



## Comprehensive Annual Financial Report

A Component Unit of the State of Oklahoma

Fiscal Year Ended June 30, 2016



### **Mission Statement**

We collect, protect and grow assets to provide a secure retirement income for public education employees.

## Vision

The vision of Oklahoma Teachers Retirement System is to: Provide quality service to our clients in an efficient, economical manner, Provide our clients on-demand and accurate access to their personal financial information,

Educate our clients about their retirement benefits, and Inform our clients about the financial status of Oklahoma Teachers Retirement System so they will be confident in our ability to provide their benefits.

## **Core Values**

We value the following in delivering our service:

Customer Service

Teamwork

Reputation

Adequate Funding

Competency

Ethical Behavior



A Component Unit of the State of Oklahoma

## Comprehensive Annual Financial Report

For the Fiscal Year Ended June 30, 2016

Tom Spencer

## **Executive Director**

Prepared by the Finance Department of the Oklahoma Teachers Retirement System

Oklahoma Teachers Retirement System

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Oklahoma City, OK 73152

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## Introductory Section



TOM SPENCER EXECUTIVE DIRECTOR MARY FALLIN GOVERNOR

#### STATE OF OKLAHOMA OKLAHOMA TEACHERS RETIREMENT SYSTEM

December 16, 2016

The Board of Trustees Teachers' Retirement System of Oklahoma 2500 N. Lincoln Boulevard Oklahoma City, OK 73105

Dear Board of Trustees:

We are honored to present the 2016 Comprehensive Annual Financial Report (CAFR) of the Teachers' Retirement System of Oklahoma (the System) for the fiscal year ended June 30, 2016. The information included in this report not only defines our purpose, but represents our commitment to protecting the financial future of our active and retired clients. We accomplish this by monitoring and evaluating our daily operations as well as prudently managing the nearly \$14 billion portfolio in the Plan. The Teachers' Retirement System of Oklahoma is a component unit of the state of Oklahoma.

#### Profile of System

Established by legislation, the System began operations on July 1, 1943. The System provides retirement allowances and other benefits to public education employees in the common schools, career technology centers, colleges and universities, and other local and state educational agencies of the state of Oklahoma.

The mission of the System is to collect, protect and grow assets to provide a secure retirement income for public education employees. The System also strives to provide outstanding customer service to all of our active and retired Clients. All services provided by the staff are performed to meet these objectives.

#### **Management Responsibility**

Management is responsible for maintaining a system of adequate internal accounting controls designed to provide reasonable assurance that the transactions are executed in accordance with management's general or specific authorization, and are recorded as necessary to maintain accountability for assets and to permit preparation of financial statements in accordance with generally accepted accounting principles. This system includes written policies and procedures. Responsibility for the preparation, accuracy, completeness and fairness of this presentation, including all disclosures, rests firmly with the System's management. To the best of our knowledge and belief, this financial report is complete and reliable in all material aspects. The System maintains a comprehensive internal control framework designed to assure that assets are safeguarded from theft or misuse, transactions are completed accurately, and financial statements are fair and reliable. Internal control is designed to provide reasonable assurance, but not absolute assurance, that these objectives are met. The concept of reasonable assurance recognizes first, that the cost of a control should not exceed the benefits likely to be derived, and second, the valuation of cost and benefits requires estimates and judgments by management. The System has its own internal audit program and uses a private firm retained by the Board of Trustees that answers directly to the Board. The firm not only analyzes financial issues and risk, but also provides advice on work flow and internal processes improvements.

The System operates according to an administrative budget approved annually by the Board. Although revenue is not appropriated from the state's General Revenue Fund, the budget is submitted to the Legislature as part of the Governor's recommended budget. The System operates under the same budgetary controls that apply to all state agencies.

The basic financial statements are prepared in accordance with generally accepted accounting principles as promulgated by the Governmental Accounting Standards Board. An independent auditing firm, Eide Bailly LLP, has audited the financial statements included in this report and its opinion letter is presented in the Financial Section of this CAFR. Readers are encouraged to review the Management's Discussion and Analysis (MD&A) in the Financial Section for an in-depth discussion of the financial statements and the cause and effect of market conditions, legislation and changes in operations affecting the System's financial results.

#### **Economic Condition and Outlook**

Fiscal year 2016 marked a continued reduction in net position, caused by a decline in global equity markets. The strategic allocation to domestic and international equities is 57.5%, making equity returns the primary determining factor of the System's portfolio returns. The System's equity portfolio performance for the year was negative (4.8) percent. The strategic allocation of 7% to Master Limited Partnerships (MLPs) also detracted from the past year's results. Due primarily to the sharp decline in oil prices, each of the three (3) externally managed MLP portfolios lost more than 20% in fiscal year 2016. The decline in oil prices also reflects the decline in dedicated tax revenue. Beyond equities and MLPs, the System's allocations to fixed income, real estate and private equity each produced positive results for the year. For the System's total portfolio, the investment return for fiscal year 2016 was a negative (2.0%). Overall, the System's net position restricted for pensions declined by 4.4% this year as a result of these factors.

A properly funded pension plan continues to be the Board's most significant challenge. As of June 30, 2016, 62.2% of the System's actuarial liabilities were covered by the fiduciary net position of the Plan. This is a decrease from the 66.6% funded ratio reported for June 30, 2015. The decrease is due to the assumption changes as well as the loss on the fair value of assets. Based upon the current statutory contribution schedule, the funding period is 23 years. This is a nine year increase from the 14 year funding period in 2015.

#### **Revenue and Funding**

The major sources of revenue for the System are member contributions, employer contributions, dedicated revenue from the state of Oklahoma, and investment income.

Active member contributions for fiscal year 2016 were \$294.5 million, which represents 7.0% of covered employee payroll. This compares to \$303.7 million for the fiscal year ending June 30, 2015. Member contributions include direct payments by members to reestablish service credit, purchase Oklahoma service, out-of-state or military service, and payments required to qualify for the Education Employees Service Incentive Plan (EESIP).

Contributions from local employers, the state of Oklahoma, and federal sources for fiscal year 2016 totaled \$725.4 million, compared to \$728.4 million for fiscal year 2015. Contributions from local school districts and federal revenues increased by \$17.7 million as the state's contribution decreased by \$22.1 million.

#### Expenses

The System's expenses are attributable to making retirement benefit payments, death and survivor benefits, refunds of member contributions and administrative expenses. During fiscal year 2016, the System paid \$55.9 million more in retirement benefits than in the preceding year, \$870 thousand more in refunds to active clients who terminated accounts, but \$2.1 million less in distributions from the Systems 403(b) Tax Sheltered Annuity Plan. The increase in retirement benefits is attributed to a net increase in the number of retired members and the average benefit payments. The increase in refunds and death benefits is due to an increase in the number of members making withdrawals from the defined benefit plan. Administrative expenses increased by \$99 thousand due primarily to slight increases in payroll costs associated with the creation of the position of Chief Investment Officer.

#### Investments

For FY 2016, the System experienced a (2.0)% negative rate of return. Net investment income, including realized and unrealized gains and losses, was a negative \$365 million compared to a positive \$417 million for FY 2015. The net position restricted for pensions totaled \$13.9 billion on June 30, 2016 compared to \$14.6 billion on June 30, 2015, including the amounts held in trust for members who participate in the Systems 403(b) Tax Sheltered Annuity Plan.

On June 30, 2016, the System's investment portfolio mix at fair value was 22.6% fixed income, 55.8% equities, 8.1% master limited partnerships, 7.0% real estate, 5.1% private equity, 1.1% opportunistic and with the remainder in cash. As fiduciaries for the retirement funds, the Board of Trustees is responsible for investment of the funds under the prudent investor standard. This standard allows the System to allocate trust funds across a broad group of asset classes. The Board of Trustees has elected to limit investments to stocks and bonds, Treasury Bills and Notes, commercial paper, foreign currency exchange contracts, private debt and private equity, master limited partnerships and bank deposits collateralized by U.S. Government securities.

A summary of the System's investment activities during fiscal year 2016 and historic performance results is presented in the Investment Section.

#### Awards and Acknowledgements

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 Oklahoma for its comprehensive annual financial report for the fiscal year ended June 30, 2015. This is the twenty-third consecutive year the System has achieved this prestigious award. In order to be awarded a Certificate of Achievement, the System 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. We believe that our current comprehensive annual financial report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

This report reflects the combined efforts of the System's 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, determining compliance with legal provisions, and as a means for determining responsible stewardship of the assets contributed by the members and their employers.

In addition to the award for the CAFR the System was awarded its first Certificate of Achievement for the Popular Annual Finances Report (PAFR). The purpose of this report is to be readily accessible and easily understandable to the general public and other interested parties without a background in public finance.

The CAFR is being mailed to the Governor, members of the Oklahoma Legislature, and the Oklahoma State Pension Commission. This report will also be available on our website at <u>www.ok.gov/TRS</u>.

We would like to take this opportunity to express our gratitude to you, the staff, the advisors, and other people who have worked so diligently to assure the continued successful operation of the Teachers' Retirement System of Oklahoma.

