

# *Financial Section*

## TCRS Independent Auditor's Report

Management's Discussion and Analysis

Notes to the Financial Statements

Required Supplementary Information

Notes to Required Supplementary Information

Schedules of Administrative & Investment Expenses

Schedules of Expenses for Consultants

## TRGT Independent Auditor's Report

Financial Statements

Notes to the Financial Statements

Schedule of Investment Expenses





STATE OF TENNESSEE  
COMPTROLLER OF THE TREASURY  
DEPARTMENT OF AUDIT  
DIVISION OF STATE AUDIT

SUITE 1500 JAMES K. POLK STATE OFFICE BUILDING  
505 DEADERICK STREET  
NASHVILLE, TENNESSEE 37243-1402

PHONE (615) 401-7897  
FAX (615) 532-2765

## 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 and for the year ended June 30, 2016, 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 no such opinion. An audit also includes evaluating the appropriateness of accounting principles used and reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

(continued)

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, 2016, 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, 2016, and the changes in its financial position for the year then ended in conformity with accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

### ***Other Matters***

#### ***Required Supplementary Information***

Accounting principles generally accepted in the United States of America require that 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 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

(continued)

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 21, 2016, 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.

A handwritten signature in black ink, appearing to read "Deborah V. Loveless".

Deborah V. Loveless, CPA  
Director  
December 21, 2016

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, 2016. This section should be read in conjunction with the Independent Auditor's Report, the audited financial statements, and the accompanying notes.

The assets of TCRS were transferred to the Tennessee Retiree Group Trust (TRGT) for investment purposes during fiscal year 2016. Detailed information on the TRGT can be found on pages 46-62 of this report.

## FINANCIAL HIGHLIGHTS

- The net position for the TCRS plans (total assets minus total liabilities) at June 30, 2016 was \$43.3 billion, increasing \$0.1 billion (0.1 percent) from the plan net position at June 30, 2015. The net position is restricted for future benefit obligations. This increase in plan net position is mainly due to an increase in contribution revenue.
- Net investment income for fiscal year 2016 was \$1.1 billion. During fiscal year 2016, the TCRS received a time-weighted rate of return on its portfolio of 2.8 percent, compared to 3.3 percent for fiscal year 2015.
- Contribution revenue for fiscal year 2016 totaled \$1.3 billion, representing an increase of 0.8 percent compared to fiscal year 2015.
- Total benefits and refunds paid for fiscal year 2016 were \$2.4 billion, representing an increase of 5.3 percent over fiscal year 2015 total benefits and refunds paid of \$2.3 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 1.0 percent cost of living adjustment was given in July 2015.
- Total administrative expenses for fiscal year 2016 were \$20.2 million, representing an increase of 34 percent from fiscal year 2015 administrative expenses of \$15.1 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 Pensions 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, 2016.

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*

(continued)



**TENNESSEE CONSOLIDATED RETIREMENT SYSTEM  
MANAGEMENT'S DISCUSSION AND ANALYSIS  
FOR THE YEAR ENDED JUNE 30, 2016 (CONTINUED)**

*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.

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, 2016, the TCRS had a net position (total assets in excess of total liabilities) of \$43.3 billion, an increase of \$0.1 billion (0.1 percent) from \$43.2 billion at June 30, 2015. 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**

	<u>June 30, 2016</u>	<u>June 30, 2015</u>	<u>Increase (Decrease) Amount</u>	<u>Percentage Change</u>
<b>ASSETS</b>				
Cash and cash equivalents	\$24,779,761	\$445,811,146	(\$421,031,385)	(94.4) %
Cash collateral for securities on loan	7,514,864,420	5,892,943,764	\$1,621,920,656	27.5 %
Member and employer receivables	100,314,218	100,955,668	(\$641,450)	(0.6) %
Investments	43,182,757,359	42,693,844,430	\$488,912,929	1.1 %
Capital assets	28,034,008	31,747,896	(\$3,713,888)	(11.7) %
<b>TOTAL ASSETS</b>	<u>50,850,749,766</u>	<u>49,165,302,904</u>	<u>1,685,446,862</u>	3.4 %
<b>LIABILITIES</b>				
Death benefits, refunds and other payables	29,676,046	28,418,554	\$1,257,492	4.4 %
Cash collateral for securities on loan	7,514,864,420	5,892,943,764	1,621,920,656	27.5 %
<b>TOTAL LIABILITIES</b>	<u>7,544,540,466</u>	<u>5,921,362,318</u>	<u>1,623,178,148</u>	27.4 %
<b>NET POSITION RESTRICTED FOR PENSIONS</b>	<u>\$43,306,209,300</u>	<u>\$43,243,940,586</u>	<u>\$62,268,714</u>	0.14 %

*(continued)*



## ANALYSIS OF REVENUES AND EXPENSES

Employer contribution rates for the TCRS did not change during fiscal year 2016; therefore, the 0.8 percent increase in contributions from fiscal year 2015 to fiscal year 2016 was due to increases in salaries. Gross investment income for fiscal year 2016 decreased \$170 million (12.8 percent) over fiscal year 2015.

Investment expenses for fiscal year 2016 totaled \$66 million for a 21.1 percent increase over fiscal year 2015. These expenses were split between portfolio management investment expenses of \$48.2 million and \$17.9 million in expenses attributed to the securities lending program. The TCRS investment portfolio earned a time-weighted rate of return of 2.8 percent and net investment income of \$1.1 billion.

Total benefits paid during the year ended June 30, 2016 were \$2.3 billion, an increase of 5.3 percent over fiscal year 2015 total benefits which can be attributed to an increase in the number of retirees and a 1.0 percent cost of living adjustment given in July 2015. Total refunds paid decreased \$2.6 million, a decrease of 5.6 percent, in fiscal year 2016 from fiscal year 2015. The increase in 2015 was attributed to the change in structure of two large employers where the members of these employers chose to withdraw their funds when they were not rehired by the new employer. The amount of refunds for fiscal year 2016 is more closely reflective of the refunds in normal course of business.

Administrative expenses for the year ended June 30, 2016 were \$20.2 million, an increase of 34.0 percent from fiscal year 2015 administrative expenses. Since implementation of the new pension benefit system, Concord, at the beginning of fiscal year 2015, there have been further costs with improving the reporting and operations of Concord. These costs were expensed as incurred during fiscal year 2016 and have resulted in an increase of \$5.1 million in the current year.

