH) withdrawals from a designated bank account. Service is credited to the member’s account once the balance has been paid off. Examples of service types which are eligible to be purchased through installment payments are previously withdrawn service, peacetime military service, educational leave, and enrollment service for new participating employers. When a member is billed for prior service, a statement is generated showing a lump sum payment. In addition, installment information is given with regard to financing over six (6) to sixty (60) months. The member may elect to finance the entire amount or elect to make a down payment and finance the balance. The member may choose, at any time, to pay off the remaining balance.

PRIOR SERVICE INSTALLMENT ACTIVITY
For the Year Ended June 30, 2019

	<u>Type of Service</u>	<u>No. of Members</u>	<u>Years of Service</u>	<u>Amount</u>
Teacher Legacy Pension Plan	Backpayment	11	267	\$ 6,177
	Redeposit	22	1,636	83,966
	Totals	33	1,903	\$ 90,143
Public Employee Legacy Pension Plan	Backpayment	30	1,884	\$ 79,354
	Redeposit	16	725	100,041
	Totals	46	2,609	\$ 179,395
Teacher Hybrid Retirement Plan	Backpayment	2	4	\$ 6,673
	Redeposit	1	3	847
	Totals	3	7	\$ 7,520
Public Employee Hybrid Retirement Plan	Backpayment	3	5	\$ 3,519
	Redeposit	0	0	0
	Totals	3	5	\$ 3,519
Grand Totals:	Backpayment	46	2,160	\$ 95,723
	Redeposit	39	2,364	184,854
	Totals	85	4,524	\$ 280,577



REFUND ACTIVITY

For the Year Ended June 30	Number of Refunds Processed	Amount Refunded
2010	5,154	\$ 36,422,653
2011	4,500	\$ 35,539,393
2012	4,349	\$ 40,091,553
2013	4,122	\$ 39,517,877
2014	5,683	\$ 54,045,937
2015	4,934	\$ 47,961,414
2016	4,593	\$ 54,392,689
2017	4,583	\$ 39,943,710
2018	4,426	\$ 41,159,513
2019	4,685	\$ 42,759,556

POLITICAL SUBDIVISION PARTICIPATION

Schedule by Category

Year Ended June 30	Number of Cities	Number of Counties	Political Subdivisions	Total
2010	177	89	220	486
2011	176	89	218	483
2012	178	89	221	488
2013	177	88	222	487
2014	177	88	224	489
2015	178	87	232	497
2016	179	87	235	501
2017	181	87	257	525
2018	206	97	285	588
2019	209	90	273	572



HISTORICAL EMPLOYER CONTRIBUTION RATES
Expressed as a Percentage of Salary

Year Ended June 30	State Employees		Teachers	
	Legacy	Hybrid	Legacy	Hybrid
2010	13.02%	N/A	6.42%	N/A
2011	14.91%	N/A	9.05%	N/A
2012	14.91%	N/A	9.05%	N/A
2013	15.03%	N/A	8.88%	N/A
2014	15.03%	N/A	8.88%	N/A
2015	15.03%	4.00%	9.04%	4.00%
2016	15.03%	4.00%	9.04%	4.00%
2017	15.02%	4.00%	9.04%	4.00%
2018	18.87%	4.00%	9.08%	4.00%
2019*	19.23%	1.66%	10.46%	1.94%

The employer contribution rates for political subdivisions are individually determined based on the biennial actuarial valuation of each political subdivision.

*The contributions rates shown for 2019 for the State Employee and Teacher Hybrid Retirement Plans are the actuarially determined contributions rates (ADC). Employers participating in the Hybrid Retirement Plans are required to contribute the greater of 4.00% or the ADC. Contributions in excess of the ADC are held in a separate Stabilization Reserve Trust on behalf of the employer.