Respectfully submitted,

Tom Spencer Executive Director

Sam Moore, CPA Chief Financial Officer

#### TEACHERS RETIREMENT SYSTEM OF OKLAHOMA

Street Address: 2500 North Lincoln Boulevard, 5<sup>th</sup> Floor Oklahoma City, Oklahoma 73105

Mailing Address: Post Office Box 53524 Oklahoma City, Oklahoma 73152-3524 (405) 521-2387

BOARD OF TRUSTEES

Mr. William L. "Bill" Peacher, Chairman

Mr. Vernon Florence, Vice-Chairman

Ms. Judie M. Harris, Secretary

Mr. Bill Bentley, Trustee

#### Mr. Roger Gaddis, CPA/CFP, Trustee

Ms. Jill Geiger, Trustee, Designee of the Director of OMES

Ms. Christa Hughes, Trustee

Ms. Shareé Madsen, Trustee

Mr. Kevin Moore, Trustee

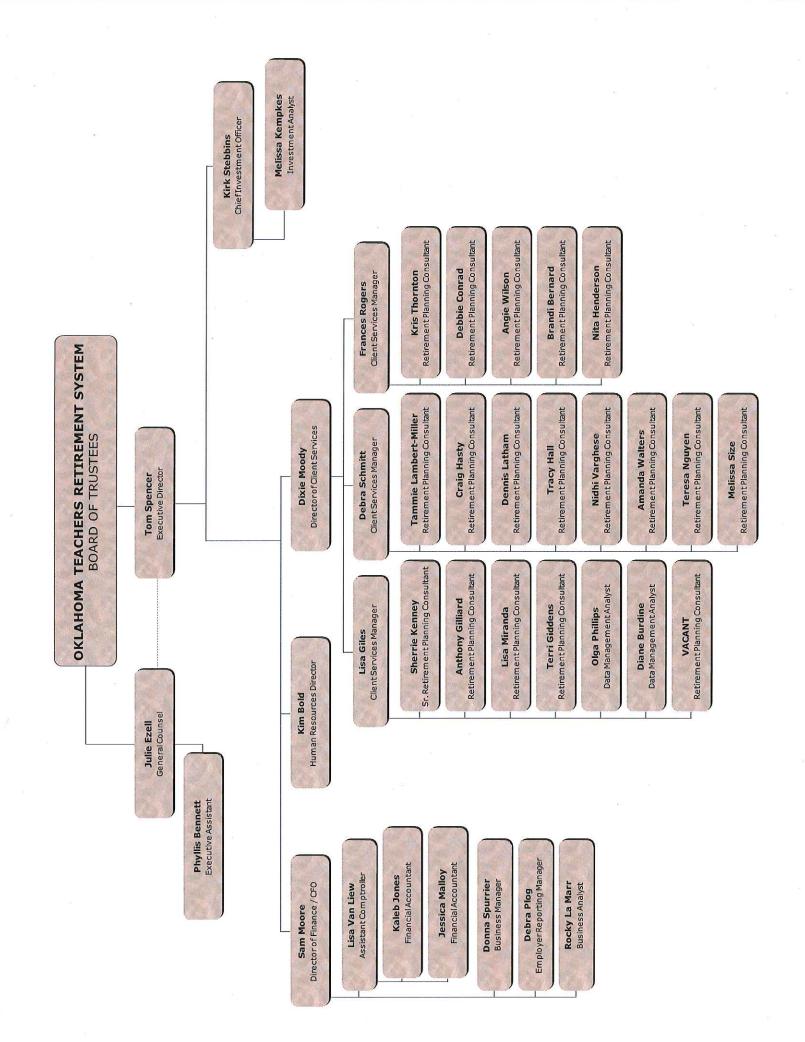
Mr. Lance Nelson, Trustee, Designee of the State Superintendent of Public Instruction

Dr. Myron Pope, Trustee

Dr. Gary Trennepohl, Trustee

Dr. Gregory Z. Winters, Trustee, Designee of the Director of the State Department of Career Tech

#### TEACHERS RETIREMENT SYSTEM OF OKLAHOMA



#### TEACHERS' RETIREMENT SYSTEM OF OKLAHOMA

#### **Professional Consultants**

#### Tax Consultant

Ice Miller 1 American Sq. Ste. 2900 Indianapolis, IN 46282

#### Actuary

Gabriel, Roeder, Smith & Company 5605 N. MacArthur Suite 870 Irving, TX 75038-2631

#### **External Auditor**

Eide Bailly 877 West Main Street Suite 800 Boise, ID 83702-5838

#### Internal Auditor

Stinnett & Associates 825 N. Broadway Avenue Oklahoma City, OK 73102

#### Investment Consultants

The Bogdahn Group 320 South Boston Avenue Suite 2200 Tulsa, OK 74103

#### Investment Custodian

Northern Trust Corporation 50 South La Salle Street Chicago, IL 60603

The schedule of Investment Expenses and Professional Consultant Fees in the Other Supplementary Information Section and the Schedule of Investment Fees (pgs. 65-66) & Broker Commissions (pgs. 70-76) in the Investment Section contain additional information regarding professional advisors and consultants.



#### BEGINNINGS

The Oklahoma Teachers Retirement System (the System) was established July 1, 1943, to provide retirement allowances and other specified benefits for qualified employees of state-supported educational institutions.

#### ADMINISTRATION

A 14-member Board of Trustees oversees the administration of the System and acts as fiduciary for investing its funds.

#### CONTRIBUTIONS

As a member of the System, your contribution rate is 7% of your total compensation (salary and your fringe benefits).

Statutes also require employers to contribute a percentage of applicable employee earnings. The employer contribution rate for K-12 school districts, career-techs, and junior colleges is 9.5%. The employer contribution rate for comprehensive universities (University of Oklahoma and Oklahoma State University and their entities) and the state's four-year regional universities is 8.55%.

#### MEMBERSHIP

Oklahoma statutes require classified personnel to be members of the System. The definition of classified personnel in 70 O.S. § 17-101 includes teachers and other certified employees of common schools, faculty and administrators in public colleges and universities, and administrative personnel of state educational boards and agencies. Membership is optional for all other regular employees of public educational institutions who work at least 20 hours per week.

Employees of a charter school may join the System if the Oklahoma Teachers Retirement System Board of Trustees approves the school's application for membership.

New employees at the University of Oklahoma, OU Health Sciences Center, and Oklahoma State University have the option to participate in an alternate retirement plan provided by the universities. Employees choosing the alternate retirement plan are not eligible to participate in the System as long as they remain employees of the universities.

#### SERVICE CREDIT

Service credit of up to 1 year is earned for every year of full-time employment. Fractional service is earned for periods of employment that are less than 8 months or for part-time employment You may purchase credit for out-of-state service, military service, service with certain Oklahoma governmental entities, and employment in Oklahoma schools before your date of membership.

Retiring members may count up to 120 days of unused accumulated sick leave toward an additional year of service credit. Unused sick leave of less than 120 days is granted a fractional year of service credit.

#### **RETIREMENT ANNUITY**

You are fully vested after five years of contributory Oklahoma membership service and may choose to take an early, reduced retirement benefit, or stay to qualify for a regular, unreduced retirement benefit. A vested client is eligible to receive a retirement benefit when one of the following requirements is met:

<u>Age 62 or Combination 80</u>. Those who joined the System prior to 7/1/92 may retire with an unreduced benefit at age 62 or when the client's age and years of creditable service total 80 points. The highest three salaries are used in the calculation of the benefit. A reduced annuity is available at the minimum age of 55.

<u>Age 62 or Combination 90.</u> Those who joined the System after 7/1/92 and before 11/1/11 may retire with unreduced benefits at age 62

or when the client's age and years of creditable service total 90 points. Those who qualify under Combination 90 use the highest consecutive five contributory salaries to calculate their benefit in the retirement formula. A reduced annuity is available at the minimum age of 55.

Age 65 or Combination 90 at Age 60. Those who joined the System on or after 11/1/11 may retire with an unreduced benefit at age 65 or when the client's age is at least 60 and years of creditable service total at least 90 points. Those who qualify under this rule use the highest consecutive five contributory salaries to calculate their benefit in the retirement formula. A reduced annuity is available at the minimum age of 60.

The Oklahoma Teachers Retirement System is a governmental defined benefit plan under Section 401(a) of the Internal Revenue Code. The retirement benefits paid to our members are not determined by the market value of their retirement account, but rather by a formula. The formula includes years of service and highest average salary multiplied by a 2% computation factor.

The final average salary is not limited to the highest average salary defined under the Rule of 80 (highest three salaries) or Rule of 90 (highest five consecutive salaries), but may include any years previously capped.

The Education Employees Service Incentive Plan (EESIP) provides the opportunity for capped years to be diminished by two years for every one year worked beyond the full retirement eligibility date. If salaries earned prior to July 1, 1995 are greater than \$40,000, there will be a cost to participate in EESIP. Clients retiring from a four year university, college or other related entity are not eligible to participate in this plan.

If a member works for a comprehensive university (OU/OSU) or other associated entity, the retirement benefit calculation may involve a multi-step process. First, the capped average salary prior to July 1, 1995 is determined. Next the capped average salary between July 1, 1995 and June 30, 2007 is determined. Finally, years of service that did not meet the caps as well as service credit earned after July 1, 2007, will be incorporated into the retirement benefit formula using the highest average of actual total compensation, not to exceed the IRS compensation limits. There may be as few as one average salary or as many as four weighted averages to determine the final average salary used in the final benefit calculation.

Each of the Systems' five retirement options provides a lifetime benefit to the member. After the member's death, the designated beneficiary(ies) receive either a lump-sum payment or continued payments to one beneficiary, depending upon the elected option's provisions.

#### DISABILITY BENEFITS

Members may qualify for disability retirement benefits if a medical condition keeps them from performing their regular job duties. A member may be considered for a disability retirement benefit if he or she is active and has at least 10 years of contributory service, a disability retirement application detailing the medical condition (which must have existed while employed by the public schools of Oklahoma) is received, and an application is approved by the System's Medical Review Board and the Board of Trustees.

If a member is awarded Social Security Disability benefits, the member may receive disability benefits with the System if the disability is incurred while employed by the public schools and the System is provided with proof of the Social Security award.

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#### HEALTH INSURANCE BENEFIT

If members have at least 10 years of creditable service and retire or terminate employment, they may elect to continue coverage in the insurance program the employer provides to active employees.

If members are not enrolled in the state plan, coverage is subject to the provisions of the plan in which they are enrolled.

Dependent and dental coverage is available if the member is enrolled in the State and Education Employees Group Health and Dental Insurance Plan.

Once a member begins receiving monthly annuity, Oklahoma Teachers Retirement System will pay for the first \$100 to \$105 of monthly premiums for the member but not for dependents. The amount paid by the System is determined by the member's total service and average salary at retirement.

If members have fewer than 10 years of employment, they have certain rights under federal law to continue health insurance coverage after employment ends. Specific information about continued coverage may be requested from the employer or the Employees Group Insurance Division of the Office of Management and Enterprise Services before termination.

#### SURVIVOR BENEFITS

Members' designated beneficiaries or estates are entitled to survivor benefits if the members are active in-service or retired at the time of their death.

If a member is an active in-service member at the time of death, the beneficiary(ies) will receive an \$18,000 death benefit, plus the contributions in the member's account and interest on those contributions. "Active in-service" is defined in the System's rules, but generally means a member currently employed by an Oklahoma public education institution. If a member dies, and the member is an active in-service member with 10 or more years of service, has reached age 55 or met the Rule of 80 or Rule of 90 and has one designated primary beneficiary, he or she may choose a monthly benefit instead of the lump-sum payment.