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

### Revenue by Type

*(expressed in thousands)*

	<u>Year ended June 30, 2015</u>		<u>Year ended June 30, 2016</u>	
	<u>Amount</u>	<u>% of Total</u>	<u>Amount</u>	<u>% of Total</u>
Employee Contributions	274,532	10.6%	294,538	12.1%
Employer Contributions	1,011,445	38.9%	1,000,586	41.0%
Other Contributions	384	0.0%	2,158	0.1%
Net Investment Income	1,311,262	50.5%	1,143,160	46.8%
Total	<u>2,597,623</u>	<u>100.0%</u>	<u>2,440,442</u>	<u>100.0%</u>

### Expenditures by Type

*(expressed in thousands)*

	<u>Year ended June 30, 2015</u>		<u>Year ended June 30, 2016</u>	
	<u>Amount</u>	<u>% of Total</u>	<u>Amount</u>	<u>% of Total</u>
Benefit Payments	2,195,814	97.2%	2,312,706	97.3%
Refunds	47,961	2.1%	45,288	1.9%
Administrative	15,064	0.7%	20,180	0.8%
Total	<u>2,258,839</u>	<u>100.0%</u>	<u>2,378,174</u>	<u>100.0%</u>

*(continued)*



**TENNESSEE CONSOLIDATED RETIREMENT SYSTEM  
MANAGEMENT'S DISCUSSION AND ANALYSIS  
FOR THE YEAR ENDED JUNE 30, 2016 (CONTINUED)**

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

	For the Year Ended June 30, 2016	For the Year Ended June 30, 2015	FY16 - FY15 Increase (Decrease) Amount	FY16 - FY15 Percentage Change
<b>ADDITIONS</b>				
Contributions	\$1,297,282,137	\$1,286,361,016	\$10,921,121	0.8%
Investment income	1,161,002,153	1,331,512,496	(170,510,343)	(12.8)%
Less: Investment expense	(48,199,939)	(46,712,686)	1,487,253	3.2%
Net income from securities lending activities	30,357,833	26,461,821	3,896,012	14.7%
Net investment income	1,143,160,047	1,311,261,631	(168,101,584)	(12.8)%
<b>TOTAL ADDITIONS</b>	<b>2,440,442,184</b>	<b>2,597,622,647</b>	<b>(157,180,463)</b>	<b>(6.1)%</b>
<b>DEDUCTIONS</b>				
Annuity benefits	2,307,100,889	2,190,289,366	116,811,523	5.3%
Death benefits	5,604,581	5,524,605	79,976	1.4%
Refunds	45,288,055	47,961,414	(2,673,359)	(5.6)%
Administrative expenses	20,179,945	15,064,171	5,115,774	34.0%
<b>TOTAL DEDUCTIONS</b>	<b>2,378,173,470</b>	<b>2,258,839,556</b>	<b>119,333,914</b>	<b>5.3%</b>
<b>NET INCREASE (DECREASE)</b>	<b>62,268,714</b>	<b>338,783,091</b>	<b>(276,514,377)</b>	<b>(81.6)%</b>
<b>NET POSITION RESTRICTED FOR PENSIONS</b>				
BEGINNING OF YEAR	43,243,940,586	42,905,157,495	338,783,091	0.8%
END OF YEAR	\$43,306,209,300	\$43,243,940,586	\$62,268,714	0.1%

*(continued)*



## ECONOMIC FACTORS, FUTURE FUNDING PROVISIONS, OVERALL OUTLOOK

For the year ended June 30, 2016 the portfolio delivered a return of 2.8 percent which was below the actuarial assumed return of 7.5 percent. The fund gained 7.4 percent for the trailing three year period and 7.5 percent for the trailing five year period. Additionally, according to the Verus performance universe, the fund beat 83 percent of peers for the trailing five-year period.

Real estate, private equities and nominal fixed income produced strong returns of 12.6 percent, 10.3 percent and 10.6 percent respectively while developed international stocks lost 7.5 percent and emerging markets stocks lost 6.4 percent.

The investment environment in 2016 was notable for encompassing two significant downturns in risky assets which were both followed by generally sharp recoveries along with a decline in interest rates. The decline in rates was striking given that the Federal Reserve increased interest rates in December of 2015 for the first time since June of 2006.

An actuarial valuation was performed as of July 1, 2013 that determined the employer contribution rates for the period July 1, 2014 through June 30, 2016. An actuarial experience study to establish demographic and economic assumptions was completed effective June 30, 2012, was adopted by the Board of Trustees during fiscal year 2013, and was utilized in the July 1, 2013 actuarial valuation. Beginning with the June 30, 2015 actuarial valuation, the valuations are performed annually. The June 30, 2015 valuation will provide employer contribution rates for the period July 1, 2016 through June 30, 2017.

## 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.



**TENNESSEE CONSOLIDATED RETIREMENT SYSTEM  
STATEMENT OF FIDUCIARY NET POSITION  
JUNE 30, 2016**

**STATEMENT OF FIDUCIARY NET POSITION  
JUNE 30, 2016**

*(Expressed in Thousands)*

	<u>Public Employee Retirement Plan</u>	<u>Teacher Retirement Plan</u>	<u>Teacher Legacy Pension Plan</u>	<u>Total</u>
<b>ASSETS</b>				
Cash and cash equivalents	\$ 12,613	\$ 31	\$ 12,136	\$ 24,780
Cash collateral for securities on loan	3,825,098	9,446	3,680,320	7,514,864
Receivables				
Member receivable	7,251	2,076	17,862	27,189
Employer receivable	<u>38,640</u>	<u>1,676</u>	<u>32,809</u>	<u>73,125</u>
Total receivables	<u>45,891</u>	<u>3,752</u>	<u>50,671</u>	<u>100,314</u>
Investment in Tennessee Retiree Group Trust	21,980,213	54,272	21,148,272	43,182,757
Capital assets (net)	<u>14,270</u>	<u>35</u>	<u>13,729</u>	<u>28,034</u>
<b>TOTAL ASSETS</b>	<u>25,878,085</u>	<u>67,536</u>	<u>24,905,128</u>	<u>50,850,749</u>
<b>LIABILITIES</b>				
Accounts payable				
Death benefits and refunds payable	1,213	74	1,696	2,983
Federal withholding payable	8,461	21	8,141	16,623
Retiree insurance premium payable	4,412	11	4,245	8,668
Other	714	1	687	1,402
Cash collateral for securities on loan	<u>3,825,098</u>	<u>9,446</u>	<u>3,680,320</u>	<u>7,514,864</u>
<b>TOTAL LIABILITIES</b>	<u>3,839,898</u>	<u>9,553</u>	<u>3,695,089</u>	<u>7,544,540</u>
<b>NET POSITION RESTRICTED FOR PENSIONS</b>	<u>\$ 22,038,187</u>	<u>\$ 57,983</u>	<u>\$ 21,210,039</u>	<u>\$ 43,306,209</u>

