



Teachers  
Retirement  
System of  
Georgia

A COMPONENT UNIT OF  
THE STATE OF GEORGIA

# COMPREHENSIVE ANNUAL FINANCIAL REPORT

FISCAL YEAR ENDED JUNE 30, 2017



Teachers  
Retirement  
System of  
Georgia

# Comprehensive Annual Financial Report

Fiscal Year Ended June 30, 2017

Prepared by the  
Financial Services Division of the  
Teachers Retirement System of Georgia

**L. C. (Buster) Evans, Ed.D.**  
**Executive Director**

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# CERTIFICATE OF ACHIEVEMENT



Government Finance Officers Association

## Certificate of Achievement for Excellence in Financial Reporting

Presented to

### **Teachers Retirement System of Georgia**

For its Comprehensive Annual  
Financial Report  
for the Fiscal Year Ended

**June 30, 2016**

Executive Director/CEO

# BOARD OF TRUSTEES

as of December 1, 2017\*\*



Mr. J. Alvin Wilbanks\*  
**CHAIR**  
School Administrator  
Appointed by the Governor  
Term Expires 6/30/19



Mr. Thomas W. Norwood\*  
**VICE-CHAIR**  
Investment Professional  
Elected by the Board of Trustees  
Term Expires 6/30/20



Ms. Anne Cardella  
Classroom Teacher  
Appointed by the Governor  
Term Expires 6/30/20



Ms. Marion R. Fedrick  
TRS Member  
Appointed by the  
Board of Regents  
Term Expires 6/30/18



Mr. Greg S. Griffin\*  
State Auditor  
Ex-Officio



Mr. Steven N. McCoy\*  
State Treasurer  
Ex-Officio



Ms. Deborah K. Simonds\*  
Retired Teacher  
Elected by the Board of Trustees  
Term Expires 6/30/18



Dr. William G. Sloan, Jr.\*  
Member-at-Large  
Appointed by the Governor  
Term Expires 6/30/20



Mr. Christopher M. Swanson  
Classroom Teacher  
Appointed by the Governor  
Term Expires 3/31/18

\* Investment Committee Member

\*\*There is one vacancy on the Board.

# LETTER OF TRANSMITTAL

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Teachers  
Retirement  
System of  
Georgia



L.C. (Buster) Evans, Ed.D.  
Executive Director

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December 11, 2017  
Board of Trustees  
Teachers Retirement System of Georgia  
Atlanta, Georgia

I am pleased to present the Comprehensive Annual Financial Report of the Teachers Retirement System of Georgia (the System) for the fiscal year ended June 30, 2017. Responsibility for both the accuracy of the data, and completeness and fairness of the presentation, including all disclosures, rests with the management of the System. To the best of our knowledge and belief, the enclosed data is accurate in all material respects and is reported in a manner designed to present fairly the financial position and results of operations of the System. I trust that you will find this report helpful in understanding your retirement system.

## Certificate of Achievement

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Teachers Retirement System of Georgia for its Comprehensive Annual Financial Report for the fiscal year ended June 30, 2016. This was the 29th consecutive year that the System has achieved this prestigious award.

In order to be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized Comprehensive Annual Financial Report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe our current Comprehensive Annual Financial Report

continues to meet the Certificate of Achievement Program's requirements, and we are submitting it to the GFOA to determine its eligibility for another certificate.

## History and Overview

The System was created in 1943, by an act of the Georgia General Assembly to provide retirement security to those individuals who choose to dedicate their lives to educating the children of the State of Georgia, and began operations in 1945. A summary of the System's provisions is provided on pages 11-13 of this report.

The System is governed by a ten-member Board of Trustees which appoints the Executive Director who is responsible for the administration and operations of the System, which serves 447,071 active and retired members, and 310 employers.

## Financial Information

The management of the System is charged with the responsibility of maintaining a sound system of internal accounting controls. The objectives of such a system are to provide management with reasonable assurance that assets are safeguarded against loss from unauthorized use or disposition, that transactions are executed in accordance with management's authorizations, and that they are recorded properly to permit the preparation of financial statements in accordance with generally accepted accounting principles. The concept of reasonable assurance recognizes the cost of a control should not exceed the benefits

likely to be derived. Therefore, the objective is to provide reasonable, rather than absolute assurance, that the financial statements are free of any material misstatements. Even though there are inherent limitations in any system of internal control, the management of the System makes every effort to ensure that through systematic reporting and internal reviews, errors or fraud would be quickly detected and corrected.

Please refer to Management's Discussion and Analysis beginning on page 16 of this report for an overview of the financial status of the System, including a summary of the System's Fiduciary Net Position, Changes in Fiduciary Net Position, and Asset Allocations.

**INVESTMENTS** — The System has continued to invest in a mix of liquid, high quality bonds and stocks as it historically has done. These types of investments have allowed the System to participate in rising markets, while moderating the risks on the downside. A high quality balanced fund has proven to be a successful strategy in a variety of markets over a long period of time. A combination of improving economic growth, low inflation and low interest rates combined to boost U.S. equity returns to over 18% for the fiscal year. A comparative analysis of rates of return is presented on page 42. For additional information and analysis pertaining to investment policies and strategies, asset allocations, and yield, see Management's Discussion and Analysis beginning on page 16 and the Investment Section beginning on page 41. The System addresses the safeguarding of investments by requiring that they be held by agent custodial banks in the name of the System and that deposits are insured by the Federal Deposit Insurance Corporation.

As in previous years, maintaining quality was a primary goal and was successfully met. "Conservation of Capital" and "Conservatism" continue to be the guiding principles for investment decisions. The System continued to use a diversified portfolio to accomplish these objectives.

**FUNDING** — The System's funding policy provides for employee and employer contributions at rates, expressed as a percentage of annual covered payroll, that are sufficient to provide resources to pay benefits when due.

A useful indicator of the funded status of a retirement system is the relationship between the actuarial value of assets and the actuarial accrued liabilities. The System continues to remain strong as evidenced by the ratio of the actuarial value of assets to the actuarial accrued liabilities. This ratio was 74.3% for the fiscal year ended June 30, 2016. The ultimate test of the financial soundness

of a retirement system is its ability to pay all promised benefits when due. I am proud to say that through the continued wisdom and the support of Governor Nathan Deal and the Georgia General Assembly, the System has been and will continue to be funded on an actuarially sound basis, thus providing the membership the comfort and security they expect from their retirement system.

## Initiatives

TRS continuously monitors and works to improve all aspects of public pension management. Our executive management team worked closely with the Georgia State Financing and Investment Commission providing detailed pension, financial, and actuarial information for disclosure in the State's bond offerings. TRS is pleased to work diligently with the State of Georgia to maintain the State's coveted AAA bond ratings.

Maintaining our financial security and stability remained a top priority. The dedicated experts with our Division of Investment Services achieved a 12.5% rate of return, enhancing the System's portfolio. The continued recovery in the financial markets is only one positive funding impact TRS monitored this last year. Actively contributing membership numbers increased, new retirement benefit payments and member withdrawals decreased slightly, and restored salary increases to public employees will have a positive impact on the System's future financial stability and security.

The reporting of the System's financial statements remained a priority, and I am pleased to report TRS received an unmodified opinion for both the financial statement audit as of June 30, 2017 and the audit of the Schedule of Employer and Nonemployer Allocations (GASB 68) as of June 30, 2016. The full report of the System's financial audit is available on pages 14-15. The GASB 68 audit is available on our website at <http://www.trsga.com/employer/pension-accounting-changes/gasb-68-audit-reports>.

Knowing where an agency is heading in the future is vital to its success and TRS makes our future a priority. We successfully completed the Strategic Plan for FY 2017 - 2020 and developed an agency succession plan for implementation to maintain business continuity. TRS will welcome two new executives to our team this coming year: Randy Dennis, Chief Financial Officer and Brooke Lucas, Chief Operating Officer—both of whom will bring varying expertise and a number of years in state government administrative experience.

Security of the System's technology system and member data is a vital component of our work here at TRS. TRS successfully



# LETTER OF TRANSMITTAL

*continued*



passed two network security audits conducted by a private sector security firm and completed our annual IT audit with no issues identified. Network segmentation was designed and implemented to prevent access to resources and sensitive data and internal vulnerability scanning was implemented.

Customer access was enhanced with automated business processes, including improved response time and scalability on tablets and mobile devices. In an effort to increase communication with our members, TRS established a presence on social media via Twitter and Facebook. To continue our education efforts, we piloted two new programs: 1) group counseling and 2) mid-career counseling programs. Both programs were designed to effectively communicate with our members.

## Other Information

**INDEPENDENT AUDIT** — The Board of Trustees requires an annual audit of the financial statements of the System by independent, certified public accountants. The accounting firm of KPMG LLP was selected by the Board. The independent auditors' report on the statements of plan fiduciary net position and the related statements of changes in plan fiduciary net position is included in the Financial Section of this report.

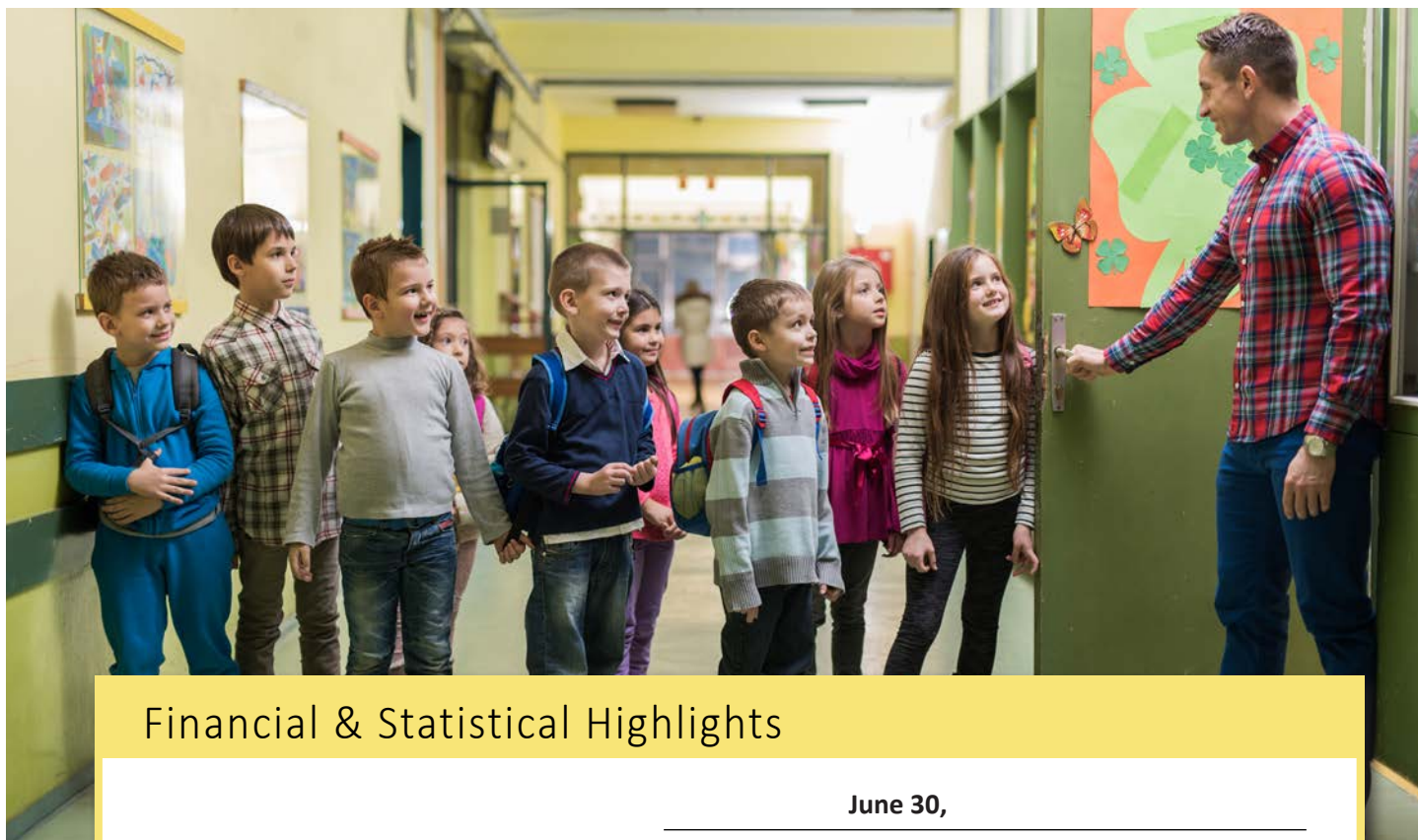
**ACKNOWLEDGMENTS** — The compilation of this report reflects the combined effort of the staff under the leadership of the Board of Trustees. It is intended to provide complete and reliable information as a basis for making management decisions, as a means of determining compliance with legal provisions, and as a means for determining responsible stewardship of the assets contributed by the System's members, their employers, and the State of Georgia.

Copies of this report can be obtained by contacting the System, or may be downloaded from the System's website.

I would like to take this opportunity to express my gratitude to Governor Nathan Deal, members of the Georgia General Assembly, the staff, the advisors, and to the many people who have worked so diligently to ensure the successful operation of the System.

Sincerely,

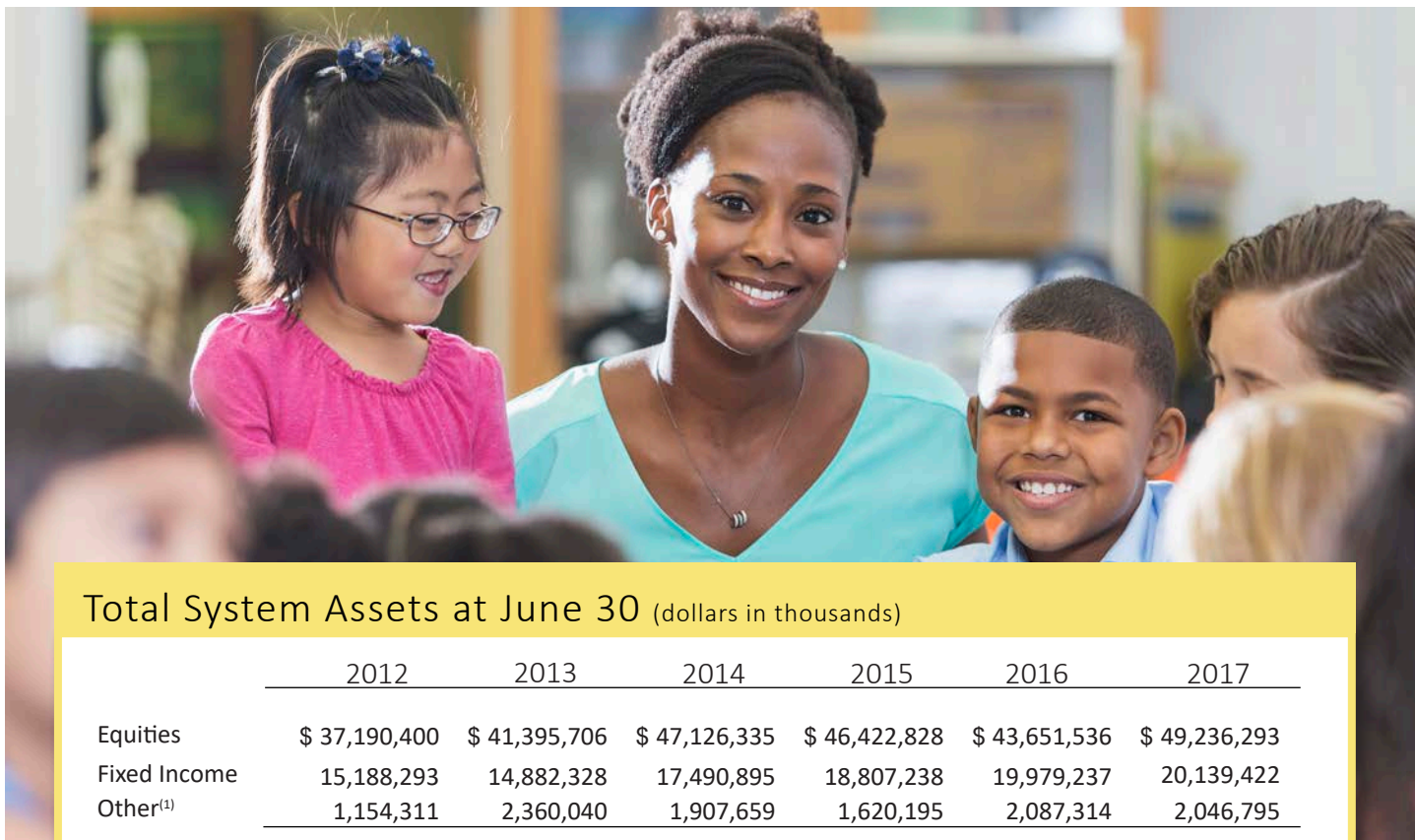
L.C. (Buster) Evans, Ed.D.  
Executive Director



## Financial & Statistical Highlights

	June 30,		
	2017	2016	% Change
<b>Financial Highlights</b>			
Member Contributions	\$ 716,233,000	\$ 685,626,000	+ 4.5
Employer and Nonemployer Contributions	\$ 1,654,844,000	\$ 1,580,532,000	+ 4.7
Interest and Dividend Income	\$ 1,490,357,000	\$ 1,442,252,000	+ 3.3
Benefits Paid to Retired Members	\$ 4,461,124,000	\$ 4,228,819,000	+ 5.5
Member Withdrawals	\$ 76,296,000	\$ 79,334,000	- 3.8
Interest Credited to Member Contributions	\$ 335,146,000	\$ 320,388,000	+ 4.6
<b>Statistical Highlights</b>			
Active Membership	222,918	218,215	+ 2.2
Members Leaving the System	7,296	7,383	- 1.2
Retired Members	122,629	117,918	+ 4.0
Average Monthly Benefit	\$ 3,032	\$ 2,989	+ 1.4

# SYSTEM ASSETS



Total System Assets at June 30 (dollars in thousands)

	2012	2013	2014	2015	2016	2017
Equities	\$ 37,190,400	\$ 41,395,706	\$ 47,126,335	\$ 46,422,828	\$ 43,651,536	\$ 49,236,293
Fixed Income	15,188,293	14,882,328	17,490,895	18,807,238	19,979,237	20,139,422
Other <sup>(1)</sup>	1,154,311	2,360,040	1,907,659	1,620,195	2,087,314	2,046,795
<b>Total System Assets</b>	<b>\$ 53,533,004</b>	<b>\$ 58,638,074</b>	<b>\$ 66,524,889</b>	<b>\$ 66,850,261</b>	<b>\$ 65,718,087</b>	<b>\$ 71,422,510</b>



<sup>(1)</sup> Includes receivables, cash and cash equivalents, and capital assets, net.

# ADMINISTRATIVE STAFF & ORGANIZATION



Dr. L.C. (Buster) Evans  
Executive Director



Stephen J. Boyers  
Chief Financial Officer



Charles W. Cary, Jr.  
Chief Investment Officer  
Investment Services



R. Cory Buice  
Director  
Retirement Services



K. Paige Donaldson  
Director  
Employer Services and  
Contact Management



Lisa M. Hajj  
Director  
Communications



Dina N. Jones  
Director  
Member Services



Laura L. Lanier  
Controller  
Financial Services



J. Gregory McQueen  
Director  
Information Technology

## Consulting Services

### Actuary

Cavanaugh Macdonald  
Consulting, LLC

### Auditor

KPMG LLP

## Medical Advisors

Gordon J. Azar, M.D.  
Atlanta, Georgia  
William Biggers, M.D.  
Atlanta, Georgia  
Marvin Bittinger, M.D.  
Gainesville, Georgia  
Pedro Garcia, M.D.  
Atlanta, Georgia  
Harold Sours, M.D.  
Atlanta, Georgia  
Joseph W. Stubbs, M.D.  
Albany, Georgia

## Investment Advisors\*

Albritton Capital Management  
Baillie Gifford Overseas Limited  
Barrow, Hanley, Mewhinney & Strauss  
Cooke & Bieler  
Fisher Investments  
Mondrian Investment Partners Limited  
Sands Capital Management

\* See page 43 in the Investment Section for a summary of fees paid to investment advisors.