When an inactive member dies, the beneficiaries receive the amount of the contributions in the member's account, plus interest on those contributions, but will not qualify for the \$18,000 death benefit or the monthly retirement benefit payment payable to the surviving beneficiary of active in-service members.

If a retiree dies, the beneficiaries or estate will receive a \$5,000 death benefit, plus the survivor benefits provided by retiree's chosen retirement plan option. Certain plan options provide surviving beneficiaries with a continuing monthly retirement benefit.

#### WITHDRAWING YOUR CONTRIBUTIONS

If a member leaves a job that was qualified for membership, the member may request a refund of his or her contributions any time after the last day on that job. The member will be eligible to receive the refund four months after termination. The refund includes all member contributions, even if these contributions were made on the member's behalf by the employer, plus any applicable portion of interest earnings. When a member accepts a refund, all service credit is forfeited.

If a member returns to qualifying employment, the amount of the withdrawal may be redeposited after contributing to the System for 12 months.

Redepositing withdrawn contributions reinstates the initial membership date. If withdrawn contributions are not redeposited, the official membership date will be the date the member rejoined the System.

If the member redeposits, the entire amount withdrawn must be repaid to the System. In addition, 10% simple interest must be redeposited on the withdrawn amount for each year the account was withdrawn. This amount may be paid in one lump sum or through installment payments for up to 60 months.

Only an optional member (support personnel) can terminate membership in the System without terminating employment. If an optional member withdraws his or her account without leaving employment, the IRS requires that pre-tax contributions remain on deposit with the System and cannot be refunded until the member leaves employment. If a member continues to work for the employer after terminating membership, the member can rejoin the System only under special provisions of an Internal Revenue Service private letter ruling requiring a period of non-membership and loss of the right to redeposit withdrawn service or purchase prior service credits. In this case, the member would become a new member as of the date he or she resumes making contributions to the System.

A member may also leave the contributions in his or her account. If a member is vested (have at least five years of Oklahoma service), the account will continue earning interest until the member withdraws it or begins drawing a retirement benefit. If a member is not vested, the account will continue earning interest for five years, unless withdrawn it before then.

#### THE 403(b) TAX SHELTERED ANNUITY PLAN

The System sponsors a tax sheltered annuity program qualified under § 403(b) of the Internal Revenue Code. A member may deposit funds into this plan if the member's local Board of Education or other governing board adopts a resolution making the plan available to its employees.

The tax sheltered annuity program has been managed internally since its inception in 1964. In July 2009, the Board of Trustees hired Voya Financial Inc. to be the service provider for the 403(b) Plan.

Under the new plan, participants may access their accounts 24 hours a day by phone or the internet. Customer service representatives are available each weekday from 7:00 am to 8:00 pm. The investments are flexible and diversified with fifteen options to choose from.

The plan has the comprehensive educational strategy developed by Voya and a dedicated representative from Voya is available to meet with a participant at least annually to discuss retirement goals and needs.

#### **RIGHTS AND RESPONSIBILITIES**

Oklahoma Teachers Retirement System publications provide answers to general questions. A member is responsible for resolving any questions about his or her retirement account. Members are entitled to counseling from the staff concerning any questions they have about their retirement account. The System will not be held accountable for information that is contrary to statutes or administrative rules, regardless of who provides that information.

For details of how statutes and administrative rules may affect a retirement account, contact

#### OKLAHOMA TEACHERS RETIREMENT SYSTEM Mailing Address

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Phone Numbers 405-521-2387 (OKC Area) 877-738-6365 (Toll Free)

Website: http://www.ok.gov/TRS

This Plan Summary provides general information summarizing the basic benefits available to members of the System. If conflict arises between information contained in this summary and state statutes or official Oklahoma Teachers Retirement System rules, the law and/or rule takes precedence.



Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

## **Oklahoma Teachers Retirement Systems**

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

June 30, 2015

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Executive Director/CEO

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# Financial Section



CPAs & BUSINESS ADVISORS

#### **Independent Auditor's Report**

To the Board of Trustees Oklahoma Teachers Retirement System Oklahoma City, Oklahoma

#### **Report on the Financial Statements**

We have audited the accompanying financial statements of the Teacher's Retirement System of Oklahoma (the System), a component unit of the state of Oklahoma, which comprise the statement of fiduciary net position as of June 30, 2016, and the related statement of changes in fiduciary net position, for the year then ended, and the related notes to the financial statements.

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

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

#### Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting 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 respective statements of fiduciary net position of the Teacher's Retirement System of Oklahoma, as of June 30, 2016, and the respective changes in changes in fiduciary net position thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

#### **Change in Accounting Principle**

As discussed in Note 3 to the financial statements, the System has adopted the provisions of GASB Statement No. 72, *Fair Valuation Measurement and Application*, which has resulted in additional footnote disclosures. Our opinion is not modified with respect to this matter.

#### **Alternative Investments**

As discussed in Notes 2 and 3 to the financial statements, total system investments include investments valued at \$1,844,222,730 (11.59% of total assets), as of June 30, 2016, whose fair values have been estimated by management in the absence of readily determinable values. Management's estimates are based on information provided by the fund managers or the general partners. Our opinion is not modified with respect to this matter.

#### **Other Matters**

#### **Required Supplementary Information**

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and the required supplementary information on pages 4-8 and 32-36 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.

#### **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 as a whole. The introductory, other supplementary information, investment, actuarial and statistical sections are presented for purposes of additional analysis and are not a required part of the financial statements.

The additional supplementary information accompanying financial information listed as other supplementary information in the table of contents 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 accompanying financial information listed as supplemental schedules 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 any assurance on them.

#### **Report on Summarized Comparative Information**

The financial statements of the system as of and for the year ended June 30, 2015, we audited by other auditors whose report, dated, December 22, 2015, expressed an unmodified opinion on those statements.

Ede Bailly LLP

Oklahoma City, Oklahoma October 31, 2016

Management is pleased to present this discussion and analysis of the financial activities of the Oklahoma Teachers Retirement System ("OTRS" or the "System") for the years ended June 30, 2016 and 2015. The System is responsible for administering retirement benefits for a 401(a) defined benefit plan for all educational employees of the state of Oklahoma as well as a 403(b) plan which is a tax-advantaged retirement savings plan available for public education organizations. The System was established on July 1, 1943, for the purpose of providing these retirement benefits and other specific benefits for qualified persons employed by public educational institutions. The main purpose of the System is to provide a primary source of lifetime retirement benefits relative to years of service at the time of retirement. It is the objective of the System to provide these benefits in a prudent, responsible, and cost-effective manner. Plan net assets are used to pay current and future benefits to retired clients.

This discussion and analysis is intended to serve as an introduction to the System's basic financial statements. OTRS's basic financial statements are comprised of three components: 1) *statements of fiduciary net position*, 2) *statements of changes in fiduciary net position*, and 3) *notes to the financial statements*. This report also contains *required supplementary information* in addition to the basic financial statements themselves.

The statement of fiduciary net position presents information on all of the System's assets, and liabilities, with the difference between these reported as net position restricted for pensions. Over time, increases or decreases in plan net position may serve as a useful indicator of whether the financial position of the System is improving or deteriorating. Information relating to the System's ability to meet the cost of future benefit payments is not shown on the statement of fiduciary net position but is located in both the notes to the financial statements and the required supplementary information.

The statement of changes in fiduciary net position presents information showing how the System's net position changed during the most recent fiscal year. Changes in net position are recognized using the accrual basis of accounting, in which expenses are recorded when the liability is incurred and revenues are recorded in the accounting period in which they are earned and become measurable.

The *notes to the financial statements* are critical to the reader's understanding of the financial status of the System. These notes include a description of the System, details on the cash and investments of the System, as well as contribution and benefit information.

The *required supplementary information* presents a Schedule of Changes in Employers' Net Pension Liability, Schedule of Employers' Net Pension Liability, Schedule of Contributions from Employers and Other Contributing Entities, and Schedule of Investment Returns. Other supplementary information includes the Schedule of Administrative Expenses, the Schedule of Investment Expenses, and the Schedule of Professional/Consultants Fees. These schedules provide additional analysis of the information provided in the financial statements.

#### **Condensed Financial Information**

Fiduciary net position as of June 30:

					2016	2015
		2016	2015	2014	% Change	% Change
Assets						
Cash	\$	19,857,301	\$ 95,635,452	\$ 17,695,733	-79.2%	440.4%
Receivables		389,393,726	207,991,357	201,958,789	87.2%	3.0%
Long- and short-term investments, at fair value		14,058,889,353	14,635,937,831	14,531,814,990	-3.9%	0.7%
Capital assets, net		4,072,745	3,649,149	2,848,571	11.6%	28.1%
Total investments and other assets		14,472,213,125	14,943,213,789	14,754,318,083	-3.2%	1.3%
Securities lending institutional daily assets fund		1,624,015,378	4,729,952	2,475,662,654	34234.7%	-99.8%
Total assets		16,096,228,503	14,947,943,742	17,229,980,738	7.7%	-13.2%
Liabilities						
Investment settlements and other liabilities		478,182,808	299,107,399	314,844,655	59.9%	-5.0%
Payable under securities lending agreement		1,624,015,378	4,729,952	2,475,662,654	34234.7%	-99.8%
Total liabilities	_	2,102,198,186	303,837,351	2,790,507,309	591.9%	-89.1%
Net Position						
Net position restricted for pensions	\$	13,994,030,317	\$ 14,644,106,391	\$ 14,439,473,429	-4.4%	1.4%