*See accompanying Notes to the Financial Statements.*

**TENNESSEE CONSOLIDATED RETIREMENT SYSTEM  
STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED JUNE 30, 2016**



**STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED JUNE 30, 2016**

*(Expressed in Thousands)*

	Public Employee Retirement Plan	Teacher Retirement Plan	Teacher Legacy Pension Plan	Total
<b>ADDITIONS</b>				
Contributions				
Member contributions	\$90,919	\$21,856	\$181,763	\$294,538
Employer contributions	655,525	17,539	327,522	1,000,586
Other contributions	2,158	0	0	2,158
<b>Total contributions</b>	<b>748,602</b>	<b>39,395</b>	<b>509,285</b>	<b>1,297,282</b>
Investment income	590,437	1,027	569,538	1,161,002
Less: Investment expense	(24,512)	(43)	(23,645)	(48,200)
Net income from investing activities	565,925	984	545,893	1,112,802
Securities lending activities				
Securities lending income	24,532	43	23,664	48,239
Less: Securities lending expense	(9,094)	(15)	(8,772)	(17,881)
Net income from securities lending activities	15,438	28	14,892	30,358
Net investment income	581,363	1,012	560,785	1,143,160
<b>TOTAL ADDITIONS</b>	<b>1,329,965</b>	<b>40,407</b>	<b>1,070,070</b>	<b>2,440,442</b>
<b>DEDUCTIONS</b>				
Annuity benefits	1,193,591	0	1,113,510	2,307,101
Death benefits	3,293	0	2,312	5,605
Refunds	22,812	284	22,192	45,288
Administrative expense	12,466	820	6,894	20,180
<b>TOTAL DEDUCTIONS</b>	<b>1,232,162</b>	<b>1,104</b>	<b>1,144,908</b>	<b>2,378,174</b>
<b>NET INCREASE (DECREASE)</b>	<b>97,803</b>	<b>39,303</b>	<b>(74,838)</b>	<b>62,268</b>
<b>FIDUCIARY NET POSITION RESTRICTED FOR PENSIONS</b>				
<b>BEGINNING OF YEAR</b>	<b>21,940,384</b>	<b>18,680</b>	<b>21,284,877</b>	<b>43,243,941</b>
<b>END OF YEAR</b>	<b>\$22,038,187</b>	<b>\$57,983</b>	<b>\$21,210,039</b>	<b>\$43,306,209</b>

*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.

In accordance with Tennessee Code Annotated Title 8, Chapter 37, Section 104 all assets of TCRS were transferred to the Tennessee Retiree Group Trust (TRGT) for pooling with other assets in custody of the Treasurer for investment purposes. Detailed information on the TRGT can be found on pages 46-62 of this report.

#### **A: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**Reporting entity:** The TCRS is included in the State of Tennessee financial reporting entity. Because of the state's fiduciary responsibility, the TCRS has been included as a pension trust fund in the *Tennessee Comprehensive Annual Financial Report*.

**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, short-term investments with a maturity date within three months of the acquisition date, 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.

**Method used to value investments:** All investments are held by the TRGT and are reported at fair value. For detailed information on the TRGT, see pages 46-62 of this report.

**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 \$28 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, 2016, 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.

	<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	94,702	0	47,979	142,681
Inactive Employees Entitled to But Not Yet Receiving Benefits	107,423	540	30,259	138,222
Active Plan Members	<u>134,859</u>	<u>5,524</u>	<u>69,125</u>	<u>209,508</u>
Total membership	<u>336,984</u>	<u>6,064</u>	<u>147,363</u>	<u>490,411</u>
Number of participating employers	536	190	205	741

*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 2<sup>nd</sup> 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 2<sup>nd</sup> 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

*(continued)*



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 2<sup>nd</sup> 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 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 2<sup>nd</sup> 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, 2016, the required ADC for LEAs was 9.04 percent of covered payroll.

For the Teacher Retirement Plan, LEAs are required by statute to contribute 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, 2016, the required ADC for LEAs was 2.5 percent of covered payroll while actual contributions were 4 percent of covered payroll.

(continued)

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, 2016, the required ADC varied for each participating employer, with approximately fifty percent of all employer rates between eight (8) percent and twenty (20) percent and contributions from these same employers accounting for over ninety percent of the contributions for this plan. 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.

**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. At June 30, 2016, there was \$9,991,123 in the stabilization reserve on behalf of the Teachers Retirement Plan and \$7,831,567 in the various stabilization reserves on behalf of the Public Employee Retirement Plan.

## C: DEPOSITS AND INVESTMENTS

**Statutory Authority:** Effective July 1, 2015, state statute authorizes the TCRS to invest in the State of Tennessee Retiree Group Trust (TRGT). TRGT is located and administered by State of Tennessee Treasury Department. The assets of TCRS and any other trust the state Treasurer deems eligible will be pooled and invested in the TRGT. All assets will be kept separate and will be for the exclusive benefit of the individual plan. Each of the trusts invested in TRGT has equity in TRGT based on funds contributed and earnings allocated. Earnings of TRGT are allocated monthly based on the number of shares owned by each participant. For financial statement purposes, TRGT presents a separate financial statement from the participating trusts. The investment policy of the TRGT and all required disclosures related to investments can be found in the *State of Tennessee Treasurer's Report*.

**Securities Lending:** The TRGT is authorized to invest in securities lending investments. For detailed information on the TRGT, see pages 46-62 of this report. Related assets, liabilities, income, and expenses from lending transactions are reflected on a pro rata basis in the financial statements of TCRS.

(continued)





**D: NET PENSION LIABILITY (ASSET) FOR COST-SHARING PLANS**

The components of net pension liability at June 30, 2016, were as follows:

	Teacher Legacy Pension Plan	Teacher Retirement Plan
Total Pension Liability	\$22,113,073,747	\$45,524,629
Plan Fiduciary Net Position	<u>(21,210,039,027)</u>	<u>(57,982,727)</u>
Net Pension Liability (Asset)	\$903,034,720	\$(12,458,098)
Percent of Net Position to Pension Liability	95.92%	127.37%

**Actuarial assumptions:** The total pension liability was determined by an actuarial valuation as of July 1, 2015, updated to roll forward to June 30, 2016, using the following actuarial assumptions applied to all prior periods included in the measurement:

<b>Inflation</b>	3.0 percent
<b>Salary Increases</b>	Graded salary ranges from 8.97 to 3.71 percent based on age, including inflation, averaging 4.25 percent
<b>Investment Rate of Return</b>	7.5 percent, net of pension plan investment expense, including inflation
<b>Cost of Living Adjustment</b>	2.5 percent

Mortality rates were based on actual experience from the June 30, 2012 actuarial experience study plus some adjustment for expected future improvement in life expectancy.