PRINCIPAL PARTICIPATING EMPLOYERS

Current Year and Nine Years Ago

Teacher Legacy Pension Plan

	2019				2010		
	Covered Employees	Rank	Percentage of Total System		Covered Employees	Rank	Percentage of Total System
Participating Government				Participating Government			
Shelby County Schools	4,647	1	8.32%	Memphis City Schools	9,115	1	12.31%
Davidson County Schools	4,044	2	7.24%	Davidson County Schools	6,356	2	8.58%
Knox County Schools	3,308	3	5.92%	Knox County Schools	4,910	3	6.63%
Rutherford County Schools	2,389	4	4.27%	Shelby County Schools	3,661	4	4.94%
Hamilton County Schools	2,178	5	3.90%	Hamilton County Schools	3,173	5	4.29%
Williamson County Schools	1,898	6	3.40%	Rutherford County Schools	2,838	6	3.83%
Montgomery County Schools	1,586	7	2.84%	Williamson County Schools	2,206	7	2.98%
Sumner County Schools	1,559	8	2.79%	Montgomery County Schools	2,423	8	3.27%
Sevier County Schools	916	9	1.64%	Sumner County Schools	2,173	9	2.93%
Wilson County Schools	806	10	1.43%	Sevier County Schools	1,214	10	1.65%
Others	32,553		58.25%	Others	35,974		48.59%
Total	55,884		100.00%	Total	74,043		100.00%

Public Employee Legacy Pension Plan

	2019				2010		
	Covered Employees	Rank	Percentage of Total System		Covered Employees	Rank	Percentage of Total System
Participating Government				Participating Government			
State	36,514	1	31.92%	State	61,379	1	43.63%
Shelby County Unified School District	4,289	2	3.75%	Memphis City Schools	8,098	2	5.76%
Rutherford County	2,747	3	2.40%	Hamilton County	5,401	3	3.84%
Williamson County	2,664	4	2.33%	Shelby County Board of Ed	3,406	4	2.42%
Sumner County	2,194	5	1.92%	Williamson County	3,305	5	2.35%
Hamilton County	1,945	6	1.70%	Rutherford County	3,251	6	2.31%
Montgomery County	1,854	7	1.62%	Montgomery County	3,076	7	2.19%
Wilson County	1,330	8	1.16%	Sumner County	2,808	8	2.00%
Sevier County	1,328	9	1.16%	Sullivan County	2,147	9	1.52%
Clarksville	1,221	10	1.06%	Johnson City	1,828	10	1.30%
Others	58,321		50.98%	Others	45,969		32.68%
Total	114,407		100.00%	Total	140,668		100.00%

(continued)



PRINCIPAL PARTICIPATING EMPLOYERS
Current Year and Nine Years Ago
(continued)

	Teacher Hybrid Retirement Plan¹		
	2019		
	Covered Employees	Rank	Percentage of Total System
<u>Participating Government</u>			
Shelby County Schools	2,515	1	10.93%
Davidson County Schools	1,866	2	8.10%
Knox County Schools	1,357	3	5.89%
Hamilton County Schools	1,171	4	5.08%
Williamson County Schools	1,155	5	5.02%
Montgomery County Schools	1,021	6	4.43%
Rutherford County Schools	1,002	7	4.36%
Sumner County Schools	547	8	2.37%
Wilson County Schools	470	9	2.04%
Davidson County Federal	457	10	1.98%
Others	11,471		49.80%
Total	<u>23,032</u>		100.00%

	Public Employee Hybrid Retirement Plan¹		
	2019		
	Covered Employees	Rank	Percentage of Total System
<u>Participating Government</u>			
State Employee Hybrid	21,871	1	83.35%
Hamilton County-Hybrid	869	2	3.31%
Montgomery County - Hybrid	761	3	2.90%
Bradley County - Hybrid	233	4	0.89%
Weakley County - Hybrid	217	5	0.83%
Others	2,289		8.72%
Total	<u>26,240</u>		100.00%

¹The Teacher Retirement Plan and Public Employee Retirement Plan - Hybrid became effective for teachers July 1, 2014, therefore, therefore applicable information for nine years ago is not available.