#### Changes in fiduciary net position for the year ended June 30:

				2016	2015
	 2016	2015	2014	% Change	% Change
Additions:					
Member contributions	\$ 294,459,091	\$ 303,677,304	\$ 301,300,811	-3.0%	0.8%
Employer contributions	409,753,221	392,051,458	386,895,127	4.5%	1.3%
Matching contributions	25,787,244	24,445,212	24,352,831	5.5%	0.4%
Dedicated tax revenue	289,884,752	311,945,400	295,804,717	-7.1%	5.5%
Member tax shelter contributions	2,222,812	2,823,513	3,026,532	-21.3%	-6.7%
Net investment income gain (loss)	(362,477,638)	420,630,551	2,587,292,673	-186.2%	-83.7%
Security lending net income	 7,870,757	11,832,523	8,590,136	-33.5%	37.8%
Total additions	 667,500,239	1,467,405,961	3,607,262,827	-54.5%	-59.3%
Deductions:					
Benefit payments	1,257,276,705	1,201,350,906	1,153,051,607	4.7%	4.2%
Refund of member contributions					
and other payments	55,841,270	57,063,155	50,061,499	-2.1%	14.0%
Administrative expenses	4,458,338	4,358,938	4,282,605	2.3%	1.8%
Total deductions	 1,317,576,313	1,262,772,999	1,207,395,711	4.3%	4.6%
Net increase (decrease) in net position	 (650,076,074)	204,632,962	2,399,867,116	-417.7%	-91.5%
Net Position Restricted for Pensions					
Beginning of year	14,644,106,391	14,439,473,429	12,039,606,313	1.4%	19.9%
End of year	\$ 13,994,030,317	\$ 14,644,106,391	\$ 14,439,473,429	-4.4%	1.4%

#### **Financial Highlights and Analysis**

2016 marked a continued reduction in net position, caused by a decline in global equity markets. The strategic allocation to domestic and international equities is 57.5 percent, making equity returns the primary determinant of the System's portfolio returns. The System's equity portfolio performance for the year was negative (4.83) percent. The strategic allocation of 7% to Master Limited Partnerships (MLPs) also detracted from the past year's results. Due primarily to the sharp decline in oil prices, each of the three (3) externally managed Master Limited Partnership portfolios lost more than 20% in fiscal year 2016. The decline in oil prices is also reflective of the decline in dedicated tax revenue. Beyond equities and MLPs, the System's allocations to fixed income, real estate and private equity each produced positive results for the year. For the System's total portfolio, the investment return for fiscal year 2016 was a negative (2.02%). Overall, the System's net position restricted for pensions declined by 4.4% this year as a result of these factors.

	2016	2015	2014
Plan net position	\$ 13,994,030,317	\$ 14,644,106,391	\$ 14,439,473,429
Yearly % change	-4.4%	1.4%	19.9%

The total investment return for the five year period of 8.3 percent is above the 8 percent actuarial assumed rate of investment return. The five year return is lower than the previous year due to a weak return for 2016 and the dropping off of a very strong 2010.

Total Returns	1 Year	3 Year	5 Year	10 Year
2016	-2.0%	7.5%	8.3%	7.1%
2015	3.5%	14.3%	13.4%	8.3%
2014	22.4%	13.6%	16.1%	9.0%

On an annual money-weighted basis as required by generally accepted accounting principles, the System returned -2.50% in 2016, as compared with 3.04% in 2015 and 21.95% in 2014, net of pension plan investment expense. The annual money-weighted rate of return calculates a period-by-period return adjusting for the changing amounts actually invested. The results reflect an internal rate of return on System investments, net of investment expense. This is different from the total investment returns above as those returns are presented on a rolling five year average, rather than an annual basis.

Benefit payments increased 4.7 percent in 2016 compared to 4.2% in 2015. The increase is a result of a 3.0 percent increase in the number of benefit recipients and a 1.4 percent increase in the average monthly benefit. Benefit payments in 2016 to retired members exceed contributions from contributing members and employers by \$293 million, or a ratio of 1.29 to 1. A ratio of more than one signifies that the System is receiving less contributions than it pays out in benefits. In a mature pension system like OTRS a significant percentage of the benefits are paid out of investment earnings that are not reflected in this ratio. The table on the following page reflects the ongoing employer and member contributions.

		2016		2015		2014
Member contributions	\$	294,459,091	\$	303,677,304	\$	301,300,811
Employer contributions	Ŷ	409,753,221	Ψ	392,051,458	Ψ	386,895,127
State matching funds		25,787,244		24,445,212		24,352,831
Dedicated tax revenue		289,884,752		311,945,400		295,804,717
Total contributions	\$	1,019,884,308	\$	1,032,119,374	\$	1,008,353,486
Benefit payments	\$	1,257,276,705	\$	1,201,350,906	\$	1,153,051,607
Refund of contributions		55,841,270		57,063,155		28,718,256
Total payments	\$	1,313,117,975	\$	1,258,414,061	\$	1,181,769,863

The number of benefit recipients increased 3.0 percent in 2016 as compared to 4.5 percent in 2015 and 3.3 percent in 2014. The increase in number of benefit recipients has remained consistent over the past two years. There was a net increase of 1,751, 2,540, and 1,808 members that entered retirement for fiscal year 2016, 2015, and 2014, respectively.

_	2016	2015	2014
Benefit recipients	60,680	58,929	56,389
Yearly % change	3.0%	4.50%	3.30%
Net increase	1,751	2,540	1,808

The following table reflects the average monthly benefit for service retirements. While the table above reflects an increase in the number of retirees in the past year of 3.0 percent the table below reflects the average benefit per retiree has only increased by 1.4 percent in 2016 as compared to 1.8 percent 2015 and 0.5 percent in 2014.

	20	16		2015		2014
Average benefit	\$	1,650	\$	1.627	\$	1,599
Yearly % change	Ŧ	1.4%	•	1.8%	,	0.5%

The ratio of active members to retired members of the System is 1.49 to 1 in 2016, compared to 1.54 to 1 in 2015 and 1.59 to 1 in 2014. This change is caused by the longevity of the Plan's retiree population and an active population that has leveled off. Contributing members decreased by 221 while benefit recipients increased by 1,751.

	2016	2015	2014
Members contributing	90,167	90,388	89,570
Yearly % change	-0.2%	0.9%	0.3%
Benefit recipients	60,680	58,929	56,389
Yearly % change	3.00%	4.50%	3.30%
Ratio contributing/retired	1.49	1.54	1.59

The total pension liability increased 8.0 percent. The increase is attributable to a change in actuarial assumptions, primarily as a result of the Board's decision in September 2015 to lower the discount rate from 8.0% to 7.5% and a lower return on assets than in fiscal year 2015. The ratio of plan fiduciary net position to total pension liability decreased 8.07 percent.

	2016	2015	2014
Total pension liability	\$ 22,193,244,472	\$ 20,551,132,567	\$ 19,646,619,191
Plan fiduciary net position	13,814,102,654	14,449,506,469	14,229,481,368
Ratio of plan fiduciary net position to total pension liability	62.24%	70.31%	72.43%

#### **Currently Known Facts that May Impact Future Operations**

The Board of Trustees changed its investment return assumption, as well as its inflation assumption, at the September 21, 2016 board meeting. The return assumption had been 8 percent for many years. The median return assumption for statewide public funds is now 7.5 percent. The inflation assumption had been 3 percent for many years. Inflation in the U.S. economy has been well below that number for the last several years. The Board reduced the inflation assumption to 2.5 percent, resulting in the new return assumption of 7.5 percent.

While the lowering of the inflation assumption lowered pension liabilities somewhat, the lowering of the return assumption that is used to discount those liabilities had a higher negative effect and helped raise the calculation of pension liabilities.

Based on the fair value of assets at the end of fiscal year 2016, and the projected continuation of contribution rates and other revenue, the Plan's actuary projects a "funding period" of 23 years. If all assumptions hold constant the Plan would reach a 100% funded ratio based on the fair value of assets in 23 years even with a 7.5% return assumption. If the actuarial value of assets is used with a 7.5% return assumption, the funding period would only be 20 years.

The System performed an actuarial experience investigation in 2015. The actuarial assumptions used in the preparation of the underlying liability in this report and into the future are based on the results of the study, dated May 31, 2015, measuring the actuarial experience from fiscal year 2010 through fiscal year 2014. The Board adopted these provisions during its May 2015 meeting. Among the changes implemented, impacted the treatment of the administrative expenses, payroll growth rate, mortality, termination and rates for unreduced retirement

#### **Requests for Information**

This financial report is designed to provide a general overview of the System's finances for all those with an interest in the System. Questions concerning any of the information provided in this report or requests for additional information should be addressed to the Executive Director of the Teachers' Retirement System of Oklahoma, P.O. Box 53524, Oklahoma City, Oklahoma 73152 or (405) 521-2387.

#### Statements of Fiduciary Net Position June 30, 2016 (With Comparative Totals as of June 30, 2015)

				tals e 30	
	401(a) Plan	403(b) Plan	2016		2015
Assets					
Cash	\$ 19,857,301	\$ -	\$ 19,857,301	\$	95,635,452
Short-term investments	388,948,472	-	388,948,472		337,034,598
Accrued interest and dividends receivable	50,258,357	-	50,258,357		43,738,698
Member contributions receivable	13,874,875	-	13,874,875		13,755,076
Employer contributions receivable	21,193,543	-	21,193,543		20,486,557
Receivable from the State of Oklahoma	35,126,970	-	35,126,970		29,977,530
Due from brokers for securities sold	268,939,981	-	268,939,981		100,033,496
Security lending institutional daily assets					
fund	1,624,015,378	-	1,624,015,378		4,729,952
Long-term investments:					
Mutual funds	-	179,927,663	179,927,663		194,599,922
U.S. government securities	1,189,054,218	-	1,189,054,218		797,592,952
U.S. corporate bonds	1,520,378,647	-	1,520,378,647		1,963,321,241
International corporate bonds and					
government securities	392,972,354	-	392,972,354		103,697,872
Equity securities	8,543,385,269	-	8,543,385,269		9,751,823,202
Private Equity	869,758,312	-	869,758,312		697,450,822
Real estate	974,464,418	-	974,464,418		790,417,222
Total long-term investments	 13,490,013,218	179,927,663	13,669,940,881		14,298,903,233
Capital assets, net	4,072,745		4,072,745		3,649,149
Total assets	\$ 15,916,300,840	\$ 179,927,663	\$ 16,096,228,503	\$	14,947,943,742
Liabilities					
Benefits in process of payment	\$ 82,951,906	\$ -	\$ 82,951,906	\$	79,560,652
Due to brokers for securities purchased	383,658,940	-	383,658,940		206,832,718
Payable under security lending agreement	1,624,015,378	-	1,624,015,378		4,729,952
Other liabilities	11,571,962	-	11,571,962		12,714,029
Total liabilities	\$ 2,102,198,186	\$ -	\$ 2,102,198,186	\$	303,837,351
Net Position					
Net position restricted for pensions	\$ 13,814,102,654	\$ 179,927,663	\$ 13,994,030,317	\$	14,644,106,391

See Notes to Financial Statements.