The actuarial assumptions used in the July 1, 2015 actuarial valuation were based on the results of an actuarial experience study performed for the period July 1, 2008 through June 30, 2012. 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, 2012 actuarial experience study by considering the following three techniques: (1) the 25-year historical return of the TCRS at June 30, 2012, (2) the historical market returns of asset classes from 1926 to 2012 using the TCRS investment policy asset allocation, and (3) capital market projections that were utilized as a building-block method in which best-estimate ranges of expected future real rate of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. Four sources of capital market projections were blended and utilized in the third technique. The blended capital market projection established the long-term expected rate of return by weighting the expected future real rate of return by the target asset allocation percentage and by adding inflation of 3 percent.

*(continued)*



The target allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Long-Term Expected Real Rate of Return	Target Allocations
U.S. equity	6.46%	33%
Developed market international equity	6.26%	17%
Emerging market international equity	6.40%	5%
Private equity and strategic lending	4.61%	8%
U.S. fixed income	0.98%	29%
Real estate	4.73%	7%
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 7.5 percent based on a blending of the three techniques described above.

**Discount rate:** The discount rate used to measure the total pension liability was 7.5 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 for LEAs using the discount rate of 7.5 percent, as well as what its net pension liability would be if it were calculated using a discount rate that is one percentage point lower (6.5%) or one percentage point higher (8.5%) than the current rate:

Plan	1 percent Decrease (6.5%)	Current Discount Rate (7.5%)	1 percent Increase (8.5%)
Teacher Legacy Pension Plan	\$3,732,101,114	\$903,034,720	\$(1,439,639,926)
Teacher Retirement Plan	\$1,931,585	\$(12,458,098)	\$(23,017,903)

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

	2016	2015	2014
<b>Total pension liability</b>			
Service Cost	\$359,568,654	\$393,173,920	\$404,576,942
Interest	1,582,470,751	1,578,251,721	1,483,656,307
Change of benefit terms	0	0	0
Difference between expected and actual experience	(764,354,573)	46,576,630	0
Change of assumptions	0	0	0
Benefit payments, including refunds of member contributions	(1,138,014,028)	(1,096,410,122)	(1,037,013,093)
<b>Net change in total pension liability</b>	39,670,804	921,592,149	851,220,156
<b>Total pension liability - beginning</b>	<u>22,073,402,943</u>	<u>21,151,810,794</u>	<u>20,300,590,638</u>
<b>Total pension liability - ending (a)</b>	<u>\$22,113,073,747</u>	<u>\$22,073,402,943</u>	<u>\$21,151,810,794</u>
<b>Plan fiduciary net position</b>			
Contributions-employer	\$327,521,593	\$338,301,211	\$348,474,887
Contributions-members	181,763,296	187,121,567	195,520,938
Net investment income	560,785,122	646,526,936	3,054,117,821
Benefit payments, including refunds of member contributions	(1,138,014,028)	(1,096,410,122)	(1,037,013,093)
Administrative expense	(6,893,993)	(5,635,689)	(2,663,319)
<b>Net change in plan fiduciary net position</b>	(74,838,010)	69,903,903	2,558,437,235
<b>Plan fiduciary net position - beginning</b>	<u>21,284,877,037</u>	<u>21,214,973,134</u>	<u>18,656,535,899</u>
<b>Plan fiduciary net position - ending (b)</b>	<u>\$21,210,039,027</u>	<u>\$21,284,877,037</u>	<u>\$21,214,973,134</u>
<b>Net pension liability (asset)- ending (a) - (b)</b>	<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*

<b>Total pension liability</b>	2016	2015
Service Cost	\$28,980,449	\$15,581,497
Interest	2,175,079	\$583,011
Change of benefit terms	0	0
Difference between expected and actual experience	(1,477,409)	0
Change of assumptions	0	0
Benefit payments, including refunds of member contributions	(283,467)	(\$34,531)
<b>Net change in total pension liability</b>	<b>29,394,652</b>	<b>16,129,977</b>
<b>Total pension liability - beginning</b>	<b>16,129,977</b>	<b>0</b>
<b>Total pension liability - ending (a)</b>	<b>\$45,524,629</b>	<b>\$16,129,977</b>
<b>Plan fiduciary net position</b>		
Contributions-employer	17,538,589	\$8,310,132
Contributions-members	21,855,921	10,390,077
Net investment income	1,011,283	294,742
Benefit payments, including refunds of member contributions	(283,467)	(34,531)
Administrative expense	(819,972)	(280,047)
<b>Net change in plan fiduciary net position</b>	<b>39,302,354</b>	<b>18,680,373</b>
<b>Plan fiduciary net position - beginning</b>	<b>18,680,373</b>	<b>0</b>
<b>Plan fiduciary net position - ending (b)</b>	<b>\$57,982,727</b>	<b>\$18,680,373</b>
<b>Net pension liability (asset) - ending (a) - (b)</b>	<b>(\$12,458,098)</b>	<b>(\$2,550,396)</b>

*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**

*Fiscal Year Ended June 30*

	<b>2016</b>	<b>2015</b>	<b>2014</b>
Total pension liability	\$22,113,073,747	\$22,073,402,943	\$21,151,810,794
Plan fiduciary net position	21,210,039,027	21,284,877,037	21,214,973,134
Net pension liability (asset)	<u>\$903,034,720</u>	<u>\$788,525,906</u>	<u>(\$63,162,340)</u>
Plan fiduciary net position as a percentage of the total pension liability	95.92%	96.43%	100.30%
Covered payroll	\$3,622,228,641	\$3,742,270,034	\$3,925,131,835
Net pension liability (asset) as a percentage of covered payroll	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**  
*Fiscal Year Ended June 30*