Participants

TCRS has established pension plans for four groups of public employees: state employees, higher education employees, teachers and the employees of governmental entities (political subdivisions). Employees of political subdivisions may participate in TCRS if the entity’s governing body authorizes participation and accepts all liability associated with coverage for their employees.

Participation is subject to the approval of the Board of Trustees. At June 30, 2019, there were 572 political subdivisions participating in TCRS.

Participation as of June 30, 2019:*

Cities	209
Counties	90
Utility Districts	77
Special School Districts/Boards of Education**	25
Joint Ventures	25
Housing Authorities	14
911 Emergency Communication Districts	62
Miscellaneous Authorities	<u>70</u>
Total	572

*This table is a count of plans by type of employer. Some employers may have multiple plans so a county or city may be included multiple times in the count.

**Local Education Agencies participate through Local Governing bodies. Only Boards of Education participating separately from Counties or Cities are indicated in participation of political subdivisions.

Administration

TCRS administers the pension plan for political subdivisions in accordance with state statute. Each employer is responsible for the pension cost for its employees. The cost is not shared with other political subdivisions nor with the state. A separate fund balance is maintained by the retirement system for each participating political subdivision and employer contribution rates are determined individually.

Application

To apply for TCRS participation, the chief governing body of the political subdivision must first pass a resolution authorizing an actuarial study to estimate the potential cost of participation. Once the governing body has had an opportunity to review the estimated pension cost and liability, a second resolution must then be passed in order to authorize TCRS participation. Political subdivisions electing TCRS coverage accept the liability for pension benefits to be accrued by their employees.

Coverage

A political subdivision is required to offer coverage under the same terms and conditions to all the employees of each of its departments and agencies.

Political subdivisions have the option of purchasing or allowing their employees to purchase retirement credit for service rendered prior to the employer’s date of participation. The amount of prior service allowed may be limited.

Political subdivisions opting to join TCRS do so under the plan provisions that exist at the time of their participation. Subsequent legislative changes, however, are optional if they result in increased cost to the political subdivision. These optional improvements may be adopted by resolutions approved by the chief governing body.

**TCRS PROVIDES
THE ADMINISTRATION
OF A RETIREMENT
PROGRAM FOR 572
LOCAL GOVERNMENTS.**



Membership

- Optional membership for part-time employees
- Reduce vesting requirement to qualify for retirement benefits from 10 years to five years
- Increase vesting requirement to qualify for retirement benefits from five years to 10 years (only applicable if in Legacy plan)

Contributions

- Employee contributions at a level five percent both below and above the Social Security wage base
- Exclusion of employee contributions from taxable income under 414(h) provisions of the Internal Revenue Code
- Noncontributory retirement plan
- Discontinue noncontributory retirement plan and implement contributory retirement plan for new employees
- Extension of 3.6 percent indexing feature for noncontributory members' salaries used in calculating the average final compensation

Creditable Service

- Service credit for unused sick leave
- Service credit for military service during periods of armed conflict at no cost to the employee
- Service credit for periods of temporary disability during which the employee was receiving workers' compensation payments based on covered employment
- Service credit purchase for peacetime military service between October 15, 1940 and May 7, 1975
- Purchase of service credit for probation period

Survivor Benefits

- 100 percent joint and survivor spouse death benefit for members with 10 years of service. May be reduced from 10 years to vested status.
- Provide inactive members with certain death and disability benefits
- 50 percent of five year average salary benefits for surviving spouse for members killed in the line of duty

Retirement Benefits

- Provide current retirees and members a five percent increase in base retirement benefit
- Discontinue five percent increase in base retirement benefit for new employees
- The actuarial equivalent of an age 65 benefit for employees retiring after age 65. Only applicable for the legacy plan design and does not apply for those becoming members of the legacy plan after July 1, 2011.
- 25-year retirement with actuarially reduced benefits
- Minimum benefit level increase to \$8, \$14, \$20 per year of service
- Mandatory retirement with supplemental bridge benefit for public safety officers
- Service retirement at age 55 with 25 years of service for public safety officers
- Discontinue enhanced public safety officer benefits for new public safety officers