#### Statements of Changes in Fiduciary Net Position For the Year Ended June 30, 2016 (With Comparative Totals for the Year Ended June 30, 2015)

						Totals Year Ended June 30		
		401(a) Plan		403(b) Plan		2016	2015	
Additions:		401(a)11a11		400(b)11011		2010	2013	
Members	\$	294,459,091	\$	-	\$	294,459,091 \$	303,677,304	
Contributions to 403(b) plan	Ŧ		Ŧ	2,222,812	Ŧ	2,222,812	2,823,513	
Employer statutory requirement from				_,,		_,,	_,,_	
local school districts		409,753,221		-		409,753,221	392,051,458	
State matching funds		25,787,244		-		25,787,244	24,445,212	
Dedicated tax		289,884,752		-		289,884,752	311,945,400	
Total contributions		1,019,884,308		2,222,812		1,022,107,120	1,034,942,887	
nvestment income:								
Interest and dividends		379,857,166		19,083,199		398,940,365	363,273,483	
Net appreciation (depreciation) in fair value	of			,,		;;	,,	
investments		(686,628,380)		(16,246,832)		(702,875,212)	125,178,064	
Investment expenses		(58,542,791)		-		(58,542,791)	(67,820,996)	
Gain (loss) from investing		(**,**=,***)				(,,)	(**,*==,****)	
activities		(365,314,005)		2,836,367		(362,477,638)	420,630,551	
ncome from securities lending activities:								
Securities lending income		8,745,286		-		8,745,286	13,920,615	
Securities lending expenses:								
Management fees		(874,529)		-		(874,529)	(2,088,092)	
Net income from securities								
lending activities		7,870,757		-		7,870,757	11,832,523	
Net investment gain (loss)		(357,443,248)		2,836,367		(354,606,881)	432,463,074	
Total additions		662,441,060		5,059,179		667,500,239	1,467,405,961	
Deductions:								
Retirement, death, survivor and health								
benefits		1,257,276,705		-		1,257,276,705	1,201,350,906	
Refund of member contributions and								
other payments		36,109,832		19,731,438		55,841,270	57,063,155	
Administrative expenses		4,458,338		-		4,458,338	4,358,938	
Total deductions		1,297,844,875		19,731,438		1,317,576,313	1,262,772,999	
Net increase (decrease) in								
net position		(635,403,815)		(14,672,259)		(650,076,074)	204,632,962	
Net position restricted for pensions:								
Beginning of year		14,449,506,469		194,599,922		14,644,106,391	14,439,473,429	
End of year	\$	13,814,102,654	\$	179,927,663	\$	13,994,030,317 \$	14,644,106,391	

See Notes to Financial Statements.

#### **Notes to Financial Statements**

#### Note 1. Description of the System

The following brief description of the Teachers' Retirement System of Oklahoma (the "System") is provided for general information purposes only. The plan's benefits are established and amended by State Statue and participants should refer to Title 70 of the Oklahoma Statutes, 1991, Sections 17-101 through 121, as amended.

The System was established as of July 1, 1943 for the purpose of providing retirement allowances and other specified benefits for qualified persons employed by state-supported educational institutions. The System is a part of the state of Oklahoma financial reporting entity, which is combined with other similar funds to comprise the fiduciary-pension trust funds of the state of Oklahoma (the "State"). The System administers a cost-sharing multiple-employer pension plan which is a defined benefit pension plan ("DB Plan"), as well as a tax-deferred defined contribution plan ("DC Plan").

The supervisory authority for the management and operation of the System is a 14-member board of trustees, which acts as a fiduciary for investment of the funds and the application of plan interpretations. The board of trustees is comprised of six appointees from the Governor's Office, two appointees by the Senate Pro Tempore, two appointees by the House Speaker, three Ex Officio position, and one non-voting member representing Retired Professional Oklahoma Educators. Out of the six appointees from the Governor's Office, one must be a Higher Education representative, one is a non-classified optional personnel, and the remaining four must work in the public or private funds management, banking, law or accounting field. Out of the two Senate Pro Tempore's as well as the House Speaker's appointees, one must be an active classroom teacher while the other be a retired member of Oklahoma Teachers Retirement. The Ex Officio trustees are the State Superintendent, the Office of Management and Enterprise Services Director and the Career-Tech Director or their designee.

**DB Plan**: Oklahoma teachers and other certified employees of common schools, faculty and administrators in public colleges and universities, and administrative personnel of state educational boards and employees of agencies who are employed at least half-time must join the System's DB Plan. Membership is optional for all other regular employees of public educational institutions who work at least 20 hours per week. There are 605 contributing employers in the System. The DB Plan's membership consisted of the following as of June 30, 2016:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	60,680
Inactive Plan Members Entitled to But Not Yet Receiving Benefits*	11,066
Active Plan Members	90,167
	161,913

\* Does not include 11,450 of non-vested terminated members entitled to a refund of their member contributions.

**DC Plan:** Members are also offered a tax-deferred defined contribution plan qualified under the Internal Revenue Code ("IRC") Section 403(b). The DC Plan is also referred to by the System as the Tax-Sheltered Annuity Plan. Membership in the DC Plan is voluntary, and investments primarily consist of mutual funds and are participant directed. Voya is responsible for administrative services, including custody and record keeping services.

The DC Plan had approximately 2,777 participants as of June 30, 2016. Contributions are voluntary and require a minimum of \$200 per year. The maximum deferral amount is the lesser of 100 percent of the participant's compensation or the maximum amount allowed by the IRC, currently \$18,000. Participants age 50 and older may contribute an additional \$6,000 if they qualify for the catch up provision.

#### **Notes to Financial Statements**

#### Note 2. Summary of Significant Accounting Policies

**Basis of accounting:** The System has prepared its financial statements in accordance with accounting principles generally accepted in the United States of America and using the economic resources measurement focus. The financial statements are prepared using the accrual basis of accounting, under which expenses are recorded when the liability is incurred, revenues are recorded in the accounting period they are earned and become measurable, and investment purchases and sales are recorded as of their trade dates. Member and employer contributions are established by Oklahoma Statutes as a percentage of salaries and are recognized when due, pursuant to legal requirements. Benefits and refunds are recognized when due and payable in accordance with the terms of the Oklahoma Statutes. Administrative expenses are funded through investment earnings.

**Budgetary control:** The System prepares and submits an annual budget of operating expenses on the cash basis for monitoring and reporting to the Office of Management and Enterprise Services. The System's budget process follows the budget cycle for State operations as outlined by the Office of Management and Enterprise Services.

The Executive Director may approve changes within the budget, but a change to the total budget must be handled according to the provision of Title 62 O.S. Sec. 41.12 of the Oklahoma Statutes.

**Investments:** The System is authorized to invest in eligible investments as approved by the Board of Trustees as set forth in the System's investment policy. The Board reviews and updates the plan investment policy at least annually, making changes as deemed necessary to achieve policy goals. An investment policy change can be made at any time during the year at the discretion of the Board. While the Board made several changes to the Investment Policy during fiscal year 2016, the changes were to make existing provisions more clear. They were not significant from a financial risk or accounting standpoint.

System investments are reported at fair value within the hierarchy established by generally accepted accounting principles, most recently by Governmental Accounting Standards Board (GASB) Statement No. 72, *Fair Value Measurement and Application.* The short-term investment fund is comprised primarily of investments in a money market fund, which are reported at cost, which approximates fair value. Debt and equity securities are reported at fair value, as determined by the System's custodial agent, using pricing services or prices quoted by independent brokers based on the latest reported sales prices at current exchange rates for securities traded on national or international exchanges.

The System also invests as a limited partner in alternative investments. These investments employ specific strategies such as leverage buyouts, venture capital, growth capital, distressed investments, and mezzanine capital. The strategies of all such funds are long term and illiquid in nature. As a result, investors are subject to redemption restrictions which generally limit distributions and restrict the ability of limited partners to exit a partnership investment prior to its dissolution. Alternative investment partnerships are valued using their respective net asset value (NAV) and are audited annually. The most significant input into the NAV of such an entity is the fair value of its investment holdings. These holdings are valued by the general partners on a quarterly or semi-annual basis, in conjunction with management and investment advisors and consultation with valuation specialists. The management assumptions are based upon the nature of the investment and the underlying business. The valuation techniques vary based upon investment type and involve a certain degree of expert judgment.

#### **Notes to Financial Statements**

#### Note 2. Summary of Significant Accounting Policies (Continued)

The System's real estate investments are primarily through limited partnerships. Properties owned by the partnership are subject to independent third-party appraisals performed in accordance with the Uniform Standards of Professional Appraisal Practice every three years. The System's real estate investments are long term and illiquid in nature. As a result, investors are subject to redemption restrictions which generally limit distributions and restrict the ability of limited partners to exit a partnership investment prior to its dissolution. Limited partner interests are valued by the System using the NAV of the partnership. The most significant input into the NAV of such an entity is the value of its investment holdings. These holdings are valued by the general partners on a continuous basis, audited annually, and may be periodically appraised by an independent third party. The valuation assumptions are based upon both market and property specific inputs which are not observable and involve a certain degree of expert judgment. The System evaluates investments in conjunction with their custodial bank and investment managers for impairment whenever events or changes in circumstances indicate that the carrying or fair value of the asset may not be recoverable. Should investments be deemed permanently impaired, the carrying or fair value is adjusted to the impaired value with an adjustment to investment income.

Net investment income includes net appreciation (depreciation) in the fair value of investments, interest income, dividend income, investment income from foreign currency translation gains and losses, securities lending income and expenses, and investment expenses, which includes investment management and custodial fees and all other significant investment related costs.

International investment managers use forward foreign exchange contracts to enhance returns or to control volatility. Currency risks arise due to foreign exchange rate fluctuations. Forward foreign exchange contracts are negotiated between two counter-parties. The System could incur a loss if its counter-parties failed to perform pursuant to the terms of their contractual obligations. The gains and losses on these contracts are included in the income in the period in which the exchange rates change. See Note 3 for additional information regarding investment derivatives as of June 30, 2016.