The Director of Human Resources position was vacant at June 30, 2017.

# SUMMARY OF PLAN PROVISIONS

## Our Purpose

The Teachers Retirement System of Georgia (the System) was established in 1943, by an act of the Georgia General Assembly for the purpose of providing retirement allowances and other benefits for teachers of the State, and began operations in 1945. The System has the power and privileges of a corporation and the right to bring and defend actions.

The major objectives of the System are (1) to pay monthly benefits due to retirees accurately and in a timely manner, (2) to soundly invest retirement funds to ensure adequate financing for future benefits due and for other obligations of the System, (3) to accurately account for the status and contributions of all active and inactive members, (4) to provide statewide educational and counseling services for System members, and (5) to process refunds due to terminated members.



- one active member of the System who is not an employee of the Board of Regents
- one member-at-large

Board of Regents appointee:

- one active member of the System who is an employee of the Board of Regents

Trustee appointees:

- one member who has retired under the System
- one individual who is a citizen of the State, not a member of the System, and experienced in the investment of money

A complete listing of the current Board of Trustees is included on page 4 of this report.

## Administration

State statutes provide that the administration of the System be vested in a ten-member Board of Trustees comprised as follows:

Ex-officio members:

- the State Auditor
- the State Treasurer

Governor's appointees:

- two active members of the System who are classroom teachers and not employees of the Board of Regents
- one active member of the System who is a public school administrator

Management of the System is the responsibility of the Executive Director who is appointed by the Board and serves at its pleasure. On behalf of the Board, the Executive Director is responsible for the proper operation of the System, engaging such actuarial and other services as shall be necessary to transact business, and paying expenses necessary for operations. A listing of the administrative staff is included on page 10 of this report.

## Membership

All personnel employed in a permanent status position, and not less than one-half time, with local boards of education, charter schools, universities and colleges, technical colleges, Board of Regents, county

# SUMMARY OF PLAN PROVISIONS

*continued*

and regional libraries, RESAs, and certain State of Georgia agencies are required to be members as a condition of employment. Exceptions to TRS membership include employees required to participate in another Georgia retirement plan or employees who may elect the Board of Regents Optional Retirement Plan in lieu of TRS membership.

## Eligibility

### *Service Retirement*

Active members may retire and elect to receive monthly retirement benefits after one of the following conditions: 1) completion of 10 years of creditable service and attainment of age 60, or 2) completion of 25 years of creditable service.

### *Disability Retirement*

Members are eligible to apply for monthly retirement benefits under the disability provision of the law if they are an active member, have at least 10 years of creditable service, and are permanently disabled.

## The Formula

### *Normal Retirement*

Any member who has at least 30 years of creditable service or who has at least 10 years of creditable service and has attained age 60 will receive a benefit calculated by using the percentage of salary formula. Simply stated, two percent (2%) is multiplied by the member's years of creditable service established with the System, including partial years (not to exceed 40 years). The product is then multiplied by the average monthly salary for the two highest consecutive membership years of service. The resulting product is the monthly retirement benefit under the maximum plan of retirement.

### *Early Retirement*

Any member who has not reached the age of 60 and has between 25 and 30 years of creditable service will receive a reduced benefit. The benefit will be calculated using the percentage of salary formula explained above. It will then be reduced by the lesser of 1/12 of 7% for each month the member is below age 60 or 7% for each year or fraction thereof the member has less than 30 years of creditable service. The resulting product is the monthly retirement benefit under the maximum plan of retirement.

### *Disability Retirement*

Disability retirement benefits are also calculated using the percentage of salary formula explained above. The resulting product

is the monthly disability retirement benefit under the maximum plan. You must have at least 10 years of creditable service to qualify; however, there is no age requirement for disability retirement.

## Plan A - Maximum Plan of Retirement

This plan produces the largest possible monthly benefit payable to the member only during his or her lifetime. There are no survivorship benefits under this plan.

## Plan B - Optional Plans of Retirement

Upon retirement, a member of the System may elect one of six optional plans that provide survivorship benefits. The election of an optional form of payment is made upon application for retirement and it becomes irrevocable upon distribution of the first benefit check. The six options are as follows:

### *Option 1*

The retiring member accepts a relatively small reduction from the maximum monthly benefit in order to guarantee to the estate, beneficiary, or beneficiaries named on the retirement application, a lump-sum refund of any remaining portion of member contributions and interest.

### *Option 2*

This plan offers the retiring member a reduced monthly benefit, based on the ages of the member and the beneficiary, payable for life. It further provides a guarantee to the surviving named beneficiary that, at the death of the retired member, the beneficiary will receive the same basic monthly retirement allowance the member received at the date of retirement plus any cost-of-living increases the member received up to the time of death.

### *Option 2 Pop-Up*

Any member may elect a reduced retirement allowance to be designated "Option 2 Pop-Up" with the provision that if the beneficiary dies prior to the retiree that the basic benefit payable to the retiree shall increase to an amount the retiree would have received under Plan A - Maximum Plan.

### *Option 3*

This plan of retirement offers a reduced monthly benefit that is based on the ages of the member and the beneficiary. The resulting benefit is paid to the retired member for life, with the guarantee to the surviving named beneficiary that at the time of the retired member's death, the beneficiary will receive a

# SUMMARY OF PLAN PROVISIONS

*continued*



payment for life of one-half of the initial monthly benefit received by the member at the time of retirement plus one-half of any cost-of-living increases the member received up to the time of death.

### *Option 3 Pop-Up*

Any member may elect a reduced retirement allowance to be designated “Option 3 Pop-Up” with the provision that if the beneficiary dies prior to the retiree, the basic benefit payable to the retiree shall increase to the amount the retiree would have received under Plan A - Maximum Plan.

### *Option 4*

This option offers a reduced monthly lifetime benefit in exchange for the flexibility to designate a specific dollar amount or percentage of your monthly benefit to be paid to your beneficiary after your death. The beneficiary benefits you specify under this plan cannot cause your monthly benefit to be reduced below 50% of the maximum benefit available to you. If multiple beneficiaries predecease you, the dollar amounts for the percentages are not adjusted. Beneficiaries also receive a prorated share of any cost-of-living increases you received up to the date of death.

### **Partial Lump-Sum Option Plan**

TRS offers a Partial Lump-Sum Option Plan (PLOP) at retirement. In exchange for a permanently reduced lifetime benefit, a member

may elect to receive a lump-sum distribution in addition to a monthly retirement benefit. The age of the member and plan of retirement are used to determine the reduction in the benefit.

A member is eligible to participate in the Partial Lump-Sum Option Plan if he or she meets the following criteria. A member must:

- have 30 years of creditable service or 10 years of creditable service and attain age 60 (not early retirement).
- not retire with disability benefits.

At retirement, a member may elect a lump-sum distribution in an amount between 1 and 36 months of his or her normal monthly retirement benefit. This amount will be calculated under Plan A - Maximum Plan of Retirement and will be rounded up or down to be a multiple of \$1,000. If a PLOP distribution is elected, the monthly benefit is actuarially reduced to reflect the value of the PLOP distribution. The combination of both the PLOP distribution and the reduced benefit are the same actuarial value as the unreduced normal benefit alone.

### **Financing the System**

The funds to finance the System come from member contributions, 6.00% of annual salary; employer contributions, 14.27% of annual salary; and investment income.



KPMG LLP  
Suite 2000, 303 Peachtree Street, NE  
Atlanta, GA 30308  
www.kpmg.com

## Report on the Financial Statements

We have audited the accompanying financial statements of the Teachers Retirement System of Georgia (the System), a component unit of the State of Georgia, as of and for the year ended June 30, 2017, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

### *Management's Responsibility for the Financial Statements*

Management is responsible for the preparation and fair presentation of these financial statements in accordance with U.S. generally accepted accounting principles; 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.

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

### *Opinion*

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the System as of June 30, 2017, and the changes in fiduciary net position for the year then ended in accordance with U.S. generally accepted accounting principles.

### *Other Matters*

#### *Required Supplementary Information*

U.S. generally accepted accounting principles require that the management's discussion and analysis, schedule of changes in employers' and nonemployers' net pension liability, schedule of employers' and nonemployers' net pension liability and related ratios, schedule of employer and nonemployer contributions, schedule of investment returns, schedule of the System's proportionate share of the net pension liability to ERS, and schedule of the System's contributions to ERS on pages 16 – 19 and 36-37 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

#### *Supplementary and Other Information*

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements. The schedules of administrative expenses and investment expenses, and introductory, investment, actuarial, and statistical sections are presented for purposes of additional analysis and are not a required part of the basic financial statements.



# INDEPENDENT AUDITORS' REPORT

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*continued*

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

The introductory, investment, actuarial, and statistical sections have not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide an assurance on them.

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

In accordance with *Government Auditing Standards*, we have also issued our report dated September 29, 2017 on our consideration of the System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System's internal control over financial reporting and compliance.

KPMG LLP

Atlanta, Georgia  
September 29, 2017, except for the introductory, investment, actuarial and statistical sections and the schedule of investment expenses which are as of December 11, 2017

This section provides a discussion and analysis of the financial performance of the Teachers Retirement System of Georgia (the System) for the year ended June 30, 2017. The discussion and analysis of the System's financial performance is within the context of the accompanying financial statements and disclosures following this section.

## Financial Highlights

- At June 30, 2017, the System's assets exceeded its liabilities by \$71.3 billion (reported as net position) as compared to the net position of \$65.6 billion at June 30, 2016, representing an increase of \$5.8 billion.
- Contributions from members increased by \$30.6 million or 4.5% from \$685.6 million in 2016 to \$716.2 million in 2017. Employer and nonemployer contributing entity (Nonemployer) contributions increased by \$74.3 million or 4.7% from \$1.6 billion in 2016 to \$1.7 billion in 2017. The increase in member and employer contributions is primarily due to an increase in the number of active members and higher average payroll during the year.
- Pension benefits paid to retirees and beneficiaries for the years ended June 30, 2017 and 2016 were \$4.5 billion and \$4.2 billion, respectively, representing an increase of 5.5%. This is due to an increase in the number of retirees and beneficiaries receiving benefit payments and postretirement benefit adjustments.



### Overview of the Financial Statements

The basic financial statements include (1) the statement of fiduciary net position, (2) the statement of changes in fiduciary net position, and (3) notes to the financial statements. The System also includes in this report additional information to supplement the financial statements.

The System prepares its financial statements on an accrual basis in accordance with U.S. generally accepted accounting principles promulgated by the Governmental Accounting Standards Board (GASB). These statements provide information about the System's overall financial status.

In addition, the System presents six required supplementary schedules, which provide historical trend information about the plan. Four of these schedules are presented from the perspective of the System reporting as the plan and include (1) a schedule of changes in employers' and nonemployers' net pension liability;

# MANAGEMENT'S DISCUSSION & ANALYSIS

(Unaudited) *continued*

## Overview of the Financial Statements *continued*

(2) a schedule of employers' and nonemployers' net pension liability and related ratios; (3) a schedule of employer and nonemployer contributions; and (4) a schedule of investment returns. Two schedules are presented from the perspective of the System reporting as the employer for its employees who are participants in the Employees' Retirement System of Georgia (ERS) and include (1) a schedule of the System's proportionate share of the net pension liability to ERS and (2) a schedule of the System's contributions to ERS.

## The Statement of Fiduciary Net Position

The *Statement of Fiduciary Net Position* presents information that includes all of the System's assets and liabilities, with the balance reported as and representing the Net Position Restricted for Pensions. The investments of the System in this statement are presented at fair value. This statement is presented on page 20.

## The Statement of Changes in Fiduciary Net Position

The *Statement of Changes in Fiduciary Net Position* reports how the System's net position changed during the fiscal year. The additions and the deductions to net position are summarized in this statement. The additions include contributions and investment income, which includes the net increase (decrease) in the fair value of investments. The deductions include benefit payments, refunds of member contributions, and administrative expenses. This statement is presented on page 21.

## Notes to the Financial Statements

The accompanying notes to the financial statements provide information essential to a full understanding of the System's financial statements. The notes to the financial statements begin on page 22 of this report.

## Required Supplementary Information

A brief explanation of the six required schedules found beginning on page 36 of this report follows:

*Schedule of Changes in Employers' and Nonemployers' Net Pension Liability:* This schedule presents historical trend information about the changes in the net pension liability and includes the beginning and ending balances of the total pension liability and the plan's fiduciary net position, the net pension

liability, and the effects of certain changes on those items. This trend information will be accumulated to display a 10-year presentation.

*Schedule of Employers' and Nonemployers' Net Pension Liability and Related Ratios:* This schedule presents historical trend information about the net pension liability and includes total pension liability, the plan's fiduciary net position, net pension liability, covered-employee payroll, and the ratios of fiduciary net position to total pension liability and net pension liability to covered-employee payroll. This trend information will be accumulated to display a 10-year presentation.

*Schedule of Employer and Nonemployer Contributions:* This schedule presents historical trend information for the last ten consecutive fiscal years about the actuarially determined contributions of employers and nonemployers and the contributions made in relation to the requirement.

*Schedule of Investment Returns:* This schedule presents historical trend information about the annual money-weighted rate of return on plan investments, net of plan investment expense. This trend information will be accumulated to display a 10-year presentation.

*Schedule of the System's Proportionate Share of the Net Pension Liability to ERS:* This schedule presents historical trend information about the System's proportionate share of the net pension liability for its employees who participate in the ERS plan. This trend information will be accumulated to display a 10-year presentation.

*Schedule of the System's Contributions to ERS:* This schedule presents historical trend information about the System's contributions for its employees who participate in the ERS plan. This trend information will be accumulated to display a 10-year presentation.

# MANAGEMENT'S DISCUSSION & ANALYSIS

(Unaudited) *continued*

## Financial Analysis of the System

This table presents a summary of the System's net position at June 30, 2017 and 2016.

The \$5.8 billion increase in net position from 2016 to 2017 is primarily due to the increase in equity markets.

### Summary of TRS Net Position (dollars in thousands)

	<u>Net position June 30</u>		<u>Amount</u>	<u>Percentage</u>
	<u>2017</u>	<u>2016</u>	<u>change</u>	<u>change</u>
<b>Assets:</b>				
Cash and cash equivalents and receivables	\$ 2,039,157	\$ 2,080,140	\$ (40,983)	(2.0)%
Investments	69,375,715	63,630,773	5,744,942	9.0
Capital assets, net	7,638	7,174	464	6.5
Total assets	<u>71,422,510</u>	<u>65,718,087</u>	<u>5,704,423</u>	8.7
Deferred outflows of resources	8,483	4,978	3,505	70.4
<b>Liabilities:</b>				
Net pension liability	33,057	27,702	5,355	19.3
Due to brokers and accounts payable	56,888	140,732	(83,844)	(59.6)
Total liabilities	89,945	168,434	(78,489)	(46.6)
Deferred inflows of resources	76	2,220	(2,144)	(96.6)
Net position	\$ <u>71,340,972</u>	\$ <u>65,552,411</u>	\$ <u>5,788,561</u>	8.8

This table presents the investment allocation at June 30, 2017 and 2016.

### Investment Allocation

	<u>2017</u>	<u>2016</u>
<b>Asset allocation at June 30 (in percentages):</b>		
<b>Equities:</b>		
Domestic	53.2 %	52.7 %
International	17.7	15.9
<b>Domestic obligations:</b>		
U.S. Treasuries	16.2	15.2
Corporate and other bonds	11.2	14.5
<b>International obligations:</b>		
Governments	0.5	0.5
Corporates	1.2	1.2
<b>Asset allocation at June 30 (dollars in thousands):</b>		
<b>Equities:</b>		
Domestic	\$ 36,932,301	\$ 33,530,541
International	12,303,992	10,120,995
<b>Domestic obligations:</b>		
U.S. Treasuries	11,243,449	9,693,234
Corporate and other bonds	7,757,487	9,228,519
<b>International obligations:</b>		
Governments	322,725	324,118
Corporates	815,761	733,366
	<u>\$ 69,375,715</u>	<u>\$ 63,630,773</u>

# MANAGEMENT'S DISCUSSION & ANALYSIS

(Unaudited) *continued*

## Financial Analysis of the System *continued*

The total investment portfolio at June 30, 2017 increased \$5.7 billion from June 30, 2016, which is primarily due to the increase in equity markets.

Investment performance is calculated using a time-weighted rate of return using the Daily Valuation Method. The time-weighted rate of return in fiscal year 2017 was 12.5%, with a 19.2% return for equities and a (1.0)% return for fixed income. The five-year annualized rate of return at June 30, 2017 was 9.4% with a 12.8% return on equities and a 1.8% return on fixed income.

A money-weighted return is weighted by the amount of dollars in the fund at the beginning and end of the performance period. A money-weighted return is highly influenced by the timing of cash flows into and out of the fund and is a better measure of an entity or person who controls the cash flows into or out of the fund. The nondiscretionary cash flows for the plan, primarily contributions and benefit payments, have a considerable impact on the money-weighted returns of the portfolio. The money-weighted rate of return for the fiscal year ended June 30, 2017 was 7.6%, compared to (2.9)% for the fiscal year ended June 30, 2016.

## Changes in TRS Net Position (dollars in thousands)

	Changes in net position		Amount change	Percentage change
	2017	2016		
<b>Additions:</b>				
Employer contributions	\$ 1,648,669	\$ 1,572,624	\$ 76,045	4.8 %
Nonemployer contributions	6,175	7,908	(1,733)	(21.9)
Member contributions	716,233	685,626	30,607	4.5
Net investment income	7,971,677	810,574	7,161,103	883.5
Total additions	10,342,754	3,076,732	7,266,022	236.2
<b>Deductions:</b>				
Benefit payments	4,461,124	4,228,819	232,305	5.5
Refunds	76,296	79,334	(3,038)	(3.8)
Administrative expenses	16,773	15,279	1,494	9.8
Total deductions	4,554,193	4,323,432	230,761	5.3
Net increase (decrease) in net position	\$ 5,788,561	\$ (1,246,700)	\$ 7,035,261	564.3

This table presents a summary of changes in the System's net position for the years ended June 30, 2017 and 2016.

### Additions

The System accumulates resources needed to fund benefits through contributions and returns on invested funds. Member contributions were higher with an increase of 4.5% and employer contributions were higher with an increase of 4.8% compared to 2016 primarily due to an increase in membership salary coupled with an increase in the number of active members in 2017. The net investment income was significantly higher in 2017 compared to 2016, primarily due to higher returns in equity markets.