	<b>2016</b>	<b>2015</b>
Total pension liability	\$45,524,629	\$16,129,977
Plan fiduciary net position	57,982,727	18,680,373
Net pension liability (asset)	(\$12,458,098)	(\$2,550,396)
Plan fiduciary net position as a percentage of the total pension liability	127.37%	115.81%
Covered payroll	\$441,775,131	\$207,753,299
Net pension liability (asset) as a percentage of covered payroll	(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
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	8.88%
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%
2009	233,214,598	233,214,598	0	3,632,637,952	6.42%
2008	218,862,049	218,862,049	0	3,507,360,900	6.24%
2007	204,370,625	204,370,625	0	3,333,693,142	6.13%

(continued)



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

	<u>Actuarially- Determined Contribution</u>	<u>Contributions in Relation to the Actuarially- Determined Contribution</u>	<u>Contribution Deficiency</u>	<u>Covered Payroll</u>	<u>Contributions as a Percentage of Covered Payroll</u>
2016	\$17,538,589	\$17,538,589	\$0	\$441,775,131	3.97%
2015	8,310,132	8,310,132	0	207,753,299	4.00%

(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*

	<u>2016</u>	<u>2015</u>	<u>2014</u>
Annual money-weighted rate of return, net of investment expense	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.*



**TENNESSEE CONSOLIDATED RETIREMENT SYSTEM  
 NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION  
 FOR THE COST-SHARING PLANS**

*Method and assumptions used in calculations of actuarially determined contributions.* The actuarially determined contribution rates for the fiscal year ended June 30, 2016 for Local Education Agencies for the Teacher Legacy Pension Plan were calculated as the result of an actuarial valuation performed as of July 1, 2013. The actuarially determined contribution rates for the fiscal year ended June 30, 2016 for Local Education Agencies for the Teacher Retirement Plan were adopted based on an actuarial study adopted by the TCRS Board of Trustees on March 28, 2014. 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>
<b>Actuarial cost method</b>	Frozen Initial Liability Method	N/A
<b>Amortization method</b>	Level Dollar Amortization	N/A
<b>Remaining amortization period</b>	Eight years	N/A
<b>Inflation</b>	3.0 percent	3.0 percent
<b>Salary increases</b>	Graded salary ranges from 8.97 percent to 3.71 percent, including inflation, averaging 4.25 percent	Graded salary ranges from 8.97 percent to 3.71 percent, including inflation, averaging 4.25 percent
<b>Investment rate of returns</b>	7.50 percent, net of pension plan investment expense, including inflation	7.50 percent, net of pension plan investment expense, including inflation



**SCHEDULE OF ADMINISTRATIVE EXPENSES**  
For the Year Ended June 30, 2016

	<u>Public Employee Retirement Plan</u>	<u>Teacher Retirement Plan</u>	<u>Teacher Legacy Pension Plan</u>	<u>TOTAL</u>
<b>PERSONNEL SERVICES</b>				
Salaries and wages	\$1,721,488	\$113,235	\$952,026	\$2,786,749
Employee benefits	736,693	48,457	407,409	1,192,559
<b>TOTAL PERSONNEL SERVICES</b>	<u>2,458,181</u>	<u>161,692</u>	<u>1,359,435</u>	<u>3,979,308</u>
<b>PROFESSIONAL SERVICES</b>				
Accounting	222,524	14,637	123,062	360,223
Actuarial services	272,397	17,917	150,642	440,956
Information systems	4,890,377	321,673	2,704,498	7,916,548
Management services	124,303	8,176	68,742	201,221
Medical review	21,247	1,398	11,750	34,395
Administrative, Internal Audit, Legal, Personnel	1,598,551	105,149	884,039	2,587,739
<b>TOTAL PROFESSIONAL SERVICES</b>	<u>7,129,399</u>	<u>468,950</u>	<u>3,942,733</u>	<u>11,541,082</u>
<b>COMMUNICATION</b>				
Travel	9,880	650	5,464	15,994
Telephone	119,579	7,865	66,130	193,574
Printing	36,980	2,432	20,451	59,863
Postage	147,231	9,684	81,422	238,337
<b>TOTAL COMMUNICATION</b>	<u>313,670</u>	<u>20,631</u>	<u>173,467</u>	<u>507,768</u>
<b>MISCELLANEOUS</b>				
Office space	86,799	5,709	48,002	140,510
Supplies and maintenance	102,724	6,757	56,809	166,290
Amortization of intangible assets	2,294,222	150,906	1,268,760	3,713,888
Other services and charges	80,985	5,327	44,787	131,099
<b>TOTAL MISCELLANEOUS</b>	<u>2,564,730</u>	<u>168,699</u>	<u>1,418,358</u>	<u>4,151,787</u>
<b>TOTAL ADMINISTRATIVE EXPENSES</b>	<u>\$12,465,980</u>	<u>\$819,972</u>	<u>\$6,893,993</u>	<u>\$20,179,945</u>

With 213,714 active members and 149,315 retired members, the operating cost per member was \$55.59 for the year ended June 30, 2016.

**SCHEDULES OF INVESTMENT EXPENSES FOR THE YEAR ENDED JUNE 30, 2016**

TCRS is invested in the Tennessee Retiree Group Trust (TRGT). The TRGT charges TCRS 13 basis points as a fee to provide funding for the TRGT. For the fiscal year ended June 30, 2016, the TCRS paid \$66,081,402 to the TRGT for investment expenses. See page 62 of this report for detailed information regarding investment expenses for the TRGT.