The System's investment policy provides for investment diversification of stocks, bonds, fixed income securities, real estate, alternative investments, and other investment securities along with investment in commingled or mutual funds. Investment securities and investment securities underlying commingled or mutual fund investments are exposed to various risks, such as interest rate, market, and credit risks. Due to the risks associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities may occur in the near term, and those changes could materially affect the amounts reported in the statements of fiduciary net position.

At June 30, 2016, the asset allocation guidelines established by the Board's investment policy were:

Category	Allocation
Domestic Equity	40.0%
International Equity	17.5%
Fixed Income	23.5%
Private Equity	5.0%
Real Estate	7.0%
Master Limited Partnerships	<u>7.0</u> %
Total	<u>100.0</u> %

**Capital assets:** Capital assets are stated at cost when acquired, net of accumulated depreciation. Depreciation is calculated on a straight-line basis over the estimated useful lives of the assets, which range from five to ten years.

#### **Notes to Financial Statements**

#### Note 2. Summary of Significant Accounting Policies (Continued)

**Risks and uncertainties:** Contributions to the System and the actuarial information included in Note 11 and the required supplementary information are reported based on certain assumptions pertaining to interest rates, inflation rates, employee compensation, and demographics. Due to the changing nature of these assumptions, it is at least reasonably possible that changes in these assumptions may occur in the near term and, due to the uncertainties inherent in setting assumptions, that the effect of such changes could be material to the financial statements.

**Income taxes:** The System is exempt from federal and state income taxes and has received a favorable determination from the Internal Revenue Service (the "IRS") under Internal Revenue Code (the "IRC") Section 401(a). The System's 403(b) Plan is also tax-exempt and has received a private letter ruling from the IRS.

**Compensated absences:** It is the State's policy to permit employees to accumulate earned but unused vacation and sick leave. Employees earn annual vacation leave based upon their start date and years of service. All accrued vacation leave is payable upon termination, resignation, retirement, or death. Sick leave does not vest to the employee and therefore is not recorded as a liability. Amounts due to the employees for compensated absences were approximately \$240,000 at June 30, 2016.

**Plan termination:** In the event the System terminates, the board of trustees will distribute the net assets of the System to provide the following benefits in the order indicated:

Accumulated contributions will be allocated to each respective member, former member, retired member, joint annuitant, or beneficiary then receiving payments.

The balance of such assets, if any, will be allocated to each member then having an interest in the System based upon the excess of their retirement income under the System less the retirement income, which is equal to the actuarial equivalent of the amount allocated to them in accordance with the preceding paragraph in the following order:

- Those retired members, joint annuitants, or beneficiaries receiving payments
- Those members eligible to retire
- Those members eligible for early retirement
- Former members electing to receive a vested benefit
- All other members

**Use of estimates:** The preparation of the System's financial statements in conformity with accounting principles generally accepted in the United States of America requires the System's management to make significant estimates and assumptions that affect the reported amounts of net position held in trust for pension benefits at the date of the financial statements and the actuarial information included in Note 11 and the required supplementary information as of the benefit information date, the changes in System net position during the reporting period, and, when applicable, disclosures of contingent assets and liabilities at the date of the financial statements. Actual results could differ from those estimates.

#### **Notes to Financial Statements**

#### Note 2. Summary of Significant Accounting Policies (Continued)

**Comparative totals:** The financial statements include certain prior year summarized comparative information in total but not at the level of detail required for a presentation in conformity with accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with the System's financial statements for the year ended June 30, 2015, from which the summarized information was derived.

**New Accounting Pronouncements:** During the current year the System adopted GASB Statement No. 72, *Fair Value Measurement and Application* during the year ended June 30, 2016. This statement specifies a hierarchy of valuation classifications based on whether the inputs to the valuation techniques used in each valuation classification are observable or unobservable. These Statements require enhanced note disclosures and descriptions of these classifications which are detailed in Note 3. The adoption of this statement had no effect on net position.

**Subsequent events:** The System has performed an evaluation of subsequent events through October 31, 2016, the date the basic financial statements were available to be issued. No material events were identified by the System.

#### Note 3. Cash and Investments

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

- Level 1 Unadjusted quoted prices for identical instruments in active markets.
- Level 2 Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.
- Level 3 Valuations derived from valuation techniques in which significant inputs are unobservable.

Investments that are measured at fair value using the net asset value per share (NAV) (or its equivalent) as a practical expedient are not classified in the fair value hierarchy. In instances where inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation.

#### **Notes to Financial Statements**

#### Note 3. Cash and Investments (Continued)

The System's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability. The following table shows the fair value levels of the investments for the System:

	Fair Value Measurements Using					
Investments by fair value level	06/30/16	Quoted Prices in Active Markets for Identical Assets Level 1	Significant Other Observable Inputs Level 2	Significant Unobservable Inputs Level 3		
Mutual Funds	\$ 179,927,663	\$ 179,927,663	\$ -	\$ -		
Total mutual funds	179,927,663	179,927,663	-	-		
Fixed Income securities			400 504 077	00 507 054		
Asset Backed Securities	154,152,531	-	123,584,877	30,567,654		
Bank Loans	21,320,480	-	21,320,480	15 462 062		
Commercial Mortgage-Backed Corporate Bonds	67,020,533 1,586,017,412	-	51,556,571	15,463,962		
Corporate Convertible Bonds	21,292,110	-	1,580,453,932 20,422,427	5,563,480 869,683		
Government Agencies	32,493,735		32,493,735			
Government Bonds	900,213,323	856,888,817	43,324,506			
Government Mortgage Backed Securities	235,897,276	-	229,640,747	6,256,529		
Gov't-issued Commercial Mortgage-Backed	8,540,715	-	6,740,038	1,800,677		
Index Linked Government Bonds	62,611,789	-	62,611,789	-		
Municipal/Provincial Bonds	2,893,704	-	2,893,704	-		
Non-Government Backed C.M.O.s	9,951,611	-	6,657,451	3,294,160		
Total fixed income securities	3,102,405,219	856,888,817	2,181,700,257	63,816,145		
Equity securities						
Common Stock	8,457,917,486	8,426,192,961	30,529,142	1,195,383		
Convertible Equity	1,817,058	1,066,200	750,858	-		
Funds - Common Stock	13,512,024	13,512,024	-	-		
Funds - Equities ETF	44,788,616	44,788,616	-	-		
Preferred Stock	13,851,064	13,851,064	-	-		
Rights/Warrants	29,630	29,153	209	268		
Stapled Securities	576,038	576,038	-	-		
Other Securities	2,562,103	2,560,337	1,766			
Total equity securities	8,535,054,019	8,502,576,393	31,281,975	1,195,651		
Total investments by fair value level	\$ 11,817,386,901	\$ 9,539,392,873	\$ 2,212,982,232	\$ 65,011,796		
Investments measured at the net asset value (NAV)						
Real Estate Investments	974,464,418					
Private Equity Investments	869,758,312					
Total alternative investments	1,844,222,730					
Other Mutual Funds	8,331,250					
Total Investments measured at the NAV	1,852,553,980					
Total Investments measured at fair value and NAV	\$ 13,669,940,881					

#### **Notes to Financial Statements**

#### Note 3. Cash and Investments (Continued)

Equity, derivative securities, and governmental debt securities classified in Level 1 are valued using prices quoted in active markets for those securities. Debt and debt derivative securities classified in Level 2 and Level 3 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. Index linked debt securities are valued by multiplying the external market price feed by the applicable day's Index Ratio.

Level 2 debt securities have non-proprietary information that was readily available to market participants, from multiple independent sources, which are known to be actively involved in the market. Level 3 debt securities use proprietary information or single source pricing. Equity and equity derivative securities classified in Level 2 are securities whose values are derived daily from associated traded securities.

Equity securities classified in Level 3 are valued with last trade data having limited trading volume.

#### Investments in Entities that Calculate Net Asset Value per Share

The System holds shares or interest in investment companies at where the fair value of the investments are measured on a recurring basis using net asset value per share (or its equivalent) of the investment companies as a practical expedient.

The System's policy is to obtain an external appraisal a minimum of every year for properties or portfolios that the System has some degree of control or discretion. In practice, some investments are appraised annually. Appraisals are performed by an independent appraiser with preference for Member Appraisal Institute (MAI) designated appraisers. The appraisals are performed using generally accepted valuation approaches applicable to the property type.

At year end, the fair value, unfunded commitments, and redemption rules of those investments is as follows:

	 Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Real Estate Investments	 974,464,418	1,117,930,233	N/A	N/A
Private Equity investments	869,758,312	163,812,821	N/A	N/A
Other Mutual Funds	8,331,250		Daily	1 Day
Total investments measured at the NAV	\$ 1,852,553,980			

**Real Estate Investments:** This type includes 10 real estate funds that invest primarily in commercial real estate. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the portfolio's ownership interest in partners' capital. These investments can never be redeemed from the funds. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the underlying assets of the funds will be liquidated over the next 20 years. Because it is not probable that any individual investment will be sold, the fair value of each individual investment has been determined using the NAV per share (or its equivalent) of the portfolio's ownership interest in partners' capital.

#### **Notes to Financial Statements**

#### Note 3. Cash and Investments (Continued)

**Private Equity Funds:** This type includes 4 private equity funds that invest primarily in leveraged buyouts. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the portfolio's ownership interest in partners' capital. These investments can never be redeemed from the funds. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the underlying assets of the funds will be liquidated over the next 20 years. Because it is not probable that any individual investment will be sold, the fair value of each individual investment has been determined using the NAV per share (or its equivalent) of the portfolio's ownership interest in partners' capital

**Other Mutual Funds:** This type includes investments in an open-end mutual fund that emphasizes broad diversification and consistent exposure to emerging market small company stocks. The fair value of the investment in this type has been determined using the NAV per share of the investment.

The system does not anticipate restrictions, other than those outlined in the table, on the ability to sell individual investments at the measurement date. Additionally, the system does not anticipate that NAV-driven investments will become redeemable at valuations materially different from the corresponding NAV listed above. The System has no prescribed time frame to liquidate the investments.

**Custodial credit risk:** Custodial credit risk is the risk that in the event of the failure of a counterparty, the System will not be able to recover the value of its bank deposits or investments. Bank deposits are exposed to custodial credit risk if they are uninsured and uncollateralized. In relation to its bank deposits, the System is not considered to be exposed to custodial credit risk. Although the System does not have a formal bank deposit policy for custodial credit risk, the State Treasurer holds all of the System's bank deposits. As required by Oklahoma Statutes, all bank deposits held by the State Treasurer are insured by Federal Deposit Insurance Corporation, collateralized by securities held by the cognizant Federal Reserve Bank, or invested in U.S. government obligations.