Retired Members

- Exclusion of cost-of-living adjustments at the date of participation for all employees or at a later date for new employees
- Compounded cost-of-living adjustment (COLA) to current and future retirees



**Tennessee Consolidated Retirement System
Local Government Plan Options
Effective July 1, 2012**

Original Defined Benefit Plan

- Calculation includes a 1.50% multiplier
- Benefit Formula: Years of Service x AFC x 1.50% + 5% Benefit Improvement
- Retirement Requirements:
 - ◆ Service Retirement: An unreduced benefit if the member is age 60 and vested or has thirty (30) years of service regardless of age
 - ◆ Early Retirement: A reduced benefit if the member is age 55 and vested
 - ◆ 25-Year Early: A reduced benefit if the member is under the age of 55 and has at least 25 years of service

Alternate Defined Benefit Plan

- Calculation includes a 1.40% multiplier
- Benefit Formula: Years of Service x AFC x 1.40%
- Retirement Requirements:
 - ◆ Service Retirement: An unreduced benefit if the member is age 65 and vested, or meets the “Rule of 90” (years of service plus age at retirement equal 90 or above)
 - ◆ Early Retirement: A reduced benefit if the member is age 60 and vested, or meets the “Rule of 80” (years of service plus age at retirement equal 80 or above, but equal less than 90)

Local Government Hybrid Plan

- Calculation includes a 1.00% multiplier
- Benefit Formula: Years of Service x AFC x 1.00%
- Retirement Requirements:
 - ◆ Service Retirement: An unreduced benefit if the member is age 65 and vested, or meets the “Rule of 90” (years of service plus age at retirement equal 90 or above)
 - ◆ Early Retirement: A reduced benefit if the member is age 60 and vested, or meets the “Rule of 80” (years of service plus age at retirement equal 80 or above, but equal less than 90)

Employee Contribution Funding Options

(Applicable to all plans listed above.)

- Employer may elect to pay 0.0%, 2.5% or 5.0% of employee contributions



**Tennessee Consolidated Retirement System
State and Teacher Hybrid Plan (Optional for Local Governments)
Effective July 1, 2014**

- Calculation includes a 1.00% multiplier
- Benefit Formula: Years of Service x AFC x 1.00%
- Retirement Requirements:
 - ◆ Service Retirement: An unreduced benefit if the member is age 65 and vested, or meets the “Rule of 90” (years of service plus age at retirement equal 90 or above)
 - ◆ Early Retirement: A reduced benefit if the member is age 60 and vested, or meets the “Rule of 80” (years of service plus age at retirement equal 80 or above, but equal less than 90)
- Contribution Rates:
 - ◆ Employee Contribution Rate: 5.00%
 - ◆ Employer Contribution Rate: 4.00%
- Unfunded Liability Controls:
 - ◆ If Defined Benefit component employer cost exceeds 4% of payroll or if the target unfunded liabilities are exceeded for the Defined Benefit component plan, the following adjustments will automatically occur in the following sequence:
 - ◇ Utilize funds in the actuarial stabilization account
 - ◇ Reduce or suspend the maximum 3% annual COLA
 - ◇ Shift some or all of the Defined Contribution employer contribution to the Defined Benefit plan
 - ◇ Increase employee contribution to Defined Benefit plan by 1% of payroll
 - ◇ Reduce future service accrual below 1%
 - ◇ Freeze plan, no future accruals

When employer cost is restored to 4% of payroll and unfunded liabilities do not exceed target maximum unfunded liabilities, then adjustments previously made are restored on a prospective basis.