**TENNESSEE CONSOLIDATED RETIREMENT SYSTEM  
SCHEDULES OF EXPENSES FOR CONSULTANTS  
FOR THE YEAR ENDED JUNE 30, 2016**

**SCHEDULES OF EXPENSES FOR CONSULTANTS  
For the Year Ended June 30, 2016**

	<u>Public Employee Retirement Plan</u>	<u>Teacher Retirement Plan</u>	<u>Teacher Legacy Pension Plan</u>	<u>TOTAL</u>
<b>ACTUARIAL SERVICES</b>				
Bryan, Pendleton, Swats and McAllister	\$272,397	\$17,917	\$150,642	\$440,956
<b>TOTAL ACTUARIAL SERVICES</b>	<u>272,397</u>	<u>17,917</u>	<u>150,642</u>	<u>440,956</u>
<b>CALL CENTER SERVICES</b>				
Empower	397,393	26,139	219,768	643,300
<b>TOTAL CALL CENTER SERVICES</b>	<u>397,393</u>	<u>26,139</u>	<u>219,768</u>	<u>643,300</u>
<b>INFORMATION SYSTEMS SERVICES</b>				
Deloitte Consulting LLP	2,242,657	147,515	1,240,245	3,630,417
The North Highland Company	732,702	48,195	405,203	1,186,100
<b>TOTAL INFORMATION SYSTEMS SERVICES</b>	<u>2,975,359</u>	<u>195,710</u>	<u>1,645,448</u>	<u>4,816,517</u>
<b>LEGAL SERVICES</b>				
Groom Law Group Chartered	7,467	491	4,130	12,088
Ice Miller, LLP	37,816	2,487	20,913	61,216
Williams & Jensen PLLC	62,593	4,117	34,615	101,325
<b>TOTAL LEGAL SERVICES</b>	<u>107,876</u>	<u>7,095</u>	<u>59,658</u>	<u>174,629</u>
<b>MEDICAL REVIEW SERVICES</b>				
Suzanne Fletcher, M.D.	7,165	471	3,963	11,599
Thomas Mullady, M.D.	7,064	465	3,906	11,435
Barry Siegel, M.D.	7,018	462	3,881	11,361
<b>TOTAL MEDICAL REVIEW SERVICES</b>	<u>21,247</u>	<u>1,398</u>	<u>11,750</u>	<u>34,395</u>
<b>TOTAL EXPENSES FOR CONSULTANTS</b>	<u><u>\$3,774,272</u></u>	<u><u>\$248,259</u></u>	<u><u>\$2,087,266</u></u>	<u><u>\$6,109,797</u></u>

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



STATE OF TENNESSEE  
COMPTROLLER OF THE TREASURY  
DEPARTMENT OF AUDIT  
DIVISION OF STATE AUDIT

SUITE 1500, JAMES K. POLK STATE OFFICE BUILDING  
505 DEADERICK STREET  
NASHVILLE, TENNESSEE 37243-1402

PHONE (615) 401-7897  
FAX (615) 532-2765

## Independent Auditor's Report

Members of the General Assembly  
Members of the Tennessee Retiree Group Trust Board  
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 Retiree Group Trust as of June 30, 2016, 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 Retiree Group Trust'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 no such opinion. An audit also includes evaluating the appropriateness of accounting principles used and 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 Tennessee Retiree Group Trust Board. We do not believe that the Comptroller's service in this capacity affected our ability to conduct an independent audit of the Tennessee Retiree Group Trust.

***Opinion***

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the Tennessee Retiree Group Trust of the State of Tennessee as of June 30, 2016, 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 Matters***

As discussed in Note A.1., the financial statements present only the Tennessee Retiree Group Trust, and do not purport to, and do not, present fairly the financial position of the State of Tennessee, as of June 30, 2016 and the changes in financial position thereof 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.

As discussed in Note B, the financial statements of the Tennessee Retiree Group Trust include investments valued at \$6,047,213,901 (14 percent of net position) whose fair values have been estimated by management in the absence of readily determinable fair values. Management's estimates are based on information provided by the fund managers or the general partners. Our opinion is not modified with respect to this matter.

***Other Reporting Required by Government Auditing Standards***

In accordance with *Government Auditing Standards*, we have also issued our report dated December 21, 2016, on our consideration of the Tennessee Retiree Group Trust'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 Retiree Group Trust's internal control over financial reporting and compliance.

Deborah V. Loveless, CPA  
Director  
December 21, 2016

(continued)

STATEMENT OF FIDUCIARY NET POSITION

JUNE 30, 2016

*(Expressed in Thousands)*

ASSETS

Cash and cash equivalents	\$ 493,190
Cash collateral for securities on loan	7,519,497
Receivables	
Investment income receivable	126,953
Derivative instruments receivable	519,649
Investments sold	611,089
Total Receivables	<u>1,257,691</u>
Investments at fair value	
Government securities	8,551,388
Corporate securities	5,140,192
Corporate stocks	22,979,833
Derivative instruments	5,268
Strategic lending	1,398,215
Private equities	1,485,193
Real estate	3,163,805
Total Investments	<u>42,723,894</u>
 TOTAL ASSETS	 <u>\$ 51,994,272</u>

LIABILITIES AND NET POSITION

LIABILITIES

Investments purchased	\$731,420
Other investments payables	9,329
Derivative instrument payable	524,686
Cash collateral for securities on loan	7,519,497
TOTAL LIABILITIES	<u>\$ 8,784,932</u>
 NET POSITION HELD IN TRUST FOR POOL PARTICIPANTS	 <u><u>\$ 43,209,340</u></u>

*See Accompanying Notes to the Financial Statements*



STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
FOR THE YEAR ENDED JUNE 30, 2016

(Expressed in Thousands)

OPERATIONS

INVESTMENT INCOME

Net appreciation in fair value of investments	\$ 116,065
Income on securities	1,045,665
Total investment income	<u>1,161,730</u>
Less: Investment expense	<u>48,584</u>
Net income from investing activities	1,113,146

Securities lending activities

Securities lending income	48,258
Less: Securities lending expense	<u>17,888</u>
Net income from securities lending activities	<u>30,370</u>

NET INVESTMENT INCOME 1,143,516

CAPITAL SHARE TRANSACTIONS

Net shares sold	43,618,201
Net shares redeemed	<u>1,552,377</u>

TOTAL INCREASE FROM CAPITAL SHARE TRANSACTIONS 42,065,824

NET INCREASE IN FIDUCIARY NET POSITION \$ 43,209,340

NET POSITION RESTRICTED FOR PARTICIPANTS

NET POSITION, BEGINNING OF PERIOD 0

NET POSITION, END OF PERIOD \$ 43,209,340

See Accompanying Notes to the Financial Statements



## A: Summary of Significant Accounting Policies

**Reporting entity:** The Tennessee Retiree Group Trust (TRGT) is an external investment pool sponsored by the State of Tennessee. The external portion of the TRGT consists of funds belonging to entities outside of the State of Tennessee Financial Reporting Entity, and has been included as a separate investment trust fund in the Tennessee Comprehensive Annual Financial Report. The internal portion, consisting of funds belonging to the State and its component units, has been included in the various participating funds and component units in the Tennessee Comprehensive Annual Financial Report.

**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.

**Cash and cash equivalents:** Cash and cash equivalents includes cash and short-term investments with a maturity date within three months of the acquisition date. Cash management pools are included as cash. Cash received that cannot be immediately invested in securities, or that is needed for operations, is invested in either the State Pooled Investment Fund sponsored by the State of Tennessee and administered by the State Treasurer or in the State Street Government Money Market Fund, a short-term, open-end mutual fund under the contractual arrangement for master custody services. The balance in this investment at June 30, 2016 was \$12,176,373.