At June 30, 2016, the carrying amount of the System's bank deposits was approximately \$19,857,000. The bank balance of the System's bank deposits at June 30, 2016 was approximately \$12,094,000.

Investment securities are exposed to custodial credit risk if they are uninsured, are not registered in the name of the System, and are held by a counterparty or the counterparty's trust department but not in the name of the System. While the System's investment policy does not specifically address custodial credit risk, it does limit the amount of cash equivalents and short-term investments to no more than 5 percent of each manager's portfolio. At June 30, 2016, the System had uninsured and uncollateralized deposits translated to USD of approximately (\$150,000) with its custodial agent.

**Credit risk:** Fixed-income securities are subject to credit risk. Credit quality rating is one method of assessing the ability of the issuer to meet its obligation. The System's investment policy places limits on the amount of the fixed income portfolio that may be invested in bonds rated Ba1 or lower by Moody's or BB+ or lower by Standard & Poor's. Short-term investments include United States Treasury bills that mature in less than 90 days.

#### **Notes to Financial Statements**

#### Note 3. Cash and Investments (Continued)

The following table presents the System's fixed income securities subject to credit risk (amounts in thousands).

Investment Type	AAA	AA	Α	BBB	BB	В
Asset backed securities	\$ 73,886	\$ 9,134	\$ 20,871	\$ 6,200	\$ 1,214	-
Bank loans	-	-	-	-	2,078	6,311
Commercial mortgage-backed	19,202	10,587	8,029	9,605	142	1,129
Corporate bonds	-	15,353	114,242	516,212	487,444	334,569
Corporate convertible bonds	316	-	-	331	4,880	3,985
Government agencies	4,254	14,399	-	2,561	-	-
Government bonds	-	1,064	14,966	10,490	6,798	5,483
Government mortgage-backed securities	-	-	-	-	-	-
Gov't-issued commercial mortgage-backed	-	-	-	-	-	-
Index linked government bonds	-	-	-	-	-	-
Municipal/Provincial bonds	-	-	832	-	-	674
Non-government backed C.M.O.s	1,864	458	-	214	-	-
Sukuk	-	-	-	-	879	-
Total fixed income	99,522	50,995	158,940	545,613	503,435	352,151
Short-term investments	-	-	-	-	-	-
	\$ 99,522	\$ 50,995	\$ 158,940	\$ 545,613	\$ 503,435	\$ 352,151

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_	CCC	•	CC	•	D	lot Rated	Securities	_	Total
\$	425	\$	-	\$	-	\$ 42,424	\$ -	\$	154,153
	5,746		206		755	6,225	-		21,320
	-		-		-	17,890	436		67,021
	77,520		2,214		4,168	34,295	-		1,586,017
	-		-		762	11,018	-		21,292
	-		-		-	2,665	8,615		32,494
	-		-		-	4,524	856,889		900,213
	-		-		-	10,478	225,419		235,897
	-		-		-	3,502	5,039		8,541
	-		-		-		62,612		62,612
	-		-		-	508	-		2,015
	1,556		-		238	5,621	-		9,952
	-		-		-	-	-		879
	85,247		2,420		5,922	139,151	1,159,010		3,102,405
	-		-		-	-	49,469		49,469
\$	85,247	\$	2,420	\$	5,922	\$ 139,151	\$ 1,208,479	\$	3,151,874

#### **Notes to Financial Statements**

#### Note 3. Cash and Investments (Continued)

**Interest rate risk:** Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. Duration is a measure of a debt investment's exposure to fair value changes arising from changing interest rates based upon the present value of cash flows, weighted for those cash flows as a percentage of the investment's full price. Effective duration estimates the sensitivity of a bond's price to interest rate changes and makes assumptions regarding the most likely timing and amounts of variable cash flows arising from investments such as callable bonds, collateralized mortgage obligations, and other mortgage-backed securities. While all investments are subject to market changes, securities invested in index funds are more sensitive to market risk. Although the System's investment policy does not specifically address the duration of fixed-income securities, the System's management does monitor interest rate risk by monitoring the performance of each investment manager. As of June 30, 2016, the System had the following investments with maturities (dollars in thousands):

Investment Type	Fair Value	Effective Duration in Years
Asset-backed securities	\$ 152,517	7 1.2
Commercial mortgaged-backed	67,021	
Corporate bonds	1,585,452	2 4.5
Corporate convertible bonds	20,152	2 3.5
Government agencies	32,494	<b>i</b> 6.6
Government bonds	900,213	3 11.5
Government mortgage-		
backed securities	235,017	2.5
Government issued commercial		
mortgaged-backed	8,541	I 3.4
Index linked government bonds	62,612	2 20.1
Municipal/Provincial bonds	674	1 5.7
Non-government backed CMOs	9,493	3 2.2
Sukuk	879	9 5
Fixed income securities	27,340	) 7.6
Total fixed income	\$ 3,102,405	5
Portfolio duration		6.5

**Concentration of credit risk:** Investments can be exposed to concentration of credit risk if significant amounts are invested in any one issuer. The System's investment policy places limits on the amount that may be invested in securities of any single issuer. As of June 30, 2016, the System did not hold 5% or more of its total investments in any one issuer.

#### **Notes to Financial Statements**

#### Note 3. Cash and Investments (Continued)

**Foreign currency risk:** Foreign currency risk is the potential risk for loss due to changes in exchange rates. The System's investment policy provides that international investment managers invest no more than 30 percent of their portfolio's total assets in one or more issuers in a single country, provided that in the U.K. or Japan such limit shall be 35 percent. Investment in cash and cash equivalents, foreign equities, and fixed-income securities as of June 30, 2016 is shown in the following table by monetary unit to indicate possible foreign currency risk (dollars in thousands):

		Corporate	Government	Foreign Exchange	Cash and Cash	Grand
Currency	Equities	Bonds	Bonds	Contracts	Equivalents	Total
Australian Dollar	\$ 67,373	\$ 765		\$-	\$-	\$ 68,138
Brazilian Real	23,231	430	-	-	30	23,691
Canadian Dollar	46,555	-	-	-	8	46,563
Chilean Peso	658	-	-	-	-	658
Colombia Peso		-	2,502	-	-	2,502
Czech Koruna	231	-	-	-	-	231
Danish Krone	32,684	-	-	-	-	32,684
Euro	459,345	723	116	-	155	460,339
Hong Kong Dollar	87,565	-	-	-	7	87,572
Hungarian Forint	1,323	-	-	-	-	1,323
Indonesian Rupiah	11,363	-	-	-	-	11,363
Israeli Shekel	8,042	-	-	-	-	8,042
India Rupee		-	1,190	-	-	1,190
Japanese Yen	415,866	-	-	(3)	1,260	417,123
Malaysian Ringgit	8,154	-	-	-	22	8,176
Mexican Peso	14,999	5,600	14,923	-	-	35,522
New Taiwan Dollar	64,422	-	-	-	51	64,473
New Zealand Dollar	2,405	-	-	-	3	2,408
Norwegian Krone	23,384	-	-	-	-	23,384
Phillipine Peso	4,375	-	-	-	-	4,375
Polish Zloty	4,447	-	-	-	-	4,447
Pound Sterling	351,118	3,588	-	214	118	355,038
Qatari Rial	306	-	-	-	-	306
Singapore Dollar	11,960	-	-	3	-	11,963
South African Rand	22,355	-	-	-	-	22,355
South Korean Won	67,843	-	-	-	-	67,843
Swedish Krona	25,191	-	-	-	-	25,191
Swiss Franc	89,502	-	-	(4)	9	89,507
Thai Baht	21,166	-	-	-	108	21,274
Turkish Lira	12,311	-	-	-	51	12,362
UAE Dirham	541	-	-	-	-	541
	Total \$ 1,878,715	\$ 11,106	\$ 18,731	\$ 210	\$ 1,822	\$ 1,910,584

#### **Notes to Financial Statements**

#### Note 3. Cash and Investments (Continued)

**Derivative instruments:** The System's investment derivatives include forward currency and futures contracts. These investments are not speculative in nature and do not increase investment risk beyond allowable limits specified in the System's investment policy. The changes in fair values of the System's investment derivatives are included in net appreciation in fair value of investments in the accompanying statement of fiduciary net position. The fair values of the System's for securities sold and due to brokers for securities purchased in the accompanying statement of plan net position. The fair value balances and notional amounts of derivative instruments outstanding at June 30, 2016, classified by type, and the changes in fair value of such derivative instruments for the year then ended as reported in the 2016 financial statements are as follows (dollars in thousands):

		hange n Fair	Fair		
Investment Derivatives	-	Value	Value		Notional
Forward—foreign currency purchases	\$	4	\$ 3	\$	8,516
Forward—foreign currency sales		248	207		4,372
Futures – U.S. Treasury bills and notes purchases		2,069	166,229	9	164,160
Futures – U.S. Treasury bills and notes sales		(2,443)	(78,733	)	(76,289)
					А

foreign currency forward contract is an agreement that obligates the parties to exchange given quantities of currencies at a pre-specified exchange rate on a certain future date. The fair values of the forward contracts are estimated based on the present value of their estimated future cash flows.

The foreign currency forward contracts subject the System to foreign currency risk because the investments are denominated in international currencies. The risks are described in the foreign currency risk schedule where the fair value of the foreign currency contracts in U.S. dollars is presented. Futures contracts are handled similarly as they are contracts requiring exchange of financial instruments at a certain future date. The fair values of the futures contracts are estimated similarly to forward contracts. As the underlying investments of the futures contracts mature within 90 days of year-end.

**Rate of return:** For the year ended June 30, 2016, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was -2.50 percent. The money-weighted rate of return expresses investment performance, net of investment expense, as adjusted for the changing amounts actually invested.

#### Note 4. Commitments

At June 30, 2016, the System has total capital commitments related to alternative and real estate investments of \$2,540,400,000. Of this amount, \$891,978,093 remained unfunded.

#### Note 5. Securities Lending Activity

The System's investment policy and State statutes provide for its participation in a securities lending program. The program is administered by the System's master custodian, and there are no restrictions on the amount of loans that can be made. Certain securities of the System are loaned to participating brokers, who must provide collateral in the form of cash, U. S. Treasury or government agency securities, or letters of credit issued by approved banks.