### Deductions

Deductions increased 5.3% in 2017, primarily because of the 5.5% increase in benefit payments. Regular pension benefit payments

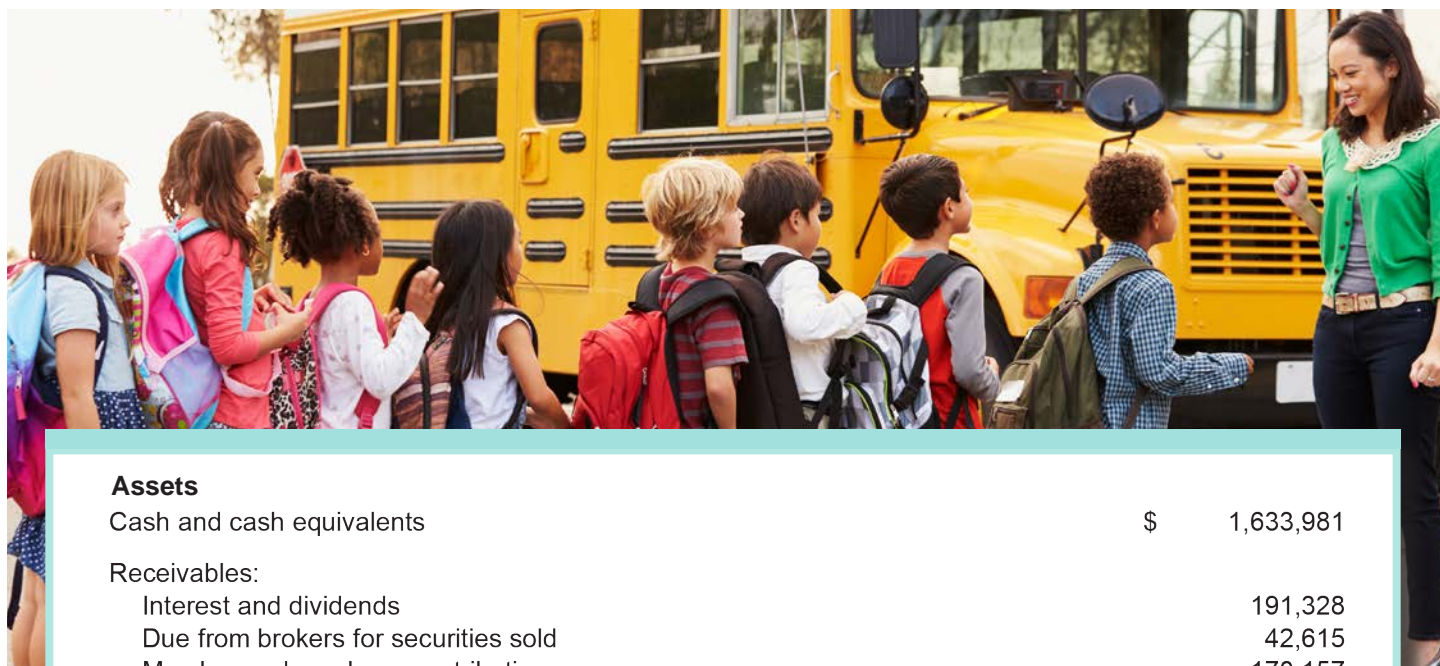
increased due to an increase in the number of retirees and beneficiaries receiving benefit payments to 122,629 in 2017 from 117,918 in 2016 and postretirement benefit increases.

### Requests for Information

This financial report is designed to provide a general overview of the System's finances for all those with interest in the System's finances. Questions concerning any of the information provided in this report or requests for additional information should be addressed to Teachers Retirement System of Georgia, Two Northside 75, Suite 100, Atlanta, GA 30318.

# STATEMENT OF FIDUCIARY NET POSITION

June 30, 2017 (in thousands)



## Assets

Cash and cash equivalents	\$ 1,633,981
Receivables:	
Interest and dividends	191,328
Due from brokers for securities sold	42,615
Member and employer contributions	170,157
Other	1,076
Total receivables	<u>405,176</u>
Investments – at fair value:	
Equities:	
Domestic	36,932,301
International	12,303,992
Domestic obligations:	
U.S. Treasuries	11,243,449
Corporate and other bonds	7,757,487
International obligations:	
Governments	322,725
Corporates	815,761
Total investments	<u>69,375,715</u>
Capital assets, net	<u>7,638</u>
Total assets	<u>71,422,510</u>

**Deferred Outflows of Resources** 8,483

## Liabilities

Net pension liability	33,057
Due to brokers for securities purchased	48,448
Accounts payable and other	8,440
Total liabilities	<u>89,945</u>

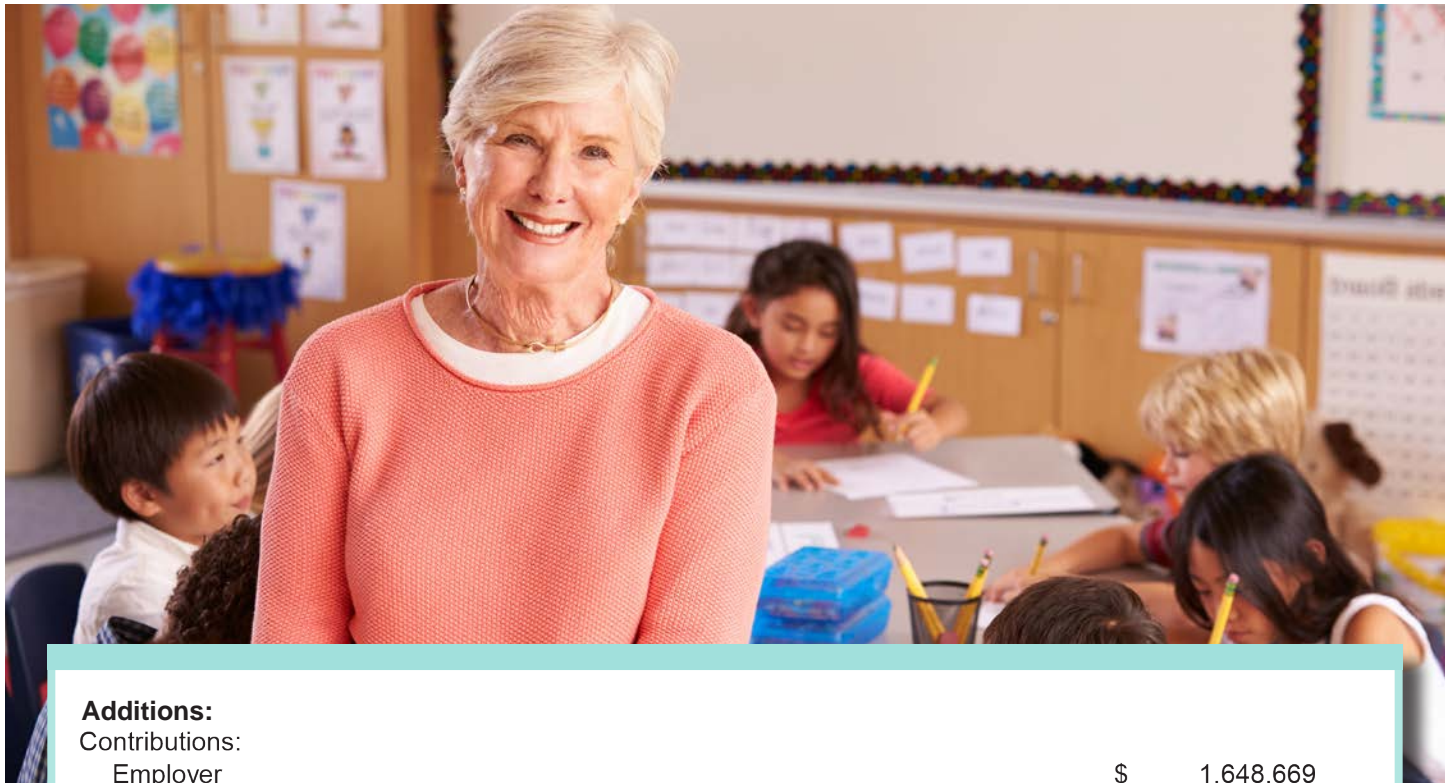
**Deferred Inflows of Resources** 76

**Net Position Restricted for Pensions** \$ 71,340,972

See accompanying notes to financial statements.

# STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

For the Year Ended June 30, 2017 (in thousands)



## Additions:

### Contributions:

Employer	\$ 1,648,669
Nonemployer	6,175
Member	716,233

### Investment income:

Net increase in fair value of investments	6,522,642
Interest, dividends, and other	1,490,357
Total investment income	<u>8,012,999</u>

Less investment expense	<u>41,322</u>
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Net investment income	<u>7,971,677</u>
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Total additions	<u>10,342,754</u>
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## Deductions:

Benefit payments	4,461,124
Refunds of member contributions	76,296
Administrative expenses, net	16,773

Total deductions	<u>4,554,193</u>
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Net increase in net position	5,788,561
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## Net Position Restricted for Pensions:

Beginning of year	<u>65,552,411</u>
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End of year	<u><u>\$ 71,340,972</u></u>
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See accompanying notes to financial statements.

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017

## 1. Plan Description

Teachers Retirement System of Georgia (the System) was created in 1943 by an act of the Georgia Legislature (the Act) to provide retirement benefits for teachers who qualify under the Act. The System administers a cost-sharing, multiple-employer defined benefit pension plan as defined in Governmental Accounting Standards Board (GASB) Statement No. 67, *Financial Reporting for Pension Plans*. A Board of Trustees comprising two appointees by the Board, two ex-officio state employees, five appointees by the Governor, and one appointee of the Board of Regents is ultimately responsible for the administration of the System.

### Eligibility and Membership

All teachers in the state public schools, the University System of Georgia (except those professors and principal administrators electing to participate in an optional retirement plan), and certain other designated employees in educational-related work are eligible for membership. There were 310 employers and 1 nonemployer contributing entity participating in the plan at June 30, 2017.

### Retirement Benefits

As of June 30, 2017, participation in the System is as follows:

Inactive members and beneficiaries	
currently receiving benefits	122,629
Inactive members not yet	
receiving benefits, vested	11,988
Inactive members, nonvested	89,536
Active plan members	<u>222,918</u>
Total	<u><u>447,071</u></u>

The System provides service retirement, disability retirement, and survivor's benefits. Title 47 of the Official Code of Georgia Annotated (O.C.G.A.) assigns the authority to establish and amend the provisions of the System to the State Legislature. A member is eligible for normal service retirement after 30 years of creditable service, regardless of age, or after 10 years of service and attainment of age 60. A member is eligible for early retirement after 25 years of creditable service.

Normal retirement (pension) benefits paid to members are equal to 2% of the average of the member's two highest paid consecutive years of service, multiplied by the number of years of creditable service up to 40 years. Early retirement benefits are reduced by the lesser of one-twelfth of 7% for each month the member is below age 60, or by 7% for each year or fraction thereof by which the member has less than 30 years of service. It is also assumed

that certain cost-of-living adjustments, based on the Consumer Price Index, may be made in future years. Retirement benefits are payable monthly for life. A member may elect to receive a partial lump-sum distribution in addition to a reduced monthly retirement benefit. Options are available for distribution of the member's monthly pension, at a reduced rate, to a designated beneficiary on the member's death.

### Death and Disability Benefits

Retirement benefits also include death and disability benefits, whereby the disabled member or surviving spouse is entitled to receive annually an amount equal to the member's service retirement benefit or disability retirement, whichever is greater. The benefit is based on the member's creditable service (minimum of 10 years of service) and compensation up to the time of disability.

The death benefit is the amount that would be payable to the member's beneficiary had the member retired on the date of death on either a service retirement allowance or a disability retirement allowance, whichever is larger. The benefit is based on the member's creditable service (minimum of 10 years of service) and compensation up to the date of death.

### Contributions

The System is funded by member, employer, and nonemployer contributions. The contribution rates are adopted and amended by the Board of Trustees. Pursuant to O.C.G.A. §47-3-63, the employer contributions for certain full-time public school support personnel are funded on behalf of the employers by the State of Georgia.

Contributions, as a percentage of covered payroll, required for fiscal year 2017 were based on the June 30, 2014 actuarial valuation as follows:

Member	<u>6.00 %</u>
Employer:	
Normal	6.56 %
Unfunded accrued liability	<u>7.71 %</u>
Total	<u><u>14.27 %</u></u>

Members become fully vested after 10 years of service. If a member terminates with less than 10 years of service, no vesting of employer contributions occurs, but the member's contributions may be refunded with interest. Member contributions with accumulated interest are reported as net position restricted for pensions.



# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*

## 2. Summary of Significant Accounting Policies and Plan Asset Matters

### Basis of Accounting

The System's financial statements are prepared on the accrual basis of accounting. Contributions from the employers, nonemployers, and the members are recognized when due, based on statutory requirements. Retirement and refund payments are recognized as deductions when due and payable.

### Reporting Entity

The System is a component unit of the State of Georgia; however, it is accountable for its own fiscal matters and presentation of its separate financial statements. The System has considered potential component units under GASB Statements No. 80, *Blending Requirements for Certain Component Units*, GASB Statement No. 61, *The Financial Reporting Entity's Omnibus – An Amendment of GASB Statements No. 14 and No. 34*, and GASB Statement No. 39, *Determining Whether Certain Organizations are Component Units*, and determined there were no component units of the System.

### Cash and Cash Equivalents

Cash and cash equivalents, reported at cost, include cash in banks and cash on deposit with the investment custodian.

### Investments

Investments are reported at fair value. Securities traded on a national or international exchange are valued at the last reported sales price. There are no investments in, loans to, or leases with parties related to the System.

The System utilizes various investment instruments. Investment securities, in general, are exposed to various risks, such as interest rate, credit, foreign currency, and overall market volatility. Due to the level of risk associated with certain investment securities, it is reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect the amounts reported in the financial statements.

The System's policy in regard to the allocation of invested assets is established on a cost basis in compliance with Georgia Statute. Plan assets are managed on a total return basis with a long-term objective of achieving and maintaining a fully funded status for

the benefits provided through the pension plan. The following was the System's adopted asset allocation policy as of June 30, 2017:

<u>Asset Class</u>	<u>Target Allocation</u>
Fixed income	25% - 45%
Equities	55% - 75%
Cash and cash equivalents	—
Total	<u>100%</u>

Approximately 16.2% of the investments held for pension benefits are invested in debt securities of the U.S. government. The System has no investments in any one organization, other than those issued by the U.S. government, that represent 5% or more of the System's net position restricted for pensions.

For the fiscal year ended June 30, 2017, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 7.62%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

### Capital Assets

Capital assets are stated at cost less accumulated depreciation. Capital assets costing \$5,000 or more are capitalized. Depreciation on capital assets is computed using the straight-line method over estimated useful lives of three to forty years. Depreciation expense is included in administrative expenses, net. Maintenance and repairs are charged to administrative expenses when incurred. When assets are retired or otherwise disposed of, the costs and related accumulated depreciation are removed from the accounts, and any resulting gain or loss is reflected in the statement of changes in fiduciary net position in the period of disposal.

### System Employee Pensions

For purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions, and pension expense, information about the fiduciary net position of the ERS plan and additions to/deductions from the ERS fiduciary net position have been determined on the same basis as they are reported by ERS. For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

### Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*

## 2. Summary of Significant Accounting Policies and Plan Asset Matters, *continued*

management to make estimates and assumptions that affect the reported amounts of fiduciary net position and changes therein. Actual results could differ from those estimates.

### New Accounting Pronouncements

#### *Pronouncements effective for the 2017 financial statements:*

In June 2015, the GASB issued Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*. This Statement improves the usefulness of other postemployment benefits (OPEB) information included in the general purpose external financial reports of state and local governmental OPEB plans for making decisions and assessing accountability. Implementation of this Statement by organizations that provide OPEB will require extensive note disclosures and required supplementary information (RSI) related to the measurement of the OPEB liabilities. There are no applicable reporting requirements for the System related to this Statement.

In August 2015, the GASB issued Statement No. 77, *Tax Abatement Disclosures*. This Statement defines tax abatement and provides disclosure guidance for governments that have granted tax abatements. There are no applicable reporting requirements for the System related to this Statement.

In December 2015, the GASB issued Statement No. 78, *Pensions Provided through Certain Multiple-Employer Defined Benefit Pension Plans*. The objective of this Statement is to amend the scope and applicability of Statement No. 68, *Accounting and Financial Reporting for Pensions*, to exclude pensions provided to employees of state or local governmental employers through certain multiple-employer defined benefit pension plans and to establish accounting and reporting requirements for those pensions. There are no applicable reporting requirements for the System related to this Statement.

In January 2016, the GASB issued Statement No. 80, *Blending Requirements for Certain Component Units*. The objective of this Statement is to improve financial reporting by clarifying the financial Statement presentation requirements for certain component units and to amend the blending requirements established in paragraph 53 of Statement No. 14, *The Financial Reporting Entity*, as amended. There are no applicable reporting requirements for the System related to this Statement.

In March 2016, the GASB issued Statement No. 82, *Pension Issues – an Amendment of GASB Statements No. 67, 68, and No. 73*. The objective of this Statement is to address issues regarding

(1) the presentation of payroll related measures in the required supplementary information, (2) the selection of assumptions and the treatment of deviations from the guidance in an Actuarial Standard of Practice for financial reporting purposes, and (3) the classification of payments made by employers to satisfy employee (plan member) contribution requirements. The implementation of GASB Statement No. 82 did not impact the amounts recorded or disclosures presented in the System's financial Statements.

#### *Pronouncements issued, but not yet effective:*

In June 2015, the GASB issued Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans* effective for fiscal years beginning after June 15, 2017. This Statement addresses accounting and financial reporting for OPEB that is provided to the employees of state and local governmental employers. This Statement establishes standards for recognizing and measuring liabilities, deferred outflows of resources, deferred inflows of resources, and expenses. This Statement also establishes requirements for note disclosures and required supplementary information for defined benefit OPEB plans. The System is in process of evaluating the impact of this pronouncement on its financial statements.

In March 2016, the GASB issued Statement No. 81, *Irrevocable Split-Interest Agreements* effective for fiscal years beginning after December 15, 2016. The objective of this Statement is to improve accounting and financial reporting for irrevocable split-interest agreements by providing recognition and measurement guidance for situations in which a government is a beneficiary of the agreement. There will be no applicable reporting requirements for the System related to this Statement.

In November 2016, the GASB issued Statement No. 83, *Certain Asset Retirement Obligations* effective for fiscal years beginning after June 15, 2018. This Statement addresses accounting and financial reporting for certain asset retirement obligations (AROs). An ARO is a legally enforceable liability associated with the retirement of a tangible capital asset. The System does not anticipate this statement to impact its financial statements and related reporting.

In January 2017, the GASB issued Statement No. 84, *Fiduciary Activities* effective for fiscal years beginning after December 15, 2018. The objective of this Statement is to improve guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. The System is in process of evaluating the impact of this pronouncement on its financial statements.

In March 2017, the GASB issued Statement No. 85, *Omnibus 2017* effective for fiscal years beginning after June 15, 2017. This Statement

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*

## 2. Summary of Significant Accounting Policies and Plan Asset Matters, *continued*

addresses practice issues that have been identified during implementation and application of certain GASB Statements. A variety of topics are addressed including issues related to blending component units, goodwill, fair value measurement and application, and OPEB. The System is in process of evaluating the impact of this pronouncement on its financial statements.

In May 2017, the GASB issued Statement No. 86, *Certain Debt Extinguishment Issues* effective for fiscal years beginning after June 15, 2017. The primary objective of this Statement is to improve consistency in accounting and financial reporting for in-substance defeasance of debt. There will be no applicable reporting requirements for the System related to this Statement.

## 3. Investment Program

The System maintains sufficient cash to meet its immediate liquidity needs. Cash not immediately needed is invested as directed by the Board of Trustees. All investments are held by agent custodial banks in the name of the System. State statutes and the System's investment policy authorize the System to invest in a variety of short-term and long-term securities as follows:

### Cash and Cash Equivalents

The carrying amount of the System's deposits totaled approximately \$1.6 billion at June 30, 2017, with actual bank balances of approximately \$1.6 billion. The System's cash balances are fully insured through the Federal Deposit Insurance Corporation, an independent agency of the U.S. government.

Short-term securities authorized but not currently used are:

- Repurchase and reverse repurchase agreements, whereby the System and a broker exchange cash for direct obligations of the U.S. government or obligations unconditionally guaranteed by agencies of the U.S. government or U.S. corporations. The System or broker promises to repay the cash received plus interest at a specific date in the future in exchange for the same securities.
- U.S. Treasury obligations.
- Commercial paper, with a maturity of 180 days or less. Commercial paper is an unsecured promissory note issued primarily by corporations for a specific amount and maturing on a specific day. The System considers for investment only commercial paper of the highest quality, rated P-1 and/or A-1 by national credit rating agencies.
- Master notes, an overnight security administered by a custodian bank, and an obligation of a corporation whose

commercial paper is rated P-1 and/or A-1 by national credit rating agencies.

Investments in commercial paper or master notes are limited to no more than \$500 million in any one name.

### Investments

Fixed income investments, managed by the Division of Investment Services (the Division), are authorized in the following instruments:

- U.S. and foreign government obligations. At June 30, 2017, the System held U.S. Treasury bonds of approximately \$11.2 billion and international government bonds of approximately \$322.7 million.
- U.S. and foreign corporate obligations. At June 30, 2017, the System held U.S. corporate bonds of approximately \$7.8 billion and international corporate bonds of approximately \$815.8 million.
- Obligations unconditionally guaranteed by agencies of the U.S. government. At June 30, 2017, the System did not hold agency bonds.
- Private placements are authorized under the same general restrictions applicable to corporate bonds. At June 30, 2017, the System did not hold private placements.