**Method used to value investments and participant shares:** 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.

GASB Statement No. 72, *Fair Value Measurement and Application*, which was adopted during the fiscal year ended June 30, 2016, addresses accounting and reporting issues related to fair value measurements. This Statement requires disclosures to be made about fair value measurements, the level of fair value hierarchy, and valuation techniques.

The fair value of assets of the TRGT held at June 30, 2016 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 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).

(continued)

- 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 principals 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)*



**INVESTMENTS MEASURED AT FAIR VALUE**

**As of June 30, 2016**

*Expressed in Thousands*

<b>Investments at Fair Value Level</b>	<b>GAAP Hierarchy Level 1</b>	<b>GAAP Hierarchy Level 2</b>	<b>GAAP Hierarchy Level 3</b>	<b>NAV</b>	<b>Total Investments</b>
Common Stock	\$20,067,394	\$23,610	\$1,425	0	\$20,092,429
Real Estate & REIT's	510,415		2,473,066		2,983,481
Limited Partnership Units	458		135,402	2,747,549	2,883,409
Mutual Funds	2,069,870			236,586	2,306,456
Real Estate Limited Partnership Units				690,954	690,954
Depository Receipts	70,066				70,066
Rights	252				252
US Government Issues	4,623,983	196,073			4,820,056
Agency Securities		3,550,993	7,018		3,558,011
Corporate Bonds		4,074,409	24,458		4,098,867
Municipals		170,627	2,694		173,321
Other Asset Backed		297,892	12,587		310,479
CMO's		433,878	10,810		444,688
Auto Loans and Receivables		233,743			233,743
Preferred Stock	45,344	7,070			52,414
Derivative Instruments			5,268		5,268
<b>TOTAL INVESTMENTS AT FAIR VALUE</b>	<b>\$27,387,782</b>	<b>\$8,988,295</b>	<b>\$2,672,728</b>	<b>\$3,675,089</b>	<b>\$42,723,894</b>
Cash and Cash Equivalents					\$493,190
Cash Collateral on Loaned Securities					7,519,497
Other Receivables					611,089
Investment Income Receivable					126,953
Futures Receivable					519,649
<b>TOTAL FINANCIAL STATEMENT ASSETS</b>					<b>\$51,994,272</b>

*(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	67	2,747,549	Various	N/A	Various transfer and sale restrictions
Mutual Funds	International Public Equities	25	236,586	N/A	May Redeem all or part of the shares with at least fifteen (15) days written notice prior to the last business day of each month	Redemptions may be distributed in cash, in-kind or a combination and are subject to further restrictions by the fund’s trustees
Real Estate Limited Partnerships	Real Estate Commingled Investments	16	690,954	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, secondaries, 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.

**International Public Equities using Mutual Funds:** TRGT will invest in mutual funds as an efficient and cost-effective means to gain passive exposure to a specific sector, industry or country. As of June 30, 2016, TRGT has retained Baring International Investment Limited to facilitate an international equity investment strategy utilizing, in part, sector and country index mutual funds.

**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.

(continued)

## B: 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.

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, an amount not to exceed twenty-five percent (25 percent) of the total of the funds of the trust may be invested in securities of the same kinds, classes, and investment grades as those otherwise eligible for investment in various approved foreign countries, provided that such percentage may be increased by the board with the subsequent approval of the council on pensions and insurance.
- 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 real estate shall not exceed ten percent (10 percent) of the market value of total assets.
- g. The total sum invested in private equities shall not exceed ten percent (10 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

(continued)

(10 percent) of the market value of the TRGT's total assets. Gross exposure to approved fixed income financial instruments will be limited to ten percent (10 percent) of the market value of the Trust's total assets for risk mitigating positions and 10 percent (10 percent) for risk positions. 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, 2016:

<u>Authorized Asset Class</u>	<u>Target Allocation</u>
U.S. equity	33%
Canadian equity	4%
Developed market international equity	13%
Emerging market international equity	5%
Private equity	3%
U.S. fixed income	25%
Inflation indexed fixed income	4%
International fixed income	0%
Strategic lending	5%
Real estate	7%
Short-term securities	1%
Total	100%

**Securities Lending:** The TRGT is authorized to invest in securities lending investments 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 cash as collateral. 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 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

(continued)



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. At June 30, 2016, the TRGT had the following

## SECURITIES LENDING

As of June 30, 2016

### Fair Value of Securities on Loan

Securities on Loan	Fair Value of Securities on Loan	Cash Collateral Received
Fixed	\$3,353,830,382	\$3,437,098,948
Equity	3,983,496,475	4,082,398,327
Total	\$7,337,326,857	\$7,519,497,275

**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 <http://www.tn.gov/treasury/>.

(continued)



At June 30, 2016, the TRGT had the following investments:

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

**As of June 30, 2016**

*Expressed in Thousands*

Rating	Fair Value (in thousands)	Percentage of Total Investments
AAA	\$643,178	1.506%
AA	406,395	0.951%
A	976,943	2.287%
BBB	2,697,536	6.315%
BB	335,910	0.786%
B	48,673	0.114%
CCC	76,293	0.179%
CC	1,021	0.002%
D	27,087	0.063%
NR	<u>2,951,800</u>	6.910%
	\$8,164,836	
U. S. Government Agencies and Obligations explicitly guaranteed by the U. S. Government	<u>5,862,038</u>	
Total Fixed Income Securities	\$14,026,874	
Equity	\$22,979,833	
Real Estate	3,163,805	
Private Equities	1,485,193	
Strategic Lending	1,398,215	
Preferred Stock Classified as Fixed Income	52,414	
Derivative Instruments (not rated)	5,268	
Add Back Short term investment fund with custodian (NR)	(12,176)	
Add Back Short term investments classified as cash (NR)	<u>(375,532)</u>	
<b>Total Investments as shown on Fiduciary Net Position</b>	<b><u>\$42,723,894</u></b>	

(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, 2016.

### EFFECTIVE DURATION OF DEBT INVESTMENTS

**As of June 30, 2016**

*Expressed in Thousands*

Investment Type	Fair Value As of June 30, 2016	Effective Duration (years)
Government Agencies	\$361,747	3.04
Government Bonds	2,644,987	14.14
Government Inflation Indexed	2,232,696	8.54
Government Mortgage Backed	3,252,992	2.56
Government Asset Backed	38,867	11.77
Municipal Bonds	173,322	10.36
Commercial Mortgage Backed	330,334	2.02
Corporate Asset Backed Securities	505,354	1.74
Corporate Bonds	4,098,867	9.88
Short Term Investments	375,532	0.00
Cash Equivalents	12,176	0.00
Total Debt Investments	\$14,026,874	8.14

**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, 2016 was \$330,333,713 of which \$180,253,775 were CMOs that are generally more sensitive to interest rate changes.