CITIES

Adams	Collierville**	Galloway	Lawrenceburg	New Johnsonville	South Pittsburg
Alamo	Collinwood	Gatlinburg	Lebanon	New Tazewell	Sparta
Alcoa	Cookeville	Gleason	Lenoir City*	Newport	Spencer
Ashland City	Coopertown	Goodlettsville	Linden	Nolensville	Spring City
Athens*	Cornersville	Gordonsville	Livingston	Norris	Spring Hill
Atoka	Covington	Grand Junction	Lobelville	Oak Hill	Springfield
Atwood	Cowan	Greenbrier	Lookout Mountain	Oak Ridge	Surgoinsville
Baileyton	Crossville**	Greeneville	Loretto	Oakland	Sweetwater
Baxter	Cumberland	Greenfield	Loudon	Obion	Tazewell
Belle Meade**	Dandridge	Halls	Luttrell	Oliver Springs	Tellico Plains
Bells	Dayton	Harriman	Madisonville	Paris	Townsend
Benton	Decatur	Harrogate	Manchester	Parsons	Tracy City**
Big Sandy	Decaturville	Hartsville	Martin	Pegram	Trenton
Bluff City	Decherd	Henderson	Maryville	Pikeville	Tullahoma
Bolivar	Dickson	Hendersonville	Maury City	Pittman Center	Tusculum
Bradford	Dover	Hohenwald	Maynardville	Pleasant Hill	Unicoi
Brentwood	Ducktown	Humboldt	McEwen	Pleasant View	Union City
Brighton	Dunlap	Huntington	McKenzie	Portland	Vanleer
Bristol	Dyer	Huntland	McMinnville	Puryear	Vonore
Brownsville	East Ridge	Jacksboro	Medina	Red Bank	Watauga
Bruceton	Elizabethton	Jackson	Middleton	Red Boiling Springs	Waverly
Byrdstown	Elkton**	Jamestown	Milan	Ripley	Waynesboro
Camden	Erin	Jefferson City	Millersville	Rockwood	Westmoreland
Carthage	Erwin	Johnson City**	Millington	Rogersville*	White Bluff
Caryville	Estill Springs	Jonesborough	Monterey	Rutherford	White House
Centerville	Etowah	Kenton	Morrison	Rutledge	White Pine
Charleston	Fairview	Kimball	Morristown	Savannah**	Whiteville
Charlotte	Fayetteville	Kingsport**	Moscow**	Selmer	Whitwell
Church Hill	Forest Hills**	Kingston	Mosheim	Sevierville	Woodbury
Clarksville	Franklin	Kingston Springs	Mountain City	Signal Mountain	
Cleveland	Friendship	Lafayette	Mt. Carmel	Soddy Daisy	
Clifton	Friendsville	Lafollette	Mt. Juliet	Somerville	
Clinton	Gainesboro	Lake City	Munford	South Carthage	
Collegedale	Gallatin	Lakeland**	Murfreesboro*	South Fulton**	

COUNTIES

Anderson	Coffee**	Hamilton	Lewis	Obion	Stewart
Bedford	Crockett	Hardeman	Lincoln	Overton	Sullivan
Benton	Cumberland	Hardin	Loudon	Perry	Sumner
Bledsoe	Decatur	Hawkins	Macon	Pickett	Tipton
Blount	DeKalb	Haywood	Madison**	Polk	Trousdale
Bradley	Dickson	Henderson	Marion	Putnam	Unicoi
Campbell	Fayette	Henry	Marshall	Rhea*	Union
Cannon	Fentress	Hickman	Maury	Roane	Van Buren
Carroll	Franklin	Humphreys	McMinn	Robertson	Warren
Carter	Gibson	Jackson	McNairy	Rutherford	Washington
Cheatham	Giles	Jefferson	Meigs**	Scott	Wayne
Chester	Grainger	Johnson	Monroe	Sequatchie	Weakley
Claiborne	Greene	Lake	Montgomery	Sevier	White
Clay	Grundy	Lauderdale	Moore*	Shelby*	Williamson
Cocke	Hamblen	Lawrence	Morgan	Smith	Wilson

*All departments not covered by TCRS.