Mortgage investments are authorized to the extent that they are secured by first mortgages on improved real property located in the state of Georgia.

Equity securities are also authorized (in statutes) for investment as a complement to the System's fixed income portfolio and as a long-term inflation hedge. By statute, no more than 75% of the total invested assets on a historical cost basis may be placed in equities. Equity holdings in any one corporation may not exceed 5% of the outstanding equity of the issuing corporation. The equity portfolio is managed by the Division in conjunction with independent advisors. Buy/sell decisions are based on securities meeting rating criteria established by the Board of Trustees; in-house research considering such matters as yield, growth, and sales statistics; and analysis of independent market research. Equity trades are approved and executed by the Division's staff. Common stocks eligible for investment are approved by the Investment Committee of the Board of Trustees before being placed on an approved list. Equity investments are authorized in the following instruments:

- Domestic equities are those securities considered by the O.C.G.A. to be domiciled in the United States. At June 30, 2017, the System held domestic equities of approximately \$36.9 billion.

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*

## 3. Investment Program, *continued*

- International equities, including American Depository Receipts (ADR), are not considered by the O.C.G.A. to be domiciled in the United States. At June 30, 2017, the System held ADRs of approximately \$9.0 billion and international equities of approximately \$3.3 billion.

**Fair Value Measurements:** The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the inputs used in valuation and gives the highest priority to unadjusted quoted prices in active markets and requires that observable inputs be used in the valuations when available. The disclosure of fair value estimates in the hierarchy is based on whether the significant inputs into the valuations are observable. In determining the level of the hierarchy in which the estimate is disclosed, the highest level, Level 1, is given to unadjusted quoted prices in active markets and the lowest level, Level 3, to unobservable inputs.

Level 1 – Valuations based on unadjusted quoted prices for identical instruments in active markets that the System has the ability to access.

Level 2 – Valuations based on quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.

Level 3 – Valuations based on inputs that are unobservable and significant to the overall fair value measurement.

In instances where inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation. The System's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each investment.

Equity securities classified in Level 1 are valued using prices quoted in active markets for those securities. Equity securities classified in Level 2 are valued using prices quoted for similar instruments in active markets. Equity securities classified in Level 3 are valued using third-party valuations not currently observable in the market.

Debt securities classified in Level 1 are valued using prices quoted in active markets. Debt securities classified in Level 2 are valued using either a bid evaluation or a matrix pricing technique. Bid evaluations may include market quotations, yields, maturities, call features, and ratings. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices. These securities have nonproprietary information that was readily available to market participants, from multiple independent sources, which are known to be actively involved in the market.

## Investments Measured at Fair Value as of June 30, 2017 (dollars in thousands)

Investments by fair value level	Fair value measures using			Total
	Quoted prices in active markets for identical assets	Significant other observable inputs	Significant unobservable inputs	
	Level 1	Level 2	Level 3	
Equities:				
Domestic	\$ 36,931,983	\$ —	\$ 318	\$ 36,932,301
International	12,219,116	84,876	—	12,303,992
Obligations:				
Domestic	11,243,449	—	—	11,243,449
U.S. treasuries	—	7,757,487	—	7,757,487
Corporate bonds				
International		322,725	—	322,725
Governments	—	815,761	—	815,761
Corporate bonds	—	—	—	—
Total investments by fair value level	\$ 60,394,548	\$ 8,980,849	\$ 318	\$ 69,375,715

This table shows the fair value leveling of the System's investments.

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*

## 3. Investment Program, *continued*

**Credit Risk:** Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations to the System. State law limits investments to investment grade securities. It is the System's investment policy to require that the bond portfolio be of high quality and chosen with respect to maturity ranges, coupon levels, refunding characteristics, and marketability. The System's policy is to require that new purchases of bonds be restricted

to high grade bonds rated no lower than "A" by any nationally recognized statistical rating organization. If a bond is subsequently downgraded to a rating below "A," it is placed on a watch list. The System holds one bond, which was downgraded to a rating below "A." Obligations of the U.S. government or obligations explicitly guaranteed by the U.S. government are not considered to have credit risk and do not require disclosure of credit quality.

### Quality Ratings of Fixed Income Investments held at June 30, 2017 (dollars in thousands)

<u>Investment Type</u>	<u>Standard and Poor's/ Moody's Quality Rating</u>	<u>June 30, 2017 Fair Value</u>
Domestic obligations:		
U.S. treasuries		\$ 11,243,449
Corporates	AAA/Aaa	727,150
	AA/Aaa	813,250
	AA/Aa	1,055,685
	AA/A	1,958,948
	A/A	2,879,722
Total domestic corporates	BBB/Baa	<u>322,732</u>
		7,757,487
International obligations:		
Governments		322,725
Corporates	A/Aa	405,119
	A/Aa	410,642
	A/A	<u>815,761</u>
Total international corporates		
Total fixed income investments		<u>\$ 20,139,422</u>

The quality ratings of investments in fixed income securities as described by Standard & Poor's and by Moody's Investor Services, which are nationally recognized statistical rating organizations, at June 30, 2017, are shown in the chart.

**Concentration of Credit Risk:** Concentration of credit risk is the risk of loss that may be attributed to the magnitude of a government's investment in a single issue. At June 30, 2017, the System did not have debt or equity investments in any one organization, other than those issued or guaranteed by the U.S. government or its agencies, which represented greater than 5% of plan net position.

**Interest Rate Risk:** Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. While the System has no formal interest rate risk policy, active

management of the bond portfolio incorporates interest rate risk to generate improved returns. This risk is managed within the portfolio using the effective duration method. This method is widely used in the management of fixed income portfolios and quantifies to a much greater degree the sensitivity to interest rate changes when analyzing a bond portfolio with call options, prepayment provisions, and any other cash flows. Effective duration makes assumptions regarding the most likely timing and amounts of variable cash flows and is best utilized to gauge the effect of a change in interest rates on the fair value of a portfolio.

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, continued

## 3. Investment Program, continued

It is believed that the reporting of effective duration found in this table quantifies to the fullest extent possible the interest rate risk of the System's fixed income assets.

### Effective Duration of Fixed Income Assets by Security Type

(dollars in thousands)

Fixed income security type	Fair value June 30, 2017	Percentage of all fixed income assets	Effective duration (years)
Domestic obligations:			
U.S. Treasuries	\$ 11,243,449	55.8%	5.6
Corporates	7,757,487	38.5	4.0
International obligations:			
Governments	322,725	1.6	0.3
Corporates	815,761	4.1	1.8
Total	\$ 20,139,422	100.0%	4.7

**Foreign Currency Risk:** Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. The System's currency risk exposures, or exchange rate risks, primarily reside within the System's international equity investment holdings. The System's asset allocation and investment policies allow for active and passive investments in international securities. The System's Board-adopted foreign exchange risk management policy is to minimize risk and protect

the investments from negative impact by hedging foreign currency exposures with foreign exchange instruments when market conditions and circumstances are deemed appropriate. Foreign exchange instruments are used to protect the value of noncash investments from currency movements, through the use of foreign exchange instruments. The System's foreign exchange risk management policy does not quantify limitations on foreign currency-denominated investments.

### International Investment Securities at Fair Value as of June 30, 2017

(dollars in thousands)

Currency	Equities	Fixed Income	Total
Australian Dollar	\$ 144,531	\$ —	\$ 144,531
Brazilian Real	80,222	—	80,222
British Pound	316,008	—	316,008
Canadian Dollar	43,339	—	43,339
Czech Krone	2,004	—	2,004
Danish Krone	80,060	—	80,060
Euro	502,805	—	502,805
Hong Kong Dollar	175,524	—	175,524
Indian Rupee	190,163	—	190,163
Indonesian Rupiah	27,589	—	27,589
Japanese Yen	502,753	—	502,753
Malaysian Peso	43,701	—	43,701
Mexican Peso	31,943	—	31,943
New Taiwan Dollar	213,336	—	213,336
Philippine Peso	24,007	—	24,007
Polish Zloty	17,268	—	17,268
Singapore Dollar	88,682	—	88,682
South African Rand	164,847	—	164,847
South Korean Won	354,771	—	354,771
Swedish Krona	154,608	—	154,608
Swiss Franc	79,145	—	79,145
Thailand Baht	84,876	—	84,876
Total holdings subject to foreign currency risk	3,322,182	—	3,322,182
Investment securities payable in U.S. dollars	8,981,810	1,138,486	10,120,296
Total international investments - at fair value	\$ 12,303,992	\$ 1,138,486	\$ 13,442,478

As of June 30, 2017, the System's exposure to foreign currency risk in U.S. Dollars is highlighted in this table.

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*



## 4. Securities Lending Program

State statutes and Board of Trustees' policies permit the System to lend its securities to broker/dealers with a simultaneous agreement to return the collateral for the same securities in the future. The System is presently involved in a securities lending program with major brokerage firms. The System lends equity and fixed income securities for varying terms and receives a fee based on the loaned securities' value. During a loan, the System continues to receive dividends and interest as the owner of the loaned securities. The brokerage firms pledge collateral securities consisting of U.S. government and agency securities, mortgage-backed securities issued by a U.S. government agency, corporate bonds, and equities. The collateral value must be equal to at least 102% to 109% of the loaned securities' value, depending on the type of collateral security.

Securities loaned totaled approximately \$16.3 billion at June 30, 2017. The collateral value was equal to 104.8% of the loaned securities' value at June 30, 2017. The System's lending collateral was held in the System's name by the tri-party custodian.

Loaned securities are included in the accompanying statement of fiduciary net position since the System maintains ownership. The related collateral securities are not recorded as assets on the System's statement of fiduciary net position, and a corresponding liability is not recorded, since the System is deemed not to have the ability to pledge or trade the collateral securities. In accordance with the criteria set forth in GASB Statement No. 28, *Accounting and Financial Reporting for Securities Lending Transactions*, the System is deemed not to have the ability to pledge or sell collateral securities, since the System's lending contracts do not address whether the lender can pledge or sell the collateral securities without a borrower default, the System has not previously demonstrated that ability, and there are no indications of the System's ability to pledge or sell the collateral securities.

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*

## 5. Capital Assets

### Summary of Capital Assets (dollars in thousands)

	Balance at June 30, 2016	Additions	Disposals	Balance at June 30, 2017
Capital assets:				
Land	\$ 4,342	\$ —	\$ —	\$ 4,342
Building	2,800	—	—	2,800
Furniture and fixtures	403	—	(6)	397
Computer equipment	2,497	998	(601)	2,894
Computer software	14,980	—	—	14,980
	<u>25,022</u>	<u>998</u>	<u>(607)</u>	<u>25,413</u>
Accumulated depreciation for:				
Building	(840)	(70)	—	(910)
Furniture and fixtures	(310)	(22)	6	(326)
Computer equipment	(1,718)	(442)	601	(1,559)
Computer software	(14,980)	—	—	(14,980)
	<u>(17,848)</u>	<u>(534)</u>	<u>607</u>	<u>(17,775)</u>
Capital assets, net	<u>\$ 7,174</u>	<u>\$ 464</u>	<u>\$ —</u>	<u>\$ 7,638</u>

This table summarizes the capital assets and depreciation information as of June 30 and for the year then ended.

## 6. Net Pension Liability of Employers and Nonemployers

### Components of Net Pension Liability (dollars in thousands)

Total pension liability	\$ 89,926,280
Plan fiduciary net position	<u>71,340,972</u>
Employers' and nonemployers' net pension liability	<u>\$ 18,585,308</u>
Plan fiduciary net position as a percentage of the total pension liability	79.33 %

This table summarizes the components of the net pension liability of the participating employers and nonemployers at June 30, 2017.

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

Inflation	2.75%
Salary increases	3.25–9.00%, including inflation
Investment rate of return	7.50%, net of pension plan investment expense, including inflation



# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*

## 6. Net Pension Liability of Employers and Nonemployers, *continued*

Postretirement mortality rates were based on the RP-2000 White Collar Mortality Table with future mortality improvement projected to 2025 with the Society of Actuaries' projection scale BB (set forward one year for males) for service retirements and dependent beneficiaries. The RP-2000 Disabled Mortality Table with future mortality improvement projected to 2025 with Society of Actuaries' projection scale BB (set forward two years for males and four years for females) was used for death after disability retirement. There is a margin for future mortality improvement in the tables used by the System. Based on the results of the most recent experience study adopted by the Board on November 18, 2015, the numbers of expected future deaths are 8–11% less than the actual number of deaths that occurred during the study period for healthy retirees and 9–11% less than expected under the selected table for disabled retirees. Rates of mortality

in active service were based on the RP-2000 Employee Mortality Table projected to 2025 with projection scale BB.

The actuarial assumptions used in the June 30, 2016 valuation were based on the results of an actuarial experience study for the period July 1, 2009 – June 30, 2014.

The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected nominal returns, net of pension plan investment expense and the assumed rate of inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target asset allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

### Target Allocation & Estimated Rates of Return by Asset Class

Asset class	Target allocation	Long-term expected real rate of return*
Fixed income	30.00 %	(0.50)%
Domestic large cap equities	39.80	9.00
Domestic mid cap equities	3.70	12.00
Domestic small cap equities	1.50	13.50
International developed market equities	19.40	8.00
International emerging market equities	5.60	12.00
Total	100.00 %	

\* Net of inflation

**Discount rate:** The discount rate used to measure the total pension liability was 7.50%. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that employer and nonemployer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. 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 pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

**Sensitivity of the net pension liability to changes in the discount rate:** The following presents the net pension liability of the

employers and nonemployers, calculated using the discount rate of 7.50%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.50%) or 1-percentage-point higher (8.50%) than the current rate.

### Employers' and Nonemployers' Net Pension Liability

(dollars in thousands)

	1% Decrease (6.50%)	Current discount rate (7.50%)	1% Increase (8.50%)
\$	30,500,671	\$ 18,585,308	\$ 8,769,727

**Actuarial valuation date:** The total pension liability is based upon the June 30, 2016 actuarial valuation. An expected total pension liability is determined as of June 30, 2017 using standard



## 6. Net Pension Liability of Employers and Nonemployers, *continued*

roll-forward techniques. The roll-forward calculation adds the annual normal cost (also called service cost), subtracts the actual benefit payments and refunds for the plan year, and then applies the expected investment rate of return for the year.

## 7. System Employees' Retirement Benefits

The System's employees are members of the ERS plan. The notes to the financial statements that follow and required supplementary information on page 37 are presented from the perspective of the System as an employer.

### General Information about the Employees' Retirement System of Georgia

**Plan description:** ERS is a cost-sharing multiple-employer defined benefit pension plan established by the Georgia General Assembly during the 1949 Legislative Session for the purpose of providing retirement allowances for employees of the State of Georgia and its political subdivisions. ERS is directed by a Board of Trustees. Title 47 of the O.C.G.A. assigns the authority to establish and amend the benefit provisions to the State Legislature. ERS issues a publicly available financial report that can be obtained at [www.ers.ga.gov/formspubs/formspubs.html](http://www.ers.ga.gov/formspubs/formspubs.html).

**Benefits provided:** The ERS Plan supports three benefit tiers: Old Plan, New Plan, and Georgia State Employees' Pension and Savings Plan (GSEPS). Employees under the Old Plan started membership prior to July 1, 1982 and are subject to plan provisions in effect prior to July 1, 1982. Members hired on or after July 1, 1982 but prior to January 1, 2009 are New Plan members subject to modified plan provisions. Effective January 1, 2009, new state employees and rehired state employees who did not retain membership rights under the Old or New Plans are members of GSEPS. ERS members hired prior to January 1, 2009 also have the option to irrevocably change their membership to GSEPS.

Under the Old Plan, the New Plan, and GSEPS, a member may retire and receive normal retirement benefits after completion of 10 years of creditable service and attainment of age 60 or 30 years of creditable service regardless of age. Additionally, there are some provisions allowing for early retirement after 25 years of creditable service for members under age 60.

Retirement benefits paid to members are based upon the monthly average of the member's highest 24 consecutive calendar months, multiplied by the number of years of creditable service, multiplied by the applicable benefit factor. Annually, postretirement cost-of-living adjustments may also be made to members' benefits, provided the members were hired prior to July 1, 2009. The normal retirement pension is payable monthly for life; however, options are available

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*

## 7. System Employees' Retirement Benefits, *continued*

for distribution of the member's monthly pension, at reduced rates, to a designated beneficiary upon the member's death. Death and disability benefits are also available through ERS.

**Contributions:** Member contributions under the Old Plan are 4% of annual compensation, up to \$4,200, plus 6% of annual compensation in excess of \$4,200. Under the Old Plan, the State pays member contributions in excess of 1.25% of annual compensation. Under the Old Plan, these State contributions are included in the members' accounts for refund purposes and are used in the computation of the members' earnable compensation for the purpose of computing retirement benefits. Member contributions under the New Plan and GSEPS are 1.25% of annual compensation. The System's contractually required contribution rate, actuarially determined annually, for the year ended June 30, 2017 was 24.69% of annual covered payroll for Old and New Plan members and 21.69% for GSEPS members. The System's contributions to ERS for funding purposes totaled approximately \$4.3 million for the year ended June 30, 2017. Contributions are expected to finance the costs of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability.

## Pension Liabilities, Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

At June 30, 2017, the System reported a liability of approximately \$33.1 million for its proportionate share of the net pension liability for the ERS plan. The net pension liability was measured as of June 30, 2016. The total pension liability used to calculate the net pension liability was based on an actuarial valuation as of June 30, 2015. An expected total pension liability as of June 30, 2016 was determined using standard roll-forward techniques. The System's proportion of the net pension liability was based on contributions to ERS during the fiscal year ended June 30, 2016. At June 30 2016, the System's proportion was 0.698825%, which is based on contributions, and an increase of 0.015062% from its proportion measured as of June 30, 2015.

For the year ended June 30, 2017, the System recognized pension expense of approximately \$4.1 million. Pursuant to GASB Statement 67, approximately \$2.1 million of the pension expense is included in investment expense as a reduction of investment income. At June 30, 2017, the System reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

### Deferred Outflows and Inflows of Resources (dollars in thousands)

	<u>Deferred outflows of resources</u>	<u>Deferred inflows of resources</u>
Differences between expected and actual experience	\$ —	\$ 76
Change of assumptions	280	—
Net difference between projected and actual earnings on pension plan investments	3,361	—
Changes in proportion and differences between the System's contributions and proportionate share of contributions	514	—
System's contributions subsequent to the measurement date	<u>4,328</u>	<u>—</u>
Total	<u>\$ 8,483</u>	<u>\$ 76</u>

System contributions subsequent to the measurement date of approximately \$4.3 million are reported as deferred outflows of resources and will be recognized as a reduction of the net pension liability in the year ended June 30, 2018. Other amounts reported as deferred outflows of resources and deferred inflows of resources

related to pensions will be recognized in pension expense as follows (dollars in thousands):

Year ended June 30:	
2018	\$ 780
2019	363
2020	1,812
2021	1,124

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*

## 7. System Employees' Retirement Benefits, *continued*

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

Inflation	2.75%
Salary increases	3.25 – 7.00%, including inflation
Investment rate of return	7.50%, net of pension plan investment expense, including inflation

Post-retirement mortality rates were based on the RP-2000 Combined Mortality Table with future mortality improvement projected to 2025 with the Society of Actuaries' projection scale BB and set forward 2 years for both males and females for service retirements and dependent beneficiaries. The RP-2000 Disabled Mortality Table with future mortality improvement projected to 2025 with Society of Actuaries' projection scale BB and set back seven years for males and set forward three years for females was used for death after disability retirement. There is a margin for

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

### Target Allocation & Estimated Rates of Return by Asset Class

Asset class	Target allocation	Long-term expected real rate of return*
Fixed income	30.00 %	(0.50)%
Domestic large cap equities	37.20	9.00
Domestic mid cap equities	3.40	12.00
Domestic small cap equities	1.40	13.50
International developed market equities	17.80	8.00
International emerging market equities	5.20	12.00
Alternatives	5.00	10.50
Total	100.00 %	

\* Net of inflation

**Discount rate:** The discount rate used to measure the total pension liability was 7.50%. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that employer and

future mortality improvement in the tables used by the System. Based on the results of the most recent experience study adopted by the Board on December 17, 2015, the numbers of expected future deaths are 9–12% less than the actual number of deaths that occurred during the study period for service retirements and beneficiaries and for disability retirements. Rates of mortality in active service were based on the RP-2000 Employee Mortality Table projected to 2025 with projection scale BB.