*(continued)*

**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, 2016

Expressed in Thousands

Currency	Total Fair Value			
	June 30, 2016	Fixed Income	Equity	Cash
Australian Dollar	\$242,917	\$0	\$241,463	\$1,454
British Pound Sterling	1,081,235	0	1,073,734	7,501
Canadian Dollar	1,542,205	0	1,542,322	(117)
Danish Krone	138,475	0	138,431	44
Euro Currency	1,390,844	0	1,364,013	26,831
Hong Kong Dollar	183,929	0	183,139	790
Japanese Yen	1,271,723	0	1,260,282	11,441
New Israeli shekel	18,442	0	18,331	111
New Zealand Dollar	3,734	0	3,734	0
Norwegian Krone	35,204	0	35,204	0
Singapore Dollar	32,754	0	32,640	114
Swedish Krona	135,826	0	135,712	114
Swiss Franc	410,093	0	409,677	416
<b>Total</b>	<b>\$6,487,381</b>	<b>\$0</b>	<b>\$6,438,682</b>	<b>\$48,699</b>

**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 \$48,699,421 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 2.78 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, 2016, 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)



**Foreign Currency Forward Contracts** - The international securities expose the TRGT to potential losses due to a possible rise in the value of the US dollar. The TRGT investment managers can reduce foreign currency exposure by selling foreign currency forward contracts, at agreed terms and for future settlement, usually within a year. The manager will reverse the contract by buying the foreign currency before the settlement date. A gain (loss) on this transaction pair will hedge a loss (gain) on the currency movement of the international security. The TRGT can sell up to 80% of its foreign currency exposure into US dollars. Foreign currency forward contracts expose the TCRS to foreign currency risk as they are denominated in foreign currency. Any unrealized gain on foreign currency forward contracts has been reflected in the financial statements as an investment. The notional amount of the foreign currency forward contracts has been reflected in the financial statements as a receivable and a payable. Any unrealized loss on foreign currency forward contracts has been included in the payable established for the contracts.

**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.

**Options** - The TRGT is authorized to enter into option contracts and any income earned on option contracts has been included in investment income in the financial statements.

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, 2016**

*Expressed in thousands*

	Changes in Fair Value		Fair Value at June 30, 2016		
	Financial Statement Classification	Amount	Financial Statement Classification	Amount	Notional Amount Currency
<b>Foreign Currency</b>					
<b>Forward Contracts</b>					
		\$(120)		\$(120)	21,132 EUR
		3,043		3,043	26,601 GBP
		<u>(1,009)</u>		<u>(1,009)</u>	3,232,116 JPY
	Investment Income	\$1,914	Derivative Instruments	\$1,914	
			Derivative Instruments		
<b>Futures Contracts</b>	Investment Income	\$64,490	Payable	\$(5,058)	\$930,741
<b>TBA Mortgage</b>					
<b>Backed Securities</b>	Investment Income	\$3,354	Derivative Instruments	\$3,354	\$419,374

(continued)



The fair values of foreign currency forward contracts are estimated based on the present value of their estimated future cash flows. Futures, Options and TBA mortgage backed securities are exchange traded and their price is based on quoted market prices at year end. It is the TRGT policy to conduct derivative transactions through the custodian bank and high quality money center banks or brokerage firms. The credit risk of foreign currency forward contracts is managed by limiting the term of the forward contracts and restricting the trading to high quality banks. The credit risk of futures contracts is managed by maintaining a daily variation margin.

**Alternative Investments:** The TRGT has investments in strategic lending, private equity funds and real estate with an estimated fair value of \$6,047,213,901 at June 30, 2016. Because these investments are not readily marketable, the estimated value is subject to uncertainty and, therefore, may differ from the value that would have been used had a ready market for the investments existed, and such differences could be material. Title to real property invested in by TRGT is held by real estate investment holding companies.

**Commitments:**

**Standby Commercial Paper Purchase Agreement:** The TRGT has agreed to serve as standby commercial paper purchaser for commercial paper issued by the Funding Board of the State of Tennessee. By serving as a standby commercial paper purchaser, the TRGT receives an annual fee of 25 basis points on the \$350 million maximum issuance under this agreement during times when both Moody's and Standard and Poor's investment ratings assigned to the State of Tennessee's general obligation bonds are Aaa and AAA respectively, 40 basis points during times when either Moody's or Standard and Poor's has assigned ratings of Aa and AA respectively, or 55 basis points during times when either Moody's or Standard and Poor's has assigned ratings lower than Aa and AA respectively. In the unlikely event that the TRGT would be called upon to purchase the commercial paper, the TRGT would receive interest at a rate equal to prime plus 75 basis points during the first 30 consecutive days, plus an additional 50 basis points for each consecutive 30 days thereafter, up to a maximum rate allowed by state law.

**Alternative Investments:** The TRGT had unfunded commitments of \$2,553,633,278 in private equity, strategic lending, and real estate commitments at year end.

(continued)

**TENNESSEE RETIREE GROUP TRUST  
SCHEDULE OF INVESTMENT EXPENSES**



**For the Year Ended June 30, 2016**

Investment-related Personnel Services:	
Salaries and Wages	\$3,842,136
Employee Benefits	1,066,990
Total Personnel Services	4,909,126
Investment-related Professional Services:	
Accounting	368,851
Legal Services	151,762
Data Processing	437,941
Information Systems	408,145
Management Services	82,962
Securities Lending Fees	17,888,308
Alternative Asset Fees	37,128
External Investment Manager Fees	21,669,984
Investment Consulting Fees	1,388,580
Investment Custodian Fees	650,004
Legal Fees	294,130
Real Estate Manager Fees	13,314,203
Other Investment Professional Fees	472,299
Other Investment Transaction Fees	2,930,462
Administration, Internal Audit, Personnel	1,081,428
Total Professional Services	61,176,187
Communication:	
Travel	172,257
Telephone	37,151
Printing	2,520
Postage	1,185
Total Communication	213,113
Miscellaneous:	
Office Space	101,747
Supplies and Maintenance	1,973
Equipment	34,474
Other Services and Charges	35,667
Total Miscellaneous	173,861
Total Investment Expenses	\$66,472,287