**Plan closed to new hires.

(continued)



911 EMERGENCY COMMUNICATIONS DISTRICTS

Anderson Co.	Claiborne Co.	Hamblen Co.	Lawrence Co.	Overton Co.	Van Buren Co.
Bedford Co.	Cocke Co.	Hamilton Co.	Loudon Co.	Roane Co.	Warren Co.
Benton Co.	Crockett Co.	Hardeman Co.	Macon Co.	Robertson Co.	Washington Co.
Blount Co.	Cumberland Co.	Hardin Co.	Madison Co.	Rutherford Co.	Wayne Co.
Brentwood	DeKalb Co.	Hawkins Co.	Marshall Co.	Scott Co.	Weakley Co.
Campbell Co.	Dickson Co.	Henderson Co.	Maury Co.	Sequatchie Co.	White Co.
Cannon Co.	Fayette Co.	Humphreys Co.	McMinn Co.	Sevier Co.	Wilson Co.
Carroll Co.	Fentress Co.	Jefferson Co.	McNairy Co.	Shelby Co.	
Carter Co.	Gibson Co.	Johnson Co.	Monroe Co.	Sullivan Co.	
Cheatham Co.	Grainger Co.	Knox Co.	Montgomery Co.	Tipton Co.	
Chester Co.	Greene Co.	Lauderdale Co.	Obion Co.	Union Co.	

HOUSING AUTHORITIES

Bristol	Hohenwald	Memphis	South Pittsburg
Clinton	Lawrenceburg	Morristown	Sweetwater
Cookeville	Lenoir City	Rockwood	
Hartsville	Maryville	Rogersville**	

JOINT VENTURES

Argie Cooper Public Library	Fayetteville/Lincoln County Public Library	Smyrna/Rutherford County Airport Authority
Bradley-Cleveland Civil Defense	Gorham/MacBane Public Library	Tellico Area Service System
Bradley-Cleveland Community Service Agency	Jackson/Madison County Library**	TriCities Airport Authority
Brownsville-Haywood County Library	Johnson City/Washington County EMS	Tri-County Vocational School
Bolivar-Hardeman County Library	Kinsler Park	Upper Cumberland Regional Airport
Clarksville/Montgomery County Public Library	Lawrence County Library	W. G. Rhea Public Library
Clarksville/Montgomery County Regional Planning	Linebaugh Public Library	Washington County/Johnson City Animal Control Center
Cleveland/Bradley County E-911	Morristown/Hamblen County Landfill	Wilson Emergency Management Agency
Edward Gauche Fisher Public Library	Sevier Solid Waste	

MISCELLANEOUS AGENCIES

Anderson County Economic Development Association	Delta Human Resource Agency	Knox County Community Services Agency
Anderson County Water Authority	Douglas Cherokee Economic Authority	Loudon County Economic Development Agency
Beech River Watershed	East Tennessee Community Service Agency	Marion County Library
Bi County Solid Waste Management	Fayetteville-Lincoln County Industrial Development Board	Maryville, Alcoa, Blount Co. Parks & Rec.
Blount County Fire Protection District	First Tennessee Development District	McMinn County Economic Development District
Blount County Library	First Tennessee Human Resource Agency	Mid-Cumberland Community Service Agency
Books from Birth	Four Lake Regional Industrial Development Authority	Millington Airport Authority
Carter County Tomorrow	Greater Nashville Regional Council	Networks Sullivan Partnership
Cocke County Partnership, Inc.	Hamilton County Community Service Agency	Northeast Community Service Agency
County Officials Association of Tennessee	Joint Economic and Development Board of Wilson County	Northwest Tennessee Community Service Agency

*All departments not covered by TCRS.
**Plan closed to new hires.