The actuarial assumptions used in the June 30, 2015 valuation were based on the results of an actuarial experience study for the period July 1, 2009 – June 30, 2014.

The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected nominal returns, net of pension plan investment expense and the assumed rate of inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

State of Georgia contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on those assumptions, the ERS fiduciary net position was projected to be available to make all projected

# NOTES TO FINANCIAL STATEMENTS

June 30, 2017, *continued*



## 7. System Employees' Retirement Benefits, *continued*

future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

**Sensitivity of the System's proportionate share of the net pension liability to changes in the discount rate:** The following presents the System's proportionate share of the net pension liability calculated using the discount rate of 7.50%, as well as what the System's proportionate share of the net pension liability would be if it were

calculated using a discount rate that is 1-percentage-point lower (6.50%) or 1-percentage-point higher (8.50%) than the current rate (dollars in thousands):

System's Proportionate Share of the Net Pension Liability		
1% Decrease (6.50%)	Current discount rate (7.50%)	1% Increase (8.50%)
\$ 44,799	\$ 33,057	\$ 23,051

**Pension plan fiduciary net position:** Detailed information about the ERS plan's fiduciary net position is available in the separately issued ERS financial report, which is publically available at [www.ers.ga.gov/formspubs/formspubs.html](http://www.ers.ga.gov/formspubs/formspubs.html).

# REQUIRED SUPPLEMENTARY INFORMATION

For the Year Ended June 30 (Unaudited)

## Schedule of Changes in Employers' & Nonemployers' Net Pension Liability (dollars in thousands)

	2017	2016	2015	2014
Total pension liability:				
Service cost	\$ 1,413,080	\$ 1,435,810	\$ 1,386,498	\$ 1,374,556
Interest	6,293,611	5,990,178	5,779,597	5,557,046
Changes of benefit terms	—	—	—	—
Differences between expected and actual experience	573,483	380,526	(165,785)	—
Changes of assumptions	—	662,047	—	—
Benefit payments	(4,461,124)	(4,228,819)	(3,996,879)	(3,764,452)
Refunds of member contributions	(76,296)	(79,334)	(80,085)	(87,095)
Net change in total pension liability	3,742,754	4,160,408	2,923,346	3,080,055
Total pension liability – beginning	86,183,526	82,023,118	79,099,772	76,019,717
Total pension liability – ending (a)	89,926,280	86,183,526	82,023,118	79,099,772
Plan fiduciary net position:				
Contributions – employer	1,648,669	1,572,624	1,399,668	1,264,546
Contributions – nonemployer	6,175	7,908	7,038	6,417
Contributions – member	716,233	685,626	661,835	640,120
Net investment income	7,971,677	810,574	2,384,145	9,826,743
Benefit payments	(4,461,124)	(4,228,819)	(3,996,879)	(3,764,452)
Refunds of member contributions	(76,296)	(79,334)	(80,085)	(87,095)
Administrative expense	(16,773)	(15,279)	(14,996)	(15,025)
Other <sup>1</sup>	—	—	(27,706)	—
Net change in plan fiduciary net position	5,788,561	(1,246,700)	333,020	7,871,254
Plan fiduciary net position – beginning	65,552,411	66,799,111	66,466,091	58,594,837
Plan fiduciary net position – ending (b)	71,340,972	65,552,411	66,799,111	66,466,091
Net pension liability-ending (a)-(b)	\$ 18,585,308	\$ 20,631,115	\$ 15,224,007	\$ 12,633,681

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

<sup>1</sup> The System is a participating employer in the Employees' Retirement System of Georgia. Pursuant to the requirements of GASB Statement No. 68, the fiscal year 2015 beginning Fiduciary Net Position was restated by \$27,705,937 for reporting purposes to reflect the impact of recording the initial deferred outflows of resources and the net pension liability. For actuarial purposes, this adjustment is being recognized in fiscal year 2015 and beginning fiduciary net position was not restated.

## Schedule of Employers' & Nonemployers' Net Pension Liability & Related Ratios (dollars in thousands)

	2017	2016	2015	2014
Total pension liability	\$ 89,926,280	\$ 86,183,526	\$ 82,023,118	\$ 79,099,772
Plan fiduciary net position	71,340,972	65,552,411	66,799,111	66,466,091
Employers' and nonemployers' net pension liability	\$ 18,585,308	\$ 20,631,115	\$ 15,224,007	\$ 12,633,681
Plan fiduciary net position as a percentage of the total pension liability	79.33 %	76.06 %	81.44 %	84.03 %
Covered-employee payroll	\$ 11,596,664	\$ 11,075,907	\$ 10,697,384	\$ 10,349,862
Employers' and nonemployers' net pension liability as a percentage of covered-employee payroll	160.26 %	186.27 %	142.32 %	122.07 %

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying notes to required supplementary information and independent auditors' report.

# REQUIRED SUPPLEMENTARY INFORMATION

For the Year Ended June 30 (Unaudited), *continued*

## Schedule of Employer and Nonemployer Contributions (dollars in thousands)

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Actuarially Determined Employer and Nonemployer Contribution	\$ 1,654,844	\$ 1,580,532	\$ 1,406,706	\$ 1,279,963	\$ 1,180,469	\$ 1,082,224	\$ 1,089,912	\$ 1,057,416	\$ 1,026,287	\$ 986,759
Contributions in Relation to Actuarially Determined Contribution	1,654,844	1,580,532	1,406,706	1,279,963	1,180,469	1,082,224	1,089,912	1,057,416	1,026,287	986,759
Contribution Deficiency (Excess)	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Covered-Employee Payroll	\$ 11,596,664	\$ 11,075,907	\$ 10,697,384	\$ 10,349,862	\$ 10,345,916	\$ 10,527,471	\$ 10,602,257	\$ 10,856,427	\$ 11,059,127	\$ 10,633,179
Contributions as a Percentage of Covered-Employee Payroll	14.27%	14.27%	13.15%	12.28%	11.41%	10.28%	10.28%	9.74%	9.28%	9.28%

## Schedule of Investment Returns

	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense	7.62%	(2.92)%	(0.45)%	12.17%

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

## Schedule of the System's Proportionate Share of the Net Pension Liability to ERS (dollars in thousands)

	2017	2016	2015
System's proportion of the net pension liability (asset)	0.698825 %	0.683763 %	0.668620 %
System's proportionate share of the net pension liability (asset)	\$ 33,057	\$ 27,702	\$ 25,077
System's covered-employee payroll	16,880	16,291	17,622
System's proportionate share of the net pension liability (asset) as a percentage of its covered-employee payroll	195.84 %	170.04 %	142.31 %
ERS fiduciary net position as a percentage of the total pension liability	72.34 %	76.20 %	77.99 %

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

## Schedule of the System's Contributions to ERS (dollars in thousands)

	2017	2016	2015
Contractually required contribution	\$ 4,328	\$ 4,102	\$ 3,433
Contributions in relation to the contractually required contribution	4,328	4,102	3,433
Contribution deficiency (excess)	\$ —	\$ —	\$ —
System's covered-employee payroll	\$ 17,756	\$ 16,880	\$ 18,145
Contributions as a percentage of covered-employee payroll	24.37 %	24.30 %	18.92 %

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying notes to required supplementary information and independent auditors' report.

# NOTES TO REQUIRED SUPPLEMENTARY INFORMATION

June 30, 2017 (Unaudited)



## Required Supplementary Information for the System as the Plan

### ***Schedule of Changes in the Employers' and Nonemployers' Net Pension Liability***

The total pension liability contained in this schedule was provided by the System's actuary, Cavanaugh Macdonald Consulting, LLC. The net pension liability is measured as the total pension liability less the amount of the fiduciary net position of the System.

### ***Schedule of Employer and Nonemployer Contributions***

The required employer and nonemployer contributions and percentage of those contributions actually made are presented in the schedule.

### ***Actuarial Methods and Assumptions***

*Changes of assumptions:* On November 18, 2015, the Board adopted recommended changes to the economic and demographic assumptions utilized by the System. Primary among the changes were the updates to rates of mortality, retirement, withdrawal, and salary increases.

*Method and assumptions used in calculations of actuarially determined contributions:* The actuarially determined contribution rates in the schedule of employer and nonemployer contributions are calculated as of June 30, three years prior to the end of the fiscal year in which contributions are reported (June 30, 2017 employer contributions are based on June 30, 2014 valuation).

The following actuarial methods and assumptions were used to determine the most recent contribution rate reported in that schedule:

Valuation date:	June 30, 2014
Actuarial cost method:	Entry age
Amortization method:	Level percent of payroll, closed
Remaining amortization period:	29 Years
Asset valuation method:	Five-year smoothed market
Inflation rate:	3.00%
Salary increases:	3.75 to 7.00%, including inflation
Investment rate of return:	7.50%, net of pension plan investment expense, including inflation



# NOTES TO REQUIRED SUPPLEMENTARY INFORMATION

June 30, 2017 (Unaudited)



## Required Supplementary Information for the System as a Participating Employer in ERS

### *Schedule of the System's Proportionate Share of the Net Pension Liability to ERS*

This schedule presents historical trend information about the System's proportionate share of the net pension liability for its employees who participate in the ERS plan. GASB Statement No. 68 was implemented in 2015. Information related to previous years is not available; therefore, trend information will be accumulated going forward to display a 10-year presentation.

### *Schedule of the System's Contributions to ERS*

This schedule presents historical trend information about the System's contributions for its employees who participate in the ERS plan. GASB Statement No. 68 was implemented in 2015. Information related to previous years is not available; therefore, trend information will be accumulated going forward to display a 10-year presentation.

### *Changes in Benefit Terms and Assumptions*

*Changes of benefit terms:* There were no changes in benefit terms that affect the measurement of the total pension liability since the prior measurement date.

*Changes of assumptions:* On December 17, 2015, the Board adopted recommended changes to the economic and demographic assumptions utilized by the System. Primary among the changes were the updates to rates of mortality, retirement, disability, withdrawal, and salary increases.

# ADDITIONAL INFORMATION

For the Year Ended June 30, 2017

## Schedule of Administrative Expenses (dollars in thousands)

<b>Personal Services:</b>	
Salaries and fringes	\$ 8,446
Retirement contributions	1,973
Health insurance	2,570
FICA	604
Miscellaneous	110
Total personal services	13,703
<b>Communications:</b>	
Postage	227
Publications and printing	233
Telecommunications	122
Travel	121
Total communications	703
<b>Professional Services:</b>	
Computer services	1,022
Contracts	7
Actuarial services	113
Audit fees	216
Legal services	41
Medical services	63
Total professional services	1,462
<b>Management Expenses:</b>	
Building maintenance	579
Total management expenses	579
<b>Other Services and Charges:</b>	
Repairs and maintenance	10
Supplies and materials	185
Depreciation expense	534
Miscellaneous	189
Total other services and charges	918
Total administrative expenses	17,365
Less reimbursement by other state retirement systems for services rendered on their behalf	592
Net administrative expenses	\$ 16,773

## Schedule of Investment Expenses

Investment Advisory and Custodial Fees	\$ 28,319,467
Miscellaneous	13,002,632
Total Investment Expenses	\$ 41,322,099

See accompanying independent auditors' report.

# INVESTMENT OVERVIEW

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There has certainly been a lot of news and noise during the past year. Throughout it all, economic growth as measured by Real GDP improved modestly to a 2.2% pace. Global growth broadened out with Europe and Japan showing additional signs of improving health. A combination of improving economic growth, low inflation and low interest rates combined to boost U.S. equity returns to over 18% for the fiscal year.

We continually emphasize that the pension plan has a long-term investment horizon, and that short-term concerns should not drive the investment decisions. The System continues to invest in a mix of liquid, high quality bonds and stocks. These types of investments allow the System to participate in rising markets while moderating the risks on the downside. A high quality balanced fund has proven to be a successful strategy in a variety of markets over long periods of time.

As in previous years, the bias to quality was a primary goal and was successfully met. “Conservation of Capital” and “Conservatism” remain the guiding principles for investment decisions. The Board of Trustees continues to use a diversified portfolio to accomplish these objectives.

The domestic economy continued to grow during the fiscal year. Employment growth averaged a healthy 185,000 new jobs per month. Industrial production rebounded, inflation was contained and housing prices improved. Although one can find exceptions, foreign economies continued to improve, in large part due to easy central bank policies in Japan and Europe. In contrast, the Federal Reserve has begun to raise interest rates.

Studies undertaken to evaluate the investment returns of pension funds over very long time horizons indicate that the asset allocation decision has the largest impact on the fund’s returns. Although the returns for the various asset categories vary from year to year, over the long term equities typically outperform fixed income and cash by a very wide margin. For that reason, the System has generally maintained a significant equity exposure with the remainder of the fund invested in fixed income securities designed to generate income and preserve capital.

Returns for one-three-five-ten and twenty-year periods are presented in this section. Longer time periods, such as the twenty-year period, allow for more valid evaluation of returns, both in absolute terms and relative to an asset class index, by reducing emphasis on the short-term volatility of markets. The Daily Valuation Method, a time-weighted rate of return, was

used to calculate returns in a manner consistent with the CFA Institute’s objectives as stated in its publication “Global Investment Performance Standards Handbook,” third edition.

The return for the S&P 500 was 17.9%. U.S. small cap and mid cap stocks outperformed large cap stocks last year. The S&P MidCap 400 and the S&P SmallCap 600 indexes had returns of 18.6% and 22.5%, respectively. The Financial and Technology sectors had the highest returns for the 12 month period posting returns of over 28%, while Energy and Telecom Services were flat.

International markets also had strong returns. The MSCI EAFE Index returned 20.3% and the MSCI Emerging Market Index had a return of 23.7%. The dollar was down fractionally for the fiscal year.

Interest rates increased across the board during the first six months of the fiscal year and then flattened out resulting in negative bond returns. The total return on the 10-year Treasury Note was (5.6)% and the 30-year Treasury Bond had a (9.1)% return. The return on short-term Treasury bills was 0.4%.

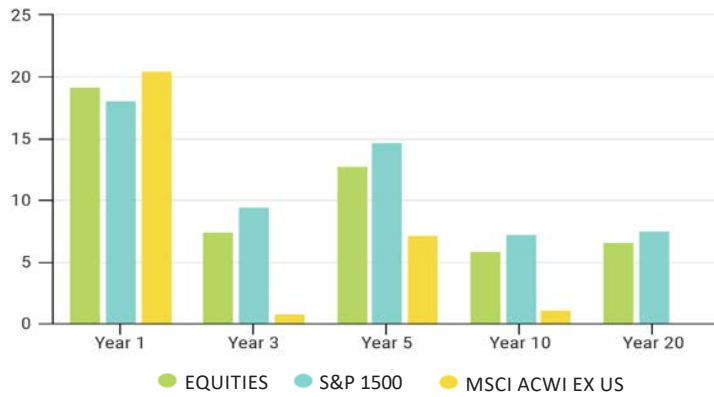
We look at two fixed income indexes to measure the bond market’s performance. The Barclays Government / Credit Index had a return of (0.41)%. It is a broad index containing corporate and government sponsored bonds as well as Treasuries. The Citigroup Treasury / Sponsored / AAA/AA had a return of (1.9)% and is a broad index containing higher rated corporate bonds as well as Treasuries and Government securities. The spread between corporate bonds and Treasury bonds tightened during the year leading to relatively better performance in corporate bonds.

In summary, the investment status of the System is excellent. The high quality of the System’s investments is in keeping with the continued policy of “Conservatism” and “Conservation of Capital.”

*Prepared by the Division of Investment Services*

# RATES OF RETURN

## Equities



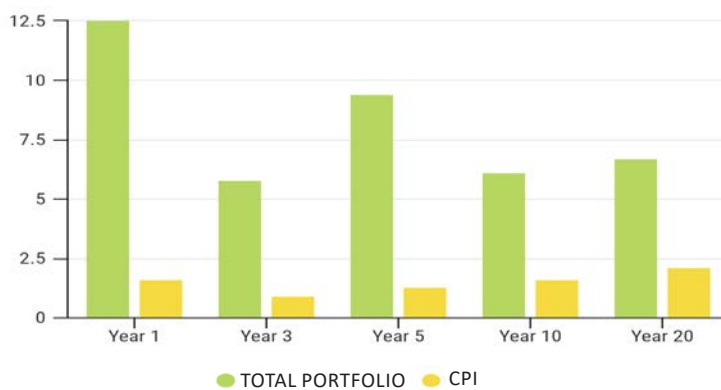
	<u>Equities</u>	<u>S&amp;P 1500</u>	<u>MSCI ACWI ex US</u>
1 Year	19.2%	18.1%	20.5%
3 Year	7.4	9.5	0.8
5 Year	12.8	14.7	7.2
10 Year	5.9	7.3	1.1
20 Year	6.6	7.5	—

## Fixed Income



	<u>Fixed Income</u>	<u>Barclays Gov't / Credit</u>	<u>1 Month T Bills</u>
1 Year	(1.0)%	(0.4)%	0.4%
3 Year	2.2	2.6	0.2
5 Year	1.8	2.3	0.1
10 Year	4.4	4.6	0.4
20 Year	5.6	5.3	1.9

## Total Portfolio



	<u>Total Portfolio</u>	<u>CPI</u>
1 Year	12.5%	1.6%
3 Year	5.8	0.9
5 Year	9.4	1.3
10 Year	6.1	1.6
20 Year	6.7	2.1

Note: Time-weighted rates of return are calculated using the Daily Valuation Method based on market rates of return.

# INVESTMENTS

## Asset Allocation



## Schedule of Fees and Commissions

For the Year Ended June 30, 2017

Investment Advisors' Fees*:	
U.S. Equity	\$ 12,491,649
International Equity	13,909,917
Investment Commissions:	
U.S. Equity	6,102,106
International Equity	7,091,600
SEC & Foreign Transaction Fees:	2,019,761
Miscellaneous*:	<u>14,920,533</u>
<b>Total Fees and Commissions</b>	<b><u>\$ 56,535,566</u></b>

\*Amount included in total investment expenses shown on page 40.

## Investment Summary

<b>Asset Allocation at June 30</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Equities	71.0%	73.5%	72.9%	71.2%	68.6%	70.9%
Fixed Income	29.0%	26.5%	27.1%	28.8%	31.4%	29.1%
<b>Asset Allocation at June 30 (in millions)</b>						
Equities	\$37,191	\$41,396	\$47,126	\$46,423	\$43,652	\$49,237
Fixed Income	15,188	14,882	17,491	18,807	19,979	20,139
<b>Total Investments</b>	<b><u>\$52,379</u></b>	<b><u>\$56,278</u></b>	<b><u>\$64,617</u></b>	<b><u>\$65,230</u></b>	<b><u>\$63,631</u></b>	<b><u>\$69,376</u></b>

# PORTFOLIO DETAIL STATISTICS

## Twenty Largest Equity Holdings\*

Shares	Company	Fair Value
6,193,748	Apple Inc	\$ 892,023,587
860,932	Alphabet Inc.	791,998,398
10,516,942	Microsoft Corp.	724,932,812
582,254	Amazon.Com Inc.	563,621,872
3,670,320	Facebook Inc.	554,144,914
3,933,930	Johnson & Johnson	520,419,600
6,086,877	Exxon Mobil Corp.	491,393,580
5,051,609	JPMorgan Chase & Co.	461,717,063
2,404,180	Berkshire Hathway Inc.	407,195,967
6,624,028	Wells Fargo & Co.	367,037,391
3,686,200	Visa Inc.	345,691,836
13,684,610	Bank of America Corp.	331,988,639
3,715,380	Procter & Gamble Co.	323,795,367
9,606,406	Pfizer Inc.	322,679,177
2,035,400	Alibaba Group Holding Ltd.	286,787,860
10,571,562	General Electric Co.	285,537,890
6,366,209	Verizon Communications Inc.	284,314,894
2,706,877	Chevron Corp.	282,408,477
1,515,636	UnitedHealth Group Inc.	281,029,227
7,392,517	AT&T Inc.	278,919,666
<b>Total of 20 Largest Equity Holdings</b>		<b>\$ 8,797,638,217</b>
<b>Total Equity Holdings</b>		<b>\$ 49,236,292,890</b>

## Ten Largest Fixed-Income Holdings\*

Description	Maturity Date	Interest Rate %	Par Value	Fair Value
U.S. Treasury Note	11/15/24	2.25	\$ 1,297,000,000	\$ 1,304,146,470
U.S. Treasury Note	3/31/23	1.5	1,105,000,000	1,074,700,900
U.S. Treasury Note	9/30/17	1.875	1,068,000,000	1,070,050,560
U.S. Treasury Note	4/30/19	1.625	768,000,000	771,333,120
U.S. Treasury Note	8/15/21	2.125	647,000,000	656,096,820
General Electric Company	10/9/22	2.7	609,000,000	619,432,170
U.S. Treasury Note	8/15/24	2.375	567,000,000	575,635,410
U.S. Treasury Bond	11/15/28	5.25	428,000,000	550,981,520
U.S. Treasury Bond	2/15/39	3.5	482,000,000	544,568,420
U.S. Treasury Note	1/31/19	1.125	500,000,000	498,185,000
<b>Total of 10 Largest Fixed-Income Holdings</b>				<b>\$ 7,665,130,390</b>
<b>Total Fixed-Income Holdings</b>				<b>\$ 20,139,422,200</b>

\* A complete listing is available upon written request, subject to restrictions of O. C. G. A. Section 47-1-14.

# ACTUARY'S CERTIFICATION LETTER

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May 10, 2017

Board of Trustees  
Teachers Retirement System of Georgia  
Suite 100, Two Northside 75  
Atlanta, GA 30318

Members of the Board:

Section 47-3-23 of the law governing the operation of the Teachers Retirement System of Georgia provides that the actuary shall make annual valuations of the contingent assets and liabilities of the Retirement System on the basis of regular interest and the tables last adopted by the Board of Trustees. We have submitted the report giving the results of the actuarial valuation of the System prepared as of June 30, 2016. The report indicates that annual employer contributions at the rate of 20.90% of compensation for the fiscal year ending June 30, 2019 are sufficient to support the benefits of the System. Our firm, as actuary, is responsible for all of the actuarial trend data in the financial section of the annual report and the supporting schedules in the actuarial section of the annual report.

In our opinion, the valuation is complete and accurate, and the methodology and assumptions are reasonable as a basis for the valuation. The valuation takes into account the effect of all amendments to the System enacted through the 2016 Session of the General Assembly. In preparing the valuation, the actuary relied on data provided by the System. While not verifying data at the source, the actuary performed tests for consistency and reasonableness.

The System is funded on an actuarial reserve basis. The actuarial assumptions recommended by the actuary and adopted by the Board are both individually and in the aggregate reasonably related to the experience under the System and to reasonable expectations of anticipated experience under the System. The assumptions and methods used for financial reporting purposes meet the parameters set by Actuarial Standards of Practice (ASOPS). The funding objective of the plan is that contribution rates over time will remain level as a percent of payroll. The valuation method used is the entry age normal cost method. The normal contribution rate to cover current cost has been determined as a level percent of payroll. Gains and losses are reflected in the unfunded accrued liability, which is amortized as a level percent of payroll in accordance with the funding policy adopted by the Board.

The Plan and the employers are required to comply with the financial reporting requirements of GASB Statements No. 67 and 68. The necessary disclosure information is provided in separate supplemental reports.

We have provided the following information and supporting schedules for the Actuarial Section of the Comprehensive Annual Financial Report:

- Summary of Actuarial Assumptions and Methods
- Schedule of Active Members
- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedule of Funding Progress
- Analysis of Financial Experience

# ACTUARY'S CERTIFICATION LETTER

*continued*

The System is being funded in conformity with the minimum funding standard set forth in Code Section 47-20-10 of the Public Retirement Systems Standards Law. In our opinion, the System is operating on an actuarially sound basis. Assuming that contributions to the System are made by the employer from year to year in the future at the rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the retirement fund to provide the benefits called for under the System may be safely anticipated.

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

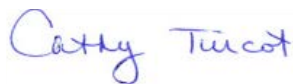
The actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the System. Use of these computations for purposes other than meeting these requirements may not be appropriate.

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

Sincerely yours,



Edward A. Macdonald, ASA, FCA,  
MAAA  
President



Cathy Turcot  
Principal and Managing  
Director



John J. Garrett, ASA, FCA, MAAA  
Principal and Consulting Actuary



# SUMMARY OF ACTUARIAL ASSUMPTIONS & METHODS

The laws governing the Teachers Retirement System of Georgia (the System) provide that an actuary perform an annual valuation of the contingent assets and liabilities of the System and perform at least once every five years an actuarial investigation of the mortality, service, and compensation experience of the members and beneficiaries of the System. The latest actuarial valuation of the System, prepared as of June 30, 2016, was made on the basis of the funding policy adopted by the Board on November 20, 2013 and the 5-year experience study adopted by the Board on November 18, 2015. The Board is responsible for maintaining this funding policy. A summary of plan provisions can be found in the Introductory Section beginning on page 11, and a plan description can be found in the Financial Section beginning on page 14.

The more pertinent facts and significant assumptions underlying the computations included in the June 30, 2016 valuation are as follows:

## a) Actuarial Method Used

The actuarial cost method used for funding purposes is the Entry Age Normal method, which is the same cost method used for financial reporting purposes. The Entry Age Normal method is the most commonly used funding method among public retirement plans. This cost method allocates the cost of benefits over each member's expected career as a level percentage of their expected salary and demonstrates the highest degree of stability in the calculation of a plan's normal cost over time. Gains and losses are reflected in the unfunded accrued liability. Adopted November 20, 2013.

## b) Ultimate Investment Return

7.50% compounded annually, which consists of a 4.75% assumed real rate of return and a 2.75% assumed annual rate of inflation. This long-term expected rate of return is used to determine the total pension liability for financial reporting purposes. Adopted November 18, 2015.

## c) Salary Increases

Salaries are expected to increase 3.25% to 9.00% annually depending upon the members' years of creditable service. The salary increase includes a 0.50% assumed real rate of wage inflation and a 2.75% assumed annual rate of inflation. Adopted November 18, 2015.

## d) Death, Disability and Withdrawal Rates

Death, disability and withdrawal rates for active employees and service retirement tables are based upon the System's historical experience. The death-after-retirement rates are based on the RP-2000 White Collar Mortality Table projected to 2025 with projection scale BB (set forward one year for males). The death-after-disability retirement rates are based on the RP-2000 Disabled Mortality Table projected to 2025 with projection scale BB (set forward two years for males and four years for females). Adopted November 18, 2015.

## e) Asset Valuation Method

In accordance with the funding policy, the actuarial value of the assets was set equal to the fair value of assets on June 30, 2013. Five-year smoothing of investment gains and losses commenced in the subsequent year. The actuarial value of assets recognizes a portion of the difference between the fair value of the assets and the expected fair value of assets, based on the assumed valuation rate of return. The amount recognized is one-fifth of the difference between fair value and actuarial expected value. Adopted November 20, 2013. The actuarial value of assets is limited to a range between 75% and 125% of fair value. Adopted July 27, 2011.

## f) Service Retirement Benefit

The service benefit (pension) paid to members is an annuity that is owed to them at retirement that will provide a total annual pension equal to 2% of the member's average compensation over the two consecutive years of membership service producing the highest such average, multiplied by the number of years of creditable service up to 40 years. It is also assumed that certain cost-of-living adjustments will be made in future years.

## g) Actuarially Determined Unfunded Accrued Liability

The present value of the unfunded accrued liability, based on unaudited data provided the actuary by the System, was approximately \$23.6 billion at June 30, 2016.

# SUMMARY OF ACTUARIAL ASSUMPTIONS & METHODS

*continued*



## h) Valuation Interest Rate Smoothing

The valuation liabilities are calculated using a smoothed interest rate method. The interest rate assumed during the look-forward period (currently 23 years from the valuation date) is the investment rate of return expected to be earned during the look-forward period based on the actual rate of return earned during the look-back period (currently 7 years) such that the average assumed rate of return over the combined 30-year period is equivalent to the assumed ultimate investment rate of return (currently 7.50%). The interest rate after the 23-year look-forward period is the ultimate investment rate of return of 7.50%. Adopted November 20, 2013. The smoothed interest rate used during the 23-year look-forward period is subject to a corridor around the annual expected rate of return to limit the extent that the calculated smoothed rate can vary from the long-term investment rate of return. Adopted November 20, 2013.

## i) Required Contributions (% of compensation)

Contributions required by the annual actuarial valuation as of June 30, 2016, to be made for the year ended June 30, 2019:

<b>(1) Member</b>	<b><u>6.00%</u></b>
<b>(2) Employer:</b>	
<b>Normal</b>	<b>7.77%</b>
<b>Unfunded Accrued Liability</b>	<b><u>13.13%</u></b>
<b>Total</b>	<b><u>20.90%</u></b>

# SUMMARY OF ACTUARIAL ASSUMPTIONS & METHODS

continued

## Service Retirement

Adopted November 18, 2015

Age	Male		Female	
	< 30 years of service	≥ 30 years of service	< 30 years of service	≥ 30 years of service
50	3.50%	60.00%	3.00%	55.00%
55	5.00	40.00	5.50	37.00
60	20.00	36.00	25.00	43.00
61	18.00	32.00	25.00	43.00
62	26.00	36.00	25.00	43.00
63	22.00	33.00	25.00	43.00
64	22.00	32.00	25.00	43.00
65	30.00	30.00	31.00	31.00
66	32.00	32.00	33.00	33.00
67	30.00	30.00	30.00	30.00
68	30.00	30.00	30.00	30.00
69	28.00	28.00	30.00	30.00
70	30.00	30.00	30.00	30.00

## Separation Before Service Retirement

Adopted November 18, 2015

Age	Annual Rate of				
	Death	Disability	Withdrawal Years of Service		
			0-4 Yrs	5-9 Yrs	10+ Yrs
<b>Male</b>					
20	0.0320%	0.0135%	25.00%	— %	— %
25	0.0349	0.0135	17.00	12.00	—
30	0.0412	0.0210	13.50	7.00	8.00
35	0.0717	0.0330	13.50	6.00	3.00
40	0.1001	0.0550	13.00	6.00	2.50
45	0.1399	0.0900	12.00	6.00	2.30
50	0.1983	0.1700	11.00	5.50	2.50
55	0.2810	0.3000	11.00	5.50	3.00
60	0.4092	—	12.00	5.50	—
64	0.5330	—	13.00	6.50	—
<b>Female</b>					
20	0.0177%	0.0100%	28.00%	— %	— %
25	0.0192	0.0130	13.50	16.00	—
30	0.0245	0.0140	13.50	8.00	6.00
35	0.0441	0.0190	13.00	7.00	3.50
40	0.0655	0.0390	11.00	6.50	3.00
45	0.1043	0.0650	10.50	6.00	2.30
50	0.1555	0.1400	10.00	5.00	2.40
55	0.2228	0.3400	10.00	5.00	2.75
60	0.3058	—	10.50	5.50	—
64	0.4015	—	13.00	6.50	—

# ACTUARIAL VALUATION DATA

continued

## Active Members

Fiscal Year <sup>(1)</sup>	Number of Participating Employers	Members	Annual Payroll <sup>(2)</sup> (000's)	Average Pay	% Increase
2007	385	215,566	\$ 9,492,003	\$ 44,033	3.5%
2008	389	224,993	10,197,584	45,324	2.9
2009	392	226,537	10,641,543	46,975	3.6
2010	386	222,020	10,437,703	47,012	0.1
2011	399	216,137	10,099,278	46,726	(0.6)
2012	404	213,648	10,036,023	46,975	0.5
2013	401	209,854	9,924,682	47,293	0.7
2014	405	209,828	9,993,686	47,628	0.7
2015	414	213,990	10,347,332	48,354	1.5
2016	416	218,193	10,783,277	49,421	2.2

## Retirees and Beneficiaries

Fiscal Year <sup>(1)</sup>	<u>Added to Roll</u>		<u>Removed from Roll</u>		<u>Roll-End of Year</u>		% Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances (000's)	Number	Annual Allowances (000's)	Number	Annual Allowances (000's)		
2007	5,858	\$ 230,924	1,656	\$ 39,293	74,421	\$ 2,232,102	9.4%	\$ 29,993
2008	5,817	238,137	1,655	39,808	78,583	2,430,431	8.9	30,928
2009	5,543	245,006	1,768	45,116	82,358	2,630,321	8.2	31,938
2010	6,383	279,009	1,763	46,853	86,978	2,862,477	8.8	32,910
2011	7,136	295,192	1,937	55,062	92,177	3,102,607	8.4	33,659
2012	7,055	298,471	1,915	55,565	97,317	3,345,513	7.8	34,377
2013	7,937	322,853	1,983	59,453	103,271	3,608,913	7.9	34,946
2014	7,078	291,066	2,195	68,324	108,154	3,831,655	6.2	35,428
2015	7,207	306,751	2,237	72,818	113,124	4,065,588	6.1	35,939
2016	7,225	312,063	2,392	80,359	117,957	4,297,292	5.7	36,431

<sup>(1)</sup> Fiscal year refers to the actuarial valuation performed as of June 30 of that year and determines the funding necessary for the fiscal year beginning two years after the valuation date. An actuarial valuation for the fiscal year ended June 30, 2017 is currently in process and was not available for this analysis.

<sup>(2)</sup> The annual payroll shown in the schedule of active member valuation data is the annual compensation of the active members at the date of the valuation. The covered payroll reported in the financial section represents the payroll during the fiscal year upon which employer contributions were made.

# ACTUARIAL VALUATION DATA

continued

## Solvency Test (dollars in thousands)

Fiscal Year*	Aggregate Actuarial Accrued Liabilities For			Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Assets		
	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Members (Employer-Financed Portion)		(1)	(2)	(3)
2007	\$ 5,703,184	\$ 28,212,100	\$ 21,081,286	\$ 52,099,171	100.0%	100.0%	86.3%
2008	6,009,710	30,915,200	22,208,867	54,354,284	100.0	100.0	78.5
2009**	6,382,932	29,725,063	23,342,121	53,438,604	100.0	100.0	74.2
2010	6,705,274	34,264,548	22,622,215	54,529,416	100.0	100.0	59.9
2011	6,973,343	37,271,020	21,734,277	55,427,716	100.0	100.0	51.5
2012	7,242,569	39,759,145	21,346,964	56,262,332	100.0	100.0	43.4
2013	7,480,767	43,152,402	21,587,696	58,594,837	100.0	100.0	36.9
2014	7,815,630	45,841,742	22,114,745	62,061,722	100.0	100.0	38.0
2015	8,153,958	50,251,964	24,385,088	65,514,119	100.0	100.0	29.1
2016	8,522,267	55,186,998	28,012,510	68,161,710	100.0	100.0	15.9

\*Fiscal year refers to the actuarial valuation performed as of June 30 of that year and determines the funding necessary for the fiscal year beginning two years after the valuation date. An actuarial valuation for the fiscal year ended June 30, 2017 is currently in process and was not available for this analysis.

\*\* Revised since the previous valuation to reflect the refinement of the smoothed valuation interest rate methodology used in the 2010 valuation, which includes corridors around the long-term investment rate of return.

## Member & Employer Contribution Rates

Fiscal Year	Member	Employer
2009	5.00 %	9.28 %
2010	5.25	9.74
2011	5.53	10.28
2012	5.53	10.28
2013	6.00	11.41
2014	6.00	12.28
2015	6.00	13.15
2016	6.00	14.27
2017	6.00	14.27
2018	6.00	16.81



## Schedule of Funding Progress (dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Plan Assets (a)	Actuarial Accrued Liability (AAL) -Entry Age (b)	Unfunded AAL (UAAL) (Funding Excess) (b-a)	Funded Ratio (a/b)	Annual Covered Payroll (c)	UAAL (Funding Excess) as a Percentage of Covered Payroll [(b-a)/c]
6/30/07	\$ 52,099,171	\$ 54,996,570	\$ 2,897,399	94.7%	\$ 9,482,003	30.5%
6/30/08	54,354,284	59,133,777	4,779,493	91.9	10,197,584	46.9
6/30/09*	53,438,604	59,450,116	6,011,512	89.9	10,641,543	56.5
6/30/10	54,529,416	63,592,037	9,062,621	85.7	10,437,703	86.8
6/30/11	55,427,716	65,978,640	10,550,924	84.0	10,099,278	104.5
6/30/12	56,262,332	68,348,678	12,086,346	82.3	10,036,023	120.4
6/30/13	58,594,837	72,220,865	13,626,028	81.1	9,924,682	137.3
6/30/14	62,061,722	75,772,117	13,710,395	81.9	9,993,686	137.2
6/30/15	65,514,119	82,791,010	17,276,891	79.1	10,347,332	167.0
6/30/16	68,161,710	91,721,775	23,560,065	74.3	10,783,277	218.5

\*Revised since the previous valuation to reflect the refinement of the "smoothed valuation interest rate" methodology used in the 2010 valuation, which includes corridors around the long-term investment rates of return.

This data, except for annual covered payroll, was provided by the System's actuary.

## Analysis of Financial Experience (dollars in millions)

Item	Analysis of the Change in Unfunded Accrued Liability Increase (Decrease) During the Years Ended June 30,									
	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Interest Added to Previous										
Unfunded Accrued Liability	\$1,300.9	\$1,077.6	\$1,084.6	\$977.8	\$846.2	\$733.2	\$486.3	\$358.5	\$217.3	\$134.7
Accrued Liability Contribution	(985.4)	(796.1)	(662.0)	(604.7)	(443.5)	(396.3)	(312.0)	(125.0)	(118.5)	57.2
Experience:										
Valuation Asset Growth	150.9	(677.3)	(836.1)	1,241.1	1,855.1	2,018.7	1,674.9	2,433.5	548.9	(132.3)
Pensioners' Mortality	(13.4)	37.7	35.3	52.7	51.6	24.2	89.8	50.1	58.4	25.6
Turnover and Retirements	209.2	335.9	119.6	378.2	319.1	195.3	269.5	307.1	291.4	213.3
New Entrants	153.1	138.9	115.3	96.2	101.2	89.6	123.7	185.1	258.8	212.6
Salary Increases	72.3	(227.6)	(624.9)	(715.2)	(709.9)	(1,132.2)	(1,040.5)	14.1	162.8	294.5
Method Changes <sup>(4)</sup>	—	—	—	(926.7)	—	—	—	(2,062.3)	—	—
Interest Smoothing	5,286.1	2,861.2	739.8	915.9	(627.0)	412.8	—	—	—	—
Amendments <sup>(1)</sup>	—	—	—	—	—	(685.5)	—	—	386.3	252.3
Change in Member										
Contribution Rate <sup>(3)</sup>	—	—	—	—	—	—	12.8	—	(15.7)	(8.4)
Assumption Changes <sup>(2)</sup>	—	688.3	—	—	—	—	1,472.4	—	—	—
Miscellaneous	109.5	127.9	112.8	124.4	142.6	228.5	274.2	70.9	92.4	51.2
<b>Total Increase</b>	<b>\$ 6,283.2</b>	<b>\$ 3,566.5</b>	<b>\$ 84.4</b>	<b>\$ 1,539.7</b>	<b>\$ 1,535.4</b>	<b>\$ 1,488.3</b>	<b>\$ 3,051.1</b>	<b>\$ 1,232.0</b>	<b>\$ 1,882.1</b>	<b>\$ 1,100.7</b>

<sup>(1)</sup> Amendments

2007 - Reflects the impact of the first phase of the Plymel lawsuit.