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Obion County Library
 Putnam County Library
 Sequatchie Valley Planning and Development District
 Sevier County Economic Development Council
 Shelby County Community Service Agency
 South Central Human Resource Agency**
 South Central Tennessee Community Services Agency
 South Central Tennessee Development District
 South Central Tennessee Workforce Board
 Southeast Tennessee Community Service Agency
 Southeast Tennessee Development District
 Southeast Tennessee Human Resource Agency
 Southwest Tennessee Community Service Agency
 Southwest Tennessee Development District

Southwest Tennessee Human Resource Agency
 Tennessee Association of Assessing Officers
 Tennessee Association of County Mayors
 Tennessee Athletics Association**
 Tennessee County Commissioners Association
 Tennessee County Highway Officials Association
 Tennessee County Services Association
 Tennessee Duck River Development Agency
 Tennessee Education Association
 Tennessee Elk River Development Agency**
 Tennessee Historical Society
 Tennessee Municipal Bond Fund
 Tennessee Municipal League
 Tennessee Municipal League Risk Management Pool

Tennessee Organization of School Superintendents**
 Tennessee School Board Association
 Tennessee Secondary School Athletic Association
 Tennessee Sheriffs Association
 Tennessee State Employees Association
 Tennessee Veterans Home Board
 Upper Cumberland Community Services Agency
 Upper Cumberland Human Resource Agency
 Upper Cumberland Regional Airport
 Upper East Tennessee Human Development Agency
 Watauga River Regional Water Authority
 Workforce Solutions**

SPECIAL SCHOOL DISTRICTS/BOARDS OF EDUCATION

Arlington Community Schools
 Bartlett City Board of Education
 Bradford
 Clinch Powell Education Coop.
 Coffee County Board of Education
 Collierville Schools Board of Education
 Elizabethton Board of Education
 Franklin
 Germantown Board of Education

Gibson County School District
 Hollow Rock-Bruceton
 Huntingdon
 Lebanon
 Little Tennessee Valley Education Coop.
 McKenzie
 Milan
 Millington City Schools Board of Education
 Tullahoma City Board of Education

Oak Ridge Board of Education
 Oneida
 Paris
 South Carroll Special School District
 Trenton
 Union City Board of Education
 West Carroll County

UTILITY DISTRICTS

Alpha-Talbott
 Arthur Shawnee
 Big Creek
 Bloomingdale
 Bondecroft
 Bristol Electric System
 Cagle Fredonia Utility District
 Castalian Springs/Bethpage
 Chuckey Utility District
 Citizen's Gas
 Consolidated Utility District/Rutherford County
 Cookeville Boat Dock Road Utility District
 County Wide
 Crab Orchard

Cross Anchor Utility District
 Cumberland Utility District-Roane and Morgan Counties
 DeWhite
 Double Springs
 Dyersburg Suburban
 East Fork
 East Montgomery
 East Side
 Elizabethton
 Fall Creek Falls
 First Carter County
 First Hawkins County
 First Tipton County
 Gladeville

Glen Hills
 Greater Dickson Gas Authority
 Greeneville Light and Power
 Hampton South
 Hardeman-Fayette County
 Harriman**
 Hendersonville Weakley County
 Hixson
 Jackson County
 Johnson City Power Board
 LaGuardo Utility District
 Lake County
 Lakeview
 Lincoln County Board of Public Utilities

*All departments not covered by TCRS.
 **Plan closed to new hires.

(continued)



POLITICAL SUBDIVISION PARTICIPANTS (CONTINUED)



Loudon
Madison Suburban Utility District
Middle Tennessee
Municipal Electric
New Market
North Utility District of Decatur and Benton Counties
Northeast Henry County
O'Connor Utility District
Oak Ridge
Old Gainesboro Road
Old Hickory
Old Knoxville Highway Utility District
Paris-Henry Utility District
Persia
Plateau
Poplar Grove
Quebec-Walling
Reelfoot Lake Regional

Riceville
River Road
Roane Mountain Utility District
Russellville Whitesburg Utility District
Savannah Valley
Second South Cheatham Utility District
Sevier County
Siam
Smith
Sneedville
Soddy Daisy-Falling Water
Sylvia-Tennessee City Pond Water
Upper Cumberland Utility District
Walden's Ridge Utility District
Webb Creek
West Knox**
West Overton

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**Plan closed to new hires