2008 - Reflects the impact of the final Plymel lawsuit.

2011 - Reflects the impact of discontinuing the one-time 3% increase on the first \$37,500 of members' allowances for all members who retire on or after January 1, 2013.

<sup>(2)</sup> Assumption Changes

2010 - The assumed rates of withdrawal, disability, retirement, and mortality and the assumed rates of salary increase have been revised to more closely reflect the actual and anticipated experience of the System.

2015 - The assumed rates of withdrawal, disability, retirement, and mortality and the assumed rates of salary increase have been revised to more closely reflect the actual and anticipated experience of the System. In addition, assumptions related to percent married, unused sick leave, and termination benefits were also revised.

<sup>(3)</sup> Member Contribution Rate

2007 - Reflects an increase in the member contribution rate from 5.00% to 5.25% effective July 1, 2009.

2008 - Reflects an increase in the member contribution rate from 5.25% to 5.53% effective July 1, 2010.

2010 - Reflects an increase in the member contribution rate from 5.53% to 6.00% effective July 1, 2012.

<sup>(4)</sup> Method Changes

2009 - Reflects change to a valuation interest rate smoothing methodology and a change to include a corridor around the long-term investment rate of return.

2013 - Reflects change to asset smoothing methodology where the final actuarial value of assets used for the current valuation was set to the fair value of assets as of June 30, 2013. Five-year smoothing of investment gains and losses will commence in subsequent years.

# STATISTICAL SECTION OVERVIEW & FINANCIAL TRENDS

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

## Financial Trends

The schedules presented on page 54 and page 55 contain trend

information to help the reader understand how the System's financial position has changed over time.

## Operating Information

The schedules presented on pages 56 through 66 contain benefits, service and employer data to help the reader understand how the System's financial report relates to the services of the System and the activities it performs.

## Additions by Source (dollars in thousands)

Fiscal Year	Member Contributions	Employer and Nonemployer Contributions	Net Investment Income (Loss)	Total Additions to (Deductions from) Fiduciary Net Position
2008	\$ 554,027	\$ 986,759	\$ (1,775,578)	\$ (234,792)
2009	567,635	1,026,287	(6,572,435)	(4,978,513)
2010	592,264	1,057,416	4,671,571	6,321,251
2011	604,126	1,089,912	9,594,994	11,289,032
2012	601,512	1,082,224	1,090,900	2,774,636
2013	640,745	1,180,469	6,938,349	8,759,563
2014	640,120	1,270,963	9,826,743	11,737,826
2015	661,835	1,406,706	2,384,145	4,452,686
2016	685,626	1,580,532	810,574	3,076,732
2017	716,233	1,654,844	7,971,677	10,342,754

Contributions were made in accordance with actuarially determined contribution requirements.

## Deductions by Type (dollars in thousands)

Fiscal Year	Benefit Payments							Total Benefit Payments	Net Administrative Expenses	Refunds	Total Deductions From Fiduciary Net Position
	Service	Partial Lump-Sum Option	Disability	Survivor Benefits	Supplemental Payments <sup>(1)</sup>	Lump-Sum Death Settlement					
2008	\$ 2,527,156	\$ 40,820	\$ 89,348	\$ 95,452	\$ 1,648	\$ 2,059	\$ 2,756,483	\$ 23,744	\$ 54,482	\$ 2,834,709	
2009	2,385,561	37,191	72,028	36,922	1,414	1,371	2,534,487	22,603	49,414	2,606,504	
2010	2,639,144	34,530	74,998	49,290	1,122	1,340	2,800,424	20,223	53,638	2,874,285	
2011	2,868,815	37,652	80,393	52,122	922	1,599	3,041,503	20,986	67,916	3,130,405	
2012	3,091,370	42,441	85,830	55,328	754	1,829	3,277,552	21,954	72,157	3,371,663	
2013	3,353,295	42,259	91,727	58,234	633	2,001	3,548,149	22,584	81,142	3,651,875	
2014	3,569,374	33,148	98,145	61,203	508	2,074	3,764,452	15,025	87,095	3,866,572	
2015	3,791,526	34,494	103,483	64,911	379	2,086	3,996,879	14,996	80,085	4,091,960	
2016	4,015,786	33,929	109,669	67,013	312	2,110	4,228,819	15,279	79,334	4,323,432	
2017	4,241,760	31,839	114,813	70,179	297	2,236	4,461,124	16,773	76,296	4,554,193	

<sup>(1)</sup> Supplemental payments to retirees who belong to a local retirement system.



# FINANCIAL TRENDS

continued

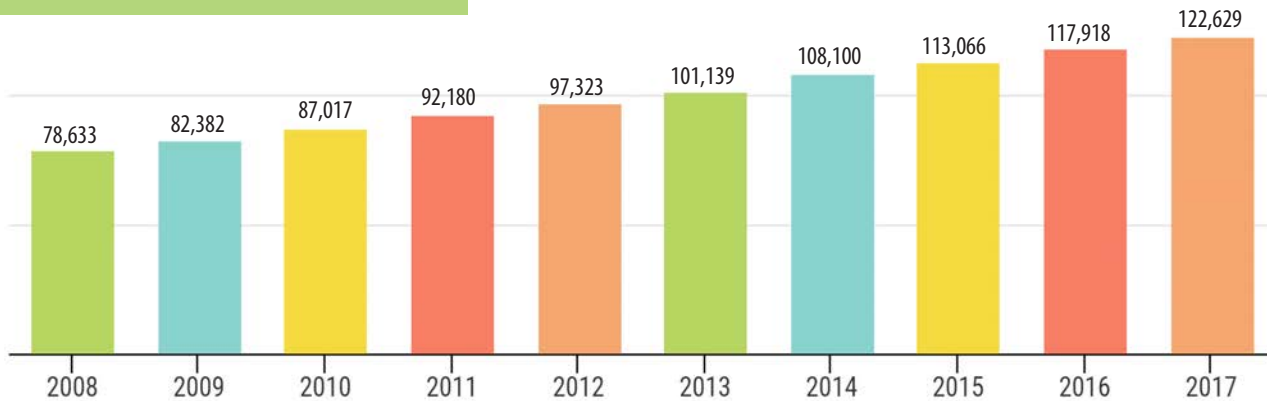


Changes in Fiduciary Net Position (dollars in thousands)

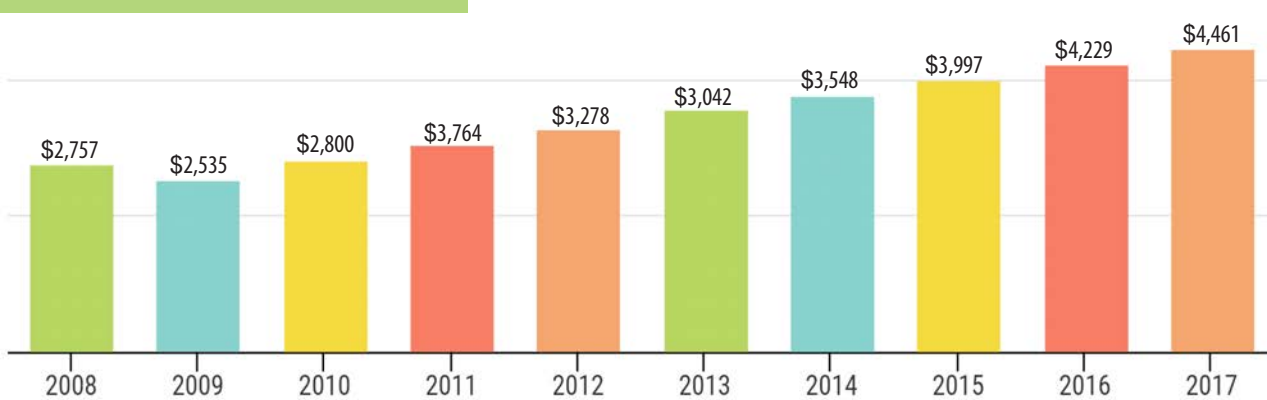
Fiscal Year	Total Additions to (Deductions from) Fiduciary Net Position	Total Deductions from Fiduciary Net Position	Changes in Fiduciary Net Position
2008	\$ (234,792)	\$ 2,834,709	\$ (3,069,501)
2009	(4,978,513)	2,606,504	(7,585,017)
2010	6,321,251	2,874,285	3,446,966
2011	11,289,032	3,130,405	8,158,627
2012	2,774,636	3,371,663	(597,027)
2013	8,759,563	3,651,875	5,107,688
2014	11,737,826	3,866,572	7,871,254
2015	4,452,686	4,091,960	360,726
2016	3,076,732	4,323,432	(1,246,700)
2017	10,342,754	4,554,193	5,788,561

## Benefit Payment Statistics

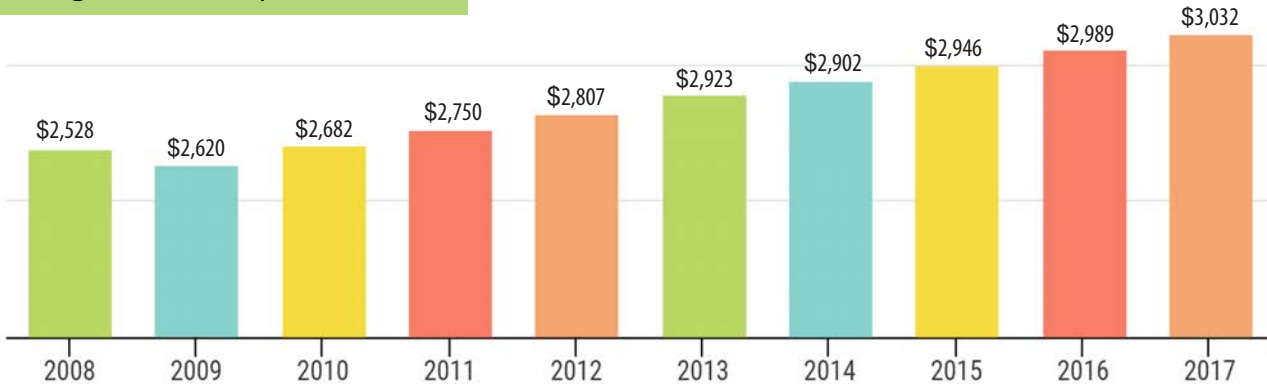
### Number of Retirees



### Annual Benefit (dollars in millions)



### Average Monthly Benefit



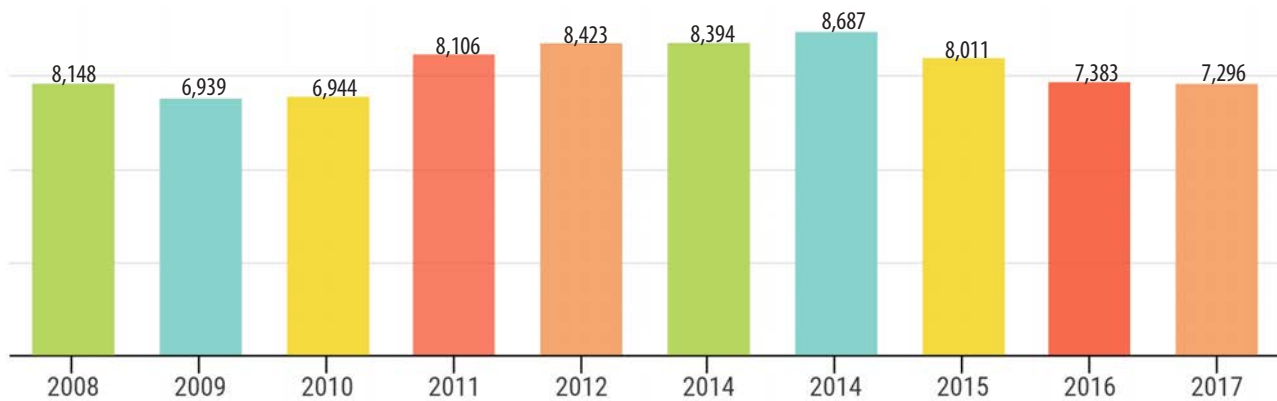
Retirees who belonged to a local retirement system and who received supplemental payments are not included.

# OPERATING INFORMATION

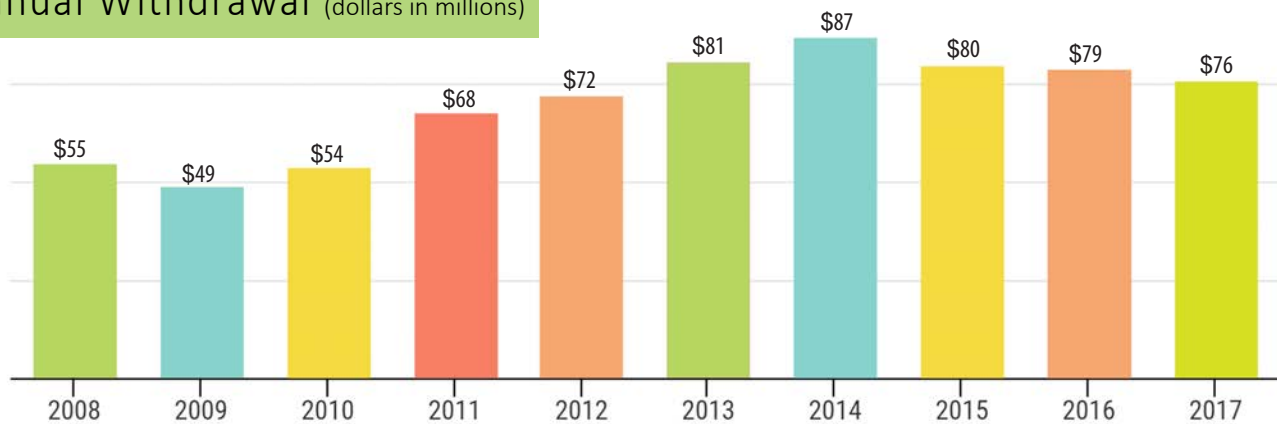
continued

## Member Withdrawal Statistics

### Number of Members



### Annual Withdrawal (dollars in millions)



### Average Withdrawal



## Average Monthly Benefit Payments for New Retirees

Effective Retirement Dates for Fiscal Years Ended June 30,	Years Credited Service					Total
	10 - 15	16 - 20	21 - 25	26 - 30	Over 30	
<b>2008</b>						
Average monthly benefit	\$ 809.08	\$ 1,324.02	\$ 1,866.99	\$ 2,466.86	\$ 3,488.62	\$ 2,424.71
Average final average salary	\$ 3,404.28	\$ 3,734.90	\$ 4,283.55	\$ 4,797.61	\$ 5,676.32	\$ 4,755.66
Number of retirees	1,010	726	777	686	2,665	5,864
<b>2009</b>						
Average monthly benefit	\$ 812.18	\$ 1,293.52	\$ 1,892.41	\$ 2,564.06	\$ 3,603.15	\$ 2,456.32
Average final average salary	\$ 3,430.35	\$ 3,676.14	\$ 4,302.88	\$ 4,938.17	\$ 5,785.56	\$ 4,794.47
Number of retirees	1,008	701	774	601	2,480	5,564
<b>2010</b>						
Average monthly benefit	\$ 859.93	\$ 1,433.00	\$ 1,931.22	\$ 2,624.98	\$ 3,655.74	\$ 2,479.89
Average final average salary	\$ 3,651.87	\$ 4,095.26	\$ 4,366.28	\$ 5,142.35	\$ 5,820.83	\$ 4,902.99
Number of retirees	1,195	786	1,018	690	2,736	6,425
<b>2011</b>						
Average monthly benefit	\$ 879.11	\$ 1,483.30	\$ 1,963.77	\$ 2,719.55	\$ 3,735.70	\$ 2,456.69
Average final average salary	\$ 3,753.60	\$ 4,216.80	\$ 4,461.70	\$ 5,175.76	\$ 5,940.78	\$ 4,943.41
Number of retirees	1,455	954	1,150	812	2,797	7,168
<b>2012</b>						
Average monthly benefit	\$ 900.60	\$ 1,417.23	\$ 2,008.09	\$ 2,723.70	\$ 3,764.35	\$ 2,425.05
Average final average salary	\$ 3,813.60	\$ 4,070.28	\$ 4,564.72	\$ 5,250.18	\$ 5,995.69	\$ 4,948.47
Number of retirees	1,532	920	1,125	885	2,589	7,051
<b>2013</b>						
Average monthly benefit	\$ 881.25	\$ 1,465.23	\$ 1,979.00	\$ 2,626.66	\$ 3,642.94	\$ 2,335.21
Average final average salary	\$ 3,720.18	\$ 4,200.63	\$ 4,506.44	\$ 5,060.19	\$ 5,811.25	\$ 4,821.63
Number of retirees	1,721	1,107	1,279	1,060	2,762	7,929
<b>2014</b>						
Average monthly benefit	\$ 877.35	\$ 1,410.94	\$ 1,902.93	\$ 2,515.64	\$ 3,556.03	\$ 2,152.62
Average final average salary	\$ 3,801.40	\$ 4,136.09	\$ 4,454.29	\$ 4,962.86	\$ 5,868.78	\$ 4,736.63
Number of retirees	1,744	1,066	1,169	994	2,099	7,072
<b>2015</b>						
Average monthly benefit	\$ 897.66	\$ 1,416.36	\$ 2,008.34	\$ 2,566.87	\$ 3,573.41	\$ 2,217.71
Average final average salary	\$ 3,818.45	\$ 4,161.17	\$ 4,635.36	\$ 5,007.10	\$ 5,900.24	\$ 4,812.42
Number of retirees	1,659	1,119	1,164	1,035	2,190	7,167
<b>2016</b>						
Average monthly benefit	\$ 883.07	\$ 1,447.47	\$ 1,979.68	\$ 2,582.75	\$ 3,496.30	\$ 2,207.94
Average final average salary	\$ 3,786.36	\$ 4,215.09	\$ 4,558.19	\$ 5,046.61	\$ 5,796.47	\$ 4,786.10
Number of retirees	1,695	1,094	1,130	1,001	2,297	7,217
<b>2017</b>						
Average monthly benefit	\$ 870.72	\$ 1,455.45	\$ 1,997.91	\$ 2,588.80	\$ 3,535.59	\$ 2,220.50
Average final average salary	\$ 3,778.31	\$ 4,230.72	\$ 4,657.44	\$ 5,139.34	\$ 5,877.02	\$ 4,839.84
Number of retirees	1,692	1,120	1,089	973	2,300	7,174

# OPERATING INFORMATION

continued

## Retired Members by Type of Benefit

Amount of Monthly Benefit	Number of Retirees	Type of Retirement <sup>(1)</sup>				Option Selected <sup>(2)</sup>							
		A	B	C	D	Max	Opt-1	Opt-2	Opt-3	Opt-4	Opt-2 Pop-Up	Opt-3 Pop-Up	
\$ 1–250	542	339	48	115	40	184	11	193	69	43	31	11	
250–500	4,710	3,913	391	404	2	2,884	159	897	202	106	346	116	
500–750	6,665	5,650	610	401	4	4,160	250	1,146	281	76	559	193	
750–1000	7,238	6,300	536	400	2	4,397	284	1,243	282	59	723	250	
1000–1250	7,290	6,391	524	369	6	4,437	275	1,228	316	39	684	311	
1,250–1,500	6,357	5,596	471	289	1	3,819	236	1,002	258	55	698	289	
1,500–1,750	5,453	4,819	375	258	1	3,099	212	905	307	45	596	289	
1,750–2,000	5,019	4,457	343	218	1	2,876	215	768	269	50	542	299	
2,000–2,250	4,870	4,372	317	180	1	2,722	189	761	293	46	529	330	
2,250–2,500	4,573	4,156	285	131	1	2,521	197	670	262	46	558	319	
2,500–2,750	4,777	4,402	270	105	-	2,645	213	671	292	52	591	313	
2,750–3,000	4,902	4,510	295	97	-	2,768	212	638	282	53	628	321	
3,000–3,250	5,527	5,180	259	88	-	3,197	261	656	277	88	673	375	
3,250–3,500	5,862	5,617	169	76	-	3,527	266	671	285	69	680	364	
3,500–3,750	5,985	5,791	135	59	-	3,642	272	643	261	87	705	375	
3,750–4,000	6,436	6,310	84	42	-	4,150	353	541	279	86	620	407	
4,000–4,250	5,953	5,852	69	32	-	3,855	307	483	284	97	566	361	
4,250–4,500	5,204	5,142	35	27	-	3,428	284	441	223	73	439	316	
4,500–4,750	4,429	4,368	29	32	-	2,977	258	353	208	64	343	226	
4,750–5,000	3,550	3,508	15	27	-	2,383	181	310	173	53	264	186	
Over 5,000	17,287	17,126	47	114	-	10,516	979	2,047	1,191	462	1,145	947	
<b>TOTALS</b>	<b>122,629</b>	<b>113,799</b>	<b>5,307</b>	<b>3,464</b>	<b>59</b>	<b>74,187</b>	<b>5,614</b>	<b>16,267</b>	<b>6,294</b>	<b>1,749</b>	<b>11,920</b>	<b>6,598</b>	

<sup>(1)</sup> Type of Retirement

A - Service

B - Disability

C - Survivor benefit

D - Supplemental payments to retirees who belonged to a local retirement system.

<sup>(2)</sup> Refer to Summary of Plan Provisions, beginning on page 11 for descriptions of Options.

# OPERATING INFORMATION

continued

## Retirement Payments By County of Residence

County	Number of Retirees	FY17 Total Gross Pay	County	Number of Retirees	FY17 Total Gross Pay
Appling	297	\$ 11,051,086	Dade	122	\$ 3,833,167
Atkinson	92	3,371,895	Dawson	314	13,015,106
Bacon	143	5,125,016	Decatur	360	13,029,312
Baker	33	1,055,668	DeKalb	5,949	255,434,215
Baldwin	772	27,342,811	Dodge	264	9,428,353
Banks	206	6,817,685	Dooly	130	4,672,384
Barrow	679	22,538,356	Dougherty	1,663	64,131,685
Bartow	987	34,581,503	Douglas	969	35,173,086
Ben Hill	272	9,511,355	Early	193	6,882,556
Berrien	244	8,477,200	Echols	8	275,900
Bibb	1,886	68,302,152	Effingham	432	12,937,167
Bleckley	274	9,498,766	Elbert	301	9,844,198
Brantley	143	5,137,938	Emanuel	379	13,857,205
Brooks	187	6,581,009	Evans	141	4,901,605
Bryan	323	10,563,472	Fannin	364	13,497,414
Bulloch	1,364	49,886,805	Fayette	1,769	70,929,400
Burke	274	8,990,922	Floyd	1,403	53,901,357
Butts	287	10,664,527	Forsyth	1,052	38,347,025
Calhoun	123	4,028,838	Franklin	374	13,514,237
Camden	386	13,838,979	Fulton	7,171	316,822,791
Candler	160	5,235,065	Gilmer	408	15,204,880
Carroll	1,806	65,033,956	Glascok	42	1,315,086
Catoosa	477	16,248,069	Glynn	1,312	50,172,894
Charlton	90	3,519,674	Gordon	562	19,364,938
Chatham	2,887	103,720,452	Grady	289	10,520,357
Chattahoochee	32	1,105,583	Greene	293	12,537,522
Chattooga	309	10,390,517	Gwinnett	4,653	176,063,464
Cherokee	2,157	80,032,456	Habersham	627	22,027,663
Clarke	3,245	140,968,023	Hall	1,934	76,174,566
Clay	54	2,020,784	Hancock	147	4,377,407
Clayton	1,223	45,648,312	Haralson	356	11,884,290
Clinch	103	4,324,728	Harris	409	15,173,598
Cobb	5,762	217,979,064	Hart	291	11,668,253
Coffee	521	18,696,904	Heard	100	3,005,428
Colquitt	578	20,728,574	Henry	1,851	68,444,029
Columbia	2,328	84,745,991	Houston	1,413	53,619,812
Cook	213	7,427,293	Irwin	109	3,962,001
Coweta	1,381	51,509,384	Jackson	1,038	37,515,435
Crawford	208	7,390,780	Jasper	193	6,849,511
Crisp	327	11,890,464	Jeff Davis	152	5,774,214

# OPERATING INFORMATION

continued

County	Number of Retirees	FY17 Total Gross Pay	County	Number of Retirees	FY17 Total Gross Pay
Jefferson	214	\$ 7,348,689	Richmond	2,850	\$ 94,627,293
Jenkins	128	4,312,501	Rockdale	835	31,330,627
Johnson	125	4,442,747	Schley	57	1,839,742
Jones	232	8,603,874	Screven	230	7,892,432
Lamar	237	8,574,247	Seminole	134	4,720,756
Lanier	75	2,377,568	Spalding	886	31,490,679
Laurens	720	26,308,972	Stephens	422	15,767,739
Lee	307	11,056,344	Stewart	76	2,628,198
Liberty	324	11,176,762	Sumter	521	20,138,469
Lincoln	163	6,148,478	Talbot	83	2,341,014
Long	60	1,870,790	Taliaferro	22	667,564
Lowndes	1,672	59,865,859	Tattnall	203	7,097,101
Lumpkin	481	18,016,141	Taylor	117	4,291,674
Macon	161	5,307,271	Telfair	190	6,658,763
Madison	801	23,638,539	Terrell	128	4,485,031
Marion	86	2,718,770	Thomas	738	26,658,909
McDuffie	317	11,307,686	Tift	845	30,782,365
McIntosh	183	6,254,442	Toombs	365	13,560,700
Meriwether	243	8,861,772	Towns	249	9,488,223
Miller	87	3,068,108	Treutlen	102	3,487,860
Mitchell	268	8,993,343	Troup	797	29,956,101
Monroe	296	10,802,054	Turner	182	5,910,323
Montgomery	143	5,071,403	Twiggs	79	2,954,818
Morgan	369	14,453,498	Union	394	15,244,543
Murray	344	13,089,556	Upson	376	13,116,360
Muscogee	2,580	94,383,910	Walker	602	20,181,978
Newton	836	30,594,773	Walton	1,155	42,175,113
Oconee	1,250	53,094,326	Ware	567	20,788,957
Oglethorpe	290	9,483,316	Warren	60	2,085,473
Paulding	670	21,833,731	Washington	275	9,949,906
Peach	603	23,182,364	Wayne	391	13,082,513
Pickens	641	25,442,675	Webster	26	846,521
Pierce	275	8,961,307	Wheeler	94	3,650,650
Pike	264	8,839,133	White	472	17,459,408
Polk	486	18,362,004	Whitfield	943	35,687,736
Pulaski	150	5,428,660	Wilcox	153	5,816,998
Putnam	369	14,272,203	Wilkes	175	6,090,232
Quitman	37	1,280,065	Wilkinson	133	4,306,501
Rabun	279	11,697,613	Worth	227	7,880,589
Randolph	93	3,387,147	Outside GA	11,086	494,006,197
			<b>TOTALS</b>	<b>122,629</b>	<b>\$ 4,461,124,000</b>



## Principal Participating Employers

Employers	2017			2008		
	Covered Employees	Rank	Percentage of Total System	Covered Employees	Rank	Percentage of Total System
State of Georgia	37,961	1	17.03 %	31,777	1	14.12 %
Gwinnett County Schools	16,978	2	7.62 %	16,448	2	7.31 %
Cobb County Schools	11,466	3	5.14 %	12,314	3	5.47 %
DeKalb County Schools	11,048	4	4.96 %	11,774	4	5.23 %
Fulton County Schools	10,043	5	4.51 %	9,912	5	4.40 %
Atlanta Public Schools	5,339	6	2.40 %	5,563	7	2.47 %
Clayton County Schools	5,083	7	2.28 %	5,804	6	2.58 %
Chatham County Schools	4,525	8	2.03 %	4,272	8	1.90 %
Henry County Schools	4,231	9	1.90 %	3,915	10	1.74 %
Forsyth County Schools	3,955	10	1.77 %	—	—	—
Muscogee County School District	—	—	—	3,974	9	1.77 %
<b>Top 10</b>	<b><u>110,629</u></b>		<b><u>49.63 %</u></b>	<b><u>105,753</u></b>		<b><u>47.00 %</u></b>
<b>Total</b>	<b><u>222,918</u></b>		<b><u>100.0 %</u></b>	<b><u>225,023</u></b>		<b><u>100.00 %</u></b>

Note: GASB Statement No. 67 was implemented during the fiscal year ended June 30, 2014 and required legally separate employers within the same financial reporting entity to be treated as a single employer for reporting purposes. Therefore, information presented for fiscal years prior to implementation is not comparable with information presented for fiscal years after implementation.



# OPERATING INFORMATION

*continued*

## Reporting Entities

### *Universities and Colleges*

Abraham Baldwin Agricultural College  
Albany State University  
Armstrong Atlantic State University  
Atlanta Metropolitan State College  
Augusta University  
Bainbridge College  
Clayton College & State University  
College of Coastal Georgia  
Columbus State University  
Cooperative Extension Service  
Dalton State College  
Darton College  
East Georgia State College  
Fort Valley State University  
Georgia College & State University  
Georgia Gwinnett College  
Georgia Highlands College  
Georgia Institute of Technology  
Georgia Southern University  
Georgia Southwestern State University  
Georgia State University  
Gordon College  
Kennesaw State University  
Middle Georgia State College  
Savannah State University  
South Georgia State College  
The University of Georgia  
University of North Georgia  
University of West Georgia  
Valdosta State University

### *Boards of Education*

Appling County  
Atkinson County  
Atlanta Public  
Bacon County  
Baker County  
Baldwin County  
Banks County  
Barrow County  
Bartow County  
Ben Hill County  
Berrien County  
Bibb County  
Bleckley County

Brantley County  
Bremen City  
Brooks County  
Bryan County  
Buford City  
Bulloch County  
Burke County  
Butts County  
Calhoun City  
Calhoun County  
Camden County  
Candler County  
Carroll County  
Carrollton City Schools  
Cartersville City  
Catoosa County  
Charlton County  
Chatham County  
Chattahoochee County  
Chattooga County  
Cherokee County  
Chickamauga City  
Clarke County  
Clay County  
Clayton County  
Clinch County  
Cobb County  
Coffee County  
Colquitt County  
Columbia County  
Commerce City  
Cook County  
Coweta County  
Crawford County  
Crisp County  
Dade County  
Dalton City  
Dawson County  
Decatur City  
Decatur County  
DeKalb County  
Dodge County  
Dooly County  
Dougherty County  
Douglas County  
Dublin City  
Early County  
Echols County  
Effingham County

Elbert County  
Emanuel County  
Evans County  
Fannin County  
Fayette County  
Floyd County  
Forsyth County  
Franklin County  
Fulton County  
Gainesville City  
Gilmer County  
Glascocock County  
Glynn County  
Gordon County  
Grady County  
Greene County  
Griffin-Spalding County  
Gwinnett County  
Habersham County  
Hall County  
Hancock County  
Haralson County  
Harris County  
Hart County  
Heard County  
Henry County  
Houston County  
Irwin County  
Jackson County  
Jasper County  
Jeff Davis County  
Jefferson City  
Jefferson County  
Jenkins County  
Johnson County  
Jones County  
Lamar County  
Lanier County  
Laurens County  
Lee County  
Liberty County  
Lincoln County  
Long County  
Lowndes County  
Lumpkin County  
Macon County  
Madison County  
Marietta City  
Marion County

McDuffie County  
 McIntosh County  
 Meriwether County  
 Miller County  
 Mitchell County  
 Monroe County  
 Montgomery County  
 Morgan County  
 Murray County  
 Muscogee County  
 Newton County  
 Oconee County  
 Oglethorpe County  
 Paulding County  
 Peach County  
 Pelham City  
 Pickens County  
 Pierce County  
 Pike County  
 Polk School District  
 Pulaski County  
 Putnam County  
 Quitman County  
 Rabun County  
 Randolph County  
 Richmond County  
 Rockdale County  
 Rome City  
 Schley County  
 Screven County  
 Seminole County  
 Social Circle City  
 Stephens County  
 Stewart County  
 Sumter County  
 Talbot County  
 Taliaferro County  
 Tattnall County  
 Taylor County  
 Telfair County  
 Terrell County  
 Thomas County  
 Thomaston-Upson County  
 Thomasville City  
 Tift County  
 Toombs County  
 Towns County  
 Treutlen County

Trion City  
 Troup County  
 Turner County  
 Twiggs County  
 Union County  
 Valdosta City  
 Vidalia City  
 Walker County  
 Walton County  
 Ware County  
 Warren County  
 Washington County  
 Wayne County  
 Webster County  
 Wheeler County  
 White County  
 Whitfield County  
 Wilcox County  
 Wilkes County  
 Wilkinson County  
 Worth County

### **Public Libraries**

Athens Regional Library  
 Augusta Richmond County Library  
 Barnesville-Lamar County Library  
 Bartow County Library  
 Bartram Trail Regional Library  
 Brooks County Library  
 Camden County Library  
 Catoosa County Library  
 Chattooga County Public Library  
 Cherokee Regional Library  
 Chestatee Regional Library  
 Clayton County Regional Library  
 Coastal Plains Regional Library  
 Cobb County Public Library  
 Conyers-Rockdale Library System  
 Coweta Public Library  
 DeKalb County Public Library  
 DeSoto Trail Regional Library  
 Dougherty County Public Library  
 Elbert County Library  
 Fitzgerald-Ben Hill County Library  
 Flint River Regional Library  
 Forsyth County Public Library  
 Gwinnett County Public Library  
 Hall County Library

Hart County Library  
 Henry County Library  
 Houston County Public Library  
 Jefferson County Library System  
 Kinchafaonee Regional Library  
 Lake Blackshear Regional Library  
 Lee County Library  
 Lincoln County Library  
 Live Oak Public Libraries  
 Mary Vinson Memorial Library  
 Middle Georgia Regional Library  
 Moultrie-Colquitt County Library  
 Mountain Regional Library  
 Northeast Georgia Regional Library  
 Newton County Library  
 Northeast Georgia Regional Library  
 Northwest Georgia Regional Library  
 Ocmulgee Regional Library  
 Oconee Regional Library  
 Ochopee Regional Library  
 Okefenokee Regional Library  
 Peach Public Library  
 Piedmont Regional Library  
 Pine Mountain Regional Library  
 Roddenbery Memorial Library  
 Sara Hightower Regional Library  
 Satilla Regional Library  
 Screven-Jenkins Regional Library  
 Sequoyah Regional Library  
 South Georgia Regional Library  
 Southwest Georgia Regional Library  
 Statesboro Regional Library  
 Thomas County Public Library  
 Three Rivers Regional Library  
 Troup-Harris-Coweta Regional Library  
 Uncle Remus Regional Library  
 Warren County Public Library  
 West Georgia Regional Library  
 Worth County Library System

### **Technical Colleges**

Albany Technical Institute  
 Athens Technical College  
 Atlanta Technical College  
 Augusta Technical Institute  
 Central Georgia Technical College  
 Chattahoochee Technical College  
 Coastal Pines Technical College

# OPERATING INFORMATION

*continued*

Columbus Technical Institute  
Georgia Northwestern Technical College  
Georgia Piedmont Technical College  
Gwinnett Technical College  
Lanier Technical College  
North Georgia Technical Institute  
Oconee Fall Line Technical College  
Ogeechee Technical College  
Savannah Technical College  
South Georgia Technical College  
Southeastern Technical College  
Southern Crescent Technical College  
Southern Regional Technical College  
West Georgia Technical College  
Wiregrass Georgia Technical College

## **Regional Educational Service Agencies**

Central Savannah River Area RESA  
Chattahoochee Flint RESA  
Coastal Plains RESA  
First District RESA  
Griffin RESA  
Heart of Georgia RESA  
Metro RESA  
Middle Georgia RESA  
North Georgia RESA  
Northeast Georgia RESA  
Northwest Georgia RESA  
Oconee RESA  
Okefenokee RESA  
Pioneer RESA  
Southwest Georgia RESA  
West Georgia RESA

## **Charter Schools**

Academy for Classical Education, Inc.  
Amana Academy  
Atlanta Classical Academy  
Atlanta Heights Charter School  
Atlanta Neighborhood Charter School, Inc.  
Baconton Community Charter School  
Brighten Academy  
Brookhaven Innovation Academy  
Centennial Academy  
Charles Drew Charter School

Charter Conservatory for Liberal Arts and Technology  
Chattahoochee Hills Charter School, Inc.  
Cherokee Charter Academy  
Cirrus Academy  
Coweta Charter Academy  
DeKalb Academy of Technology and Environment  
DeKalb Path Academy  
DeKalb Preparatory Academy  
Destiny Achievers Academy of Excellence  
Dubois Integrity Academy  
Foothills Education Charter High School  
Fulton Academy of Science and Technology  
Fulton Leadership Academy  
Furlow Charter School  
Georgia Connections Academy  
Georgia Cyber Academy  
Georgia High School for Accelerated Learning  
Georgia Magnet Charter School  
Georgia Online Academy, Inc.  
Georgia School for Innovation and the Classics  
International Academy of Smyrna Charter School  
International Charter School of Atlanta  
International Community School  
Ivy Preparatory Academy for Girls  
Ivy Preparatory Academy  
Kennesaw Charter Science and Math Academy  
Kipp Metro Atlanta Collaborative  
Latin College Prep  
Latin Grammar School  
Leadership Preparatory Academy Charter School  
Liberty Technical Charter School  
Main Street Academy  
Mountain Education Center Inc.  
Museum School of Avondale  
New Life Academy of Excellence Inc.  
North Metro Academy of Performing Arts  
Odyssey Charter School  
Pataula Charter Academy

Purpose Built Schools of Atlanta  
Savannah Classical Academy  
Scintilla Charter Academy  
Southwest Georgia STEM Charter  
Tapestry Public Charter School  
The Globe Academy  
The Kindezi School  
Utopian Academy for the Arts  
Wesley International Academy  
Westside Atlanta Charter School

## **State Agencies**

Department of Administrative Services  
Department of Agriculture  
Department of Community Health  
Department of Corrections  
Department of Human Services  
Department of Natural Resources  
Department of Public Health  
Department of Public Safety  
Department of Behavioral Health and Development Disability  
Georgia Agricultural Exposition Authority  
Georgia Building Authority  
Georgia Bureau of Investigation  
Georgia Department of Audits  
Georgia Department of Community Supervision  
Georgia Department of Defense  
Georgia Department of Driver Services  
Georgia Department of Early Care and Learning  
Georgia Department of Education  
Georgia Department of Economic Development  
Georgia Department of Juvenile Justice  
Georgia Department of Labor  
Georgia Department of Law  
Georgia Department of Revenue  
Georgia General Assembly  
Georgia Public Defender Standards Council  
Georgia Public Telecommunications Commission  
Georgia Student Finance Commission  
Governor's Office of Planning and Budget

Georgia Technology Authority  
Prosecuting Attorneys' Council of  
Georgia  
Secretary of State  
State Accounting Office  
State Road Tollway and Authority  
Technical College System of Georgia

**Other**

Baldwin County Board of Health  
Clarke County Health Department  
Clayton Center Community Service  
Board  
DeKalb County DFACS  
Effingham County Tax Commissioner  
Office  
Floyd County DFACS  
Georgia Military College  
Glynn County Health Dept  
Tift County Board of Health  
Twiggs County Board of  
Health  
Ware County Health Department  
Whitfield County Board of Health

A photograph of two young girls in a classroom setting. The girl on the left, with dark curly hair, is looking through the eyepiece of a microscope. The girl on the right, with long dark hair, is looking at the microscope's objective lenses. The text 'Focused on the Future' is overlaid in white, enclosed in a white square frame with L-shaped corner brackets. The background is a blurred classroom environment. Green geometric shapes are present in the top-left and bottom-right corners of the image.

Focused  
on the  
Future



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