#### **Notes to Financial Statements**

#### Note 5. Securities Lending Activity (Continued)

Under the terms of the agreement, collateralization of the fair value of the loaned securities must be provided in the amount of 102 percent when the security to be loaned and the collateral are in the same currency and 105 percent when the loan and collateral currencies are dissimilar. The securities on loan as of June 30, 2016 collateralized by cash were approximately \$1,598,266,000 and the cash collateral received for those securities on loan was approximately 1,624,015,000.. Securities on loan as of June 30, 2016 consisted of equity loans, corporate fixed income and US government and agencies securities collateralized by cash and non-cash securities. Because the System cannot pledge or sell collateral securities and letters of credit received unless the borrower defaults, the collateral and related liability are not presented in the accompanying statements of plan net position. The following table describes the types of securities lent and collateral as of June 30, 2016 (dollars in

	of Securities	Collateral	Collateral
	on Loan	Value	Percentage
Governmental loans compared to collateral	\$ 126,067	\$    128,384	102%
Equity loans compared to collateral	1,251,487	1,271,653	102%
Corporate loans compared to collateral	220,712	223,978	101%
	\$ 1,598,266	\$ 1,624,015	

thousands):

At June 30, 2016, the System had no credit risk exposure since the amounts the System owed to borrowers exceeded the amounts borrowers owed the System. The contract with the System's lending agent requires it to indemnify the System if the borrowers fail to return the lent securities. In the event of a collateral shortfall due to a loss in value of investments made with cash collateral, such loss would be the responsibility of the System.

All securities loans can be terminated on demand by either the System or the borrower. Cash collateral is invested in a separate account for the System in accordance with investment guidelines approved by the System. At June 30, 2016, the weighted average maturity of the cash collateral investments was 20 days. The dollar-weighted average maturity of cash collateral investments shall not exceed ninety days. For purposes of this restriction, the average maturity of variable rate instruments will be calculated to the next interest reset date. The Cash Collateral Account's minimum overnight liquidity level shall not be less that twenty percent. The cash collateral investments are structured and maintained by the lending agent's investment desk utilizing an asset and liability methodology designed to manage to an appropriate extent any mismatch between the investment maturities and the System's loans.

#### Note 6. Capital Assets

Capital assets consist of the following at June 30, 2016:

Furniture and fixtures	\$ 4,370,741
Accumulated depreciation	 (297,996)
Capital assets, net	\$ 4,072,745

The System has commitments to lease building space as well as leases on certain equipment. The future minimum commitment for operating leases as of June 30, 2016 was approximately \$200,000. The System's leases are one-year renewable contracts. Rental expense for all operating leases amounted to approximately \$200,000 for the year ended June 30, 2016.

#### **Notes to Financial Statements**

#### Note 7. Member and Employer Contributions

All contribution rates are defined or amended by the Oklahoma Legislature. All active members contribute to the System; however, the employer may elect to make all or part of the contribution for its employees. There are special provisions for members of higher education who joined the System before July 1, 1995. The annual employer contributions reported for the years ended June 30, 2016 were \$409,753,221. Employers satisfied 100 percent of their contribution requirements for 2016.

All members must contribute 7 percent of regular annual compensation, not to exceed the member's maximum compensation level, which for the year ended June 30, 2016 was the full amount of regular annual compensation.

The employers are required to contribute a fixed percentage of annual compensation on behalf of active clients. The employer contribution rate was 9.5 percent beginning on January 1, 2011 for all remitting entities other than comprehensive and four year regional universities. The employer contribution rate was 8.55 percent starting on January 1, 2011 for comprehensive and four year universities. The rates for fiscal years 2016 are applied on the full amount of the member's regular annual compensation up to certain limits prescribed by the IRC.

#### Note 8. Benefits

The System provides defined retirement benefits based on members' final compensation, age, and term of service. In addition, the retirement program provides for benefits upon disability and to survivors upon the death of eligible members. Title 70 O. S. Sec. 17-105 defines all retirement benefits. The authority to establish and amend benefit provisions rests with the State Legislature.

Benefit provisions include:

- Members become 100 percent vested in retirement benefits earned to date after five years of credited Oklahoma service. Members who joined the System on June 30, 1992 or prior are eligible to retire at maximum benefits when age and years of creditable service total 80. Members joining the System after June 30, 1992 are eligible for maximum benefits when their age and years of creditable service total 90. Members whose age and service do not equal the eligible limit may receive reduced benefits as early as age 55, and at age 62 receive unreduced benefits based on their years of service. The maximum retirement benefit is equal to 2 percent of final compensation for each year of credited service.
- Final compensation for members who joined the System prior to July 1, 1992 is defined as the average salary for the three highest years of compensation. Final compensation for members joining the System after June 30, 1992 is defined as the average of the highest five consecutive years of annual compensation in which contributions have been made. The final average compensation is limited for service credit accumulated prior to July 1, 1995 to \$40,000 or \$25,000, depending on the member's election. Monthly benefits are 1/12 of this amount. Service credits accumulated after June 30, 1995 are calculated based on each member's final average compensation, except for certain employees of the two comprehensive universities. Upon the death of a member who has not yet retired, the designated beneficiary shall receive the member's total contributions plus 100 percent of interest earned through the end of the fiscal year, with interest rates varying based on time of service. A surviving spouse of a qualified member may elect to receive, in lieu of the aforementioned benefits, the retirement benefit the member was entitled to at the time of death as provided under the Joint Survivor Benefit Option.
- Upon the death of a retired member, the System will pay \$5,000 to the designated beneficiary, in addition to the benefits provided for the retirement option selected by the member.

#### Notes to Financial Statements

#### Note 8. Benefits (Continued)

- A member is eligible for disability benefits after ten years of credited Oklahoma service. The disability benefit is equal to 2 percent of final average compensation for the applicable years of credited service.
- Upon separation from the System, members' contributions are refundable with interest based on certain restrictions provided in the plan, or by the IRC.
- Members may elect to make additional contributions to a tax-sheltered annuity program up to the exclusion allowance provided under the IRC under Code Section 403(b).

#### Supplemental Health Insurance Program

The System makes payments to certain retiree health insurance providers that are subsidies to help pay for certain supplemental health benefits that are available to eligible retired members who elect such coverage. The subsidy payments are made to the Employees Group Insurance Division (EGID) of the Office of Management and Enterprise Services (OMES) for retirees who opt to continue their employer-provided insurance and are also made to employers who provide health insurance options through other insurers as long as the plans provide health insurance options to both the employers' active and retired employees.

All retirees are eligible except for special retirees (as defined) and spouses and beneficiaries as long as they have at least 10 years of service. Retirees who elect such coverage receive the smaller of (i) a Medicare supplement benefit, if eligible, or (ii) an amount between \$100 and \$105 per month, depending on service and final average compensation. Payments are made on their behalf monthly (i) to EGID as described above, if the member continues health coverage under that Plan, or (ii) to the member's former employer, if the member retains health coverage under a plan maintained by the former employer as described above. The amounts paid to EGID or local employers were approximately \$30,522,000 in 2016 and are included in retirement and other benefits expense. The System performs no administrative functions related to the payment of the benefit.

TRS does not have a separate trust to finance the health insurance benefit, and does not have separate assets and investments to fund the benefit. The liability to pay for the monthly subsidy is part of the total pension liability of the TRS plan. These liabilities are recognized on an accrual basis.

Employer and employee contributions are made based upon the TRS Plan provisions contained in Title 70, as amended. However the statutes do not specify or identify any particular contribution source to pay the health insurance subsidy. The cost of the subsidy averages 0.29% of normal cost, as determined by an actuarial valuation.

Each employer in the Program must disclose the employer's own annual program cost and contributions made to the extent that employers continue to contribute to one of its retired employees' health care costs. As noted above, there is no separate trust to finance the subsidy, and no separate funded status is calculated. Therefore no funding progress is calculated or shown.

The valuation date is June 30th of each plan year. All members, whether currently active, inactive, or retired, are assumed to be eligible to receive the supplemental insurance benefit, if they have at least 10 years of service credit at retirement.

#### **Notes to Financial Statements**

#### Note 9. Dedicated Tax

The plan receives funds provided by the State of Oklahoma, a non-employer contributing entity, through 5.0 percent of the State's sales, use, and corporate and individual income taxes collected as dedicated tax. The System receives 1 percent of the cigarette taxes collected by the State and receives 5 percent of net lottery proceeds collected by the State. The System received approximately \$289,885,000 from the State in 2016. Amounts due from the State were approximately \$35,127,000 at June 30, 2016.

#### Note 10. Plan Amendments

The 2016 legislative session resulted in no bills with an actuarial impact on the system.

#### Note 11. DB Plan Net Pension Liability and Actuarial Information

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

Total pension liability	\$ 22,193,244,472
Plan fiduciary net position	 (13,814,102,655)
Employers' net pension liability	\$ 8,379,141,817

Plan fiduciary net position as a percentage of the total pension liability

62.24%

The total pension liability as of June 30, 2016, was determined based on an actuarial valuation prepared as of June 30, 2016 using the following actuarial assumptions:

- Actuarial Cost Method—Entry Age Normal
- Inflation—2.50 percent
- Future Ad Hoc Cost-of-living Increases—None
- Salary Increases—Composed of 3.25 percent wage inflation, including 2.50 percent price inflation, plus a service-related component ranging from 0.00 percent to 8.00 percent based on years of service
- Investment Rate of Return—7.50 percent Retirement Age— Experience-based table of rates based on age, service, and gender. Adopted by the Board in May 2015 in conjunction with the five year experience study for the period ending June 30, 2014
- Mortality Rates after Retirement— Males: RP-2000 Combined Healthy mortality table for males with White Collar Adjustments. Generational mortality improvements in accordance with Scale BB from the table's base year of 2000. Females: GRS Southwest Region Teacher Mortality Table, scaled at 105%. Generational mortality improvements in accordance with Scale BB from the table's base year of 2012.
- Mortality Rates for Active Members—RP-2000 Employee Mortality tables, with male rates multiplied by 60% and female rates multiplied by 50%

**Measurement of the net pension liability:** The net pension liability is measured as the total pension liability, less the amount of the plan's fiduciary net position. In actuarial terms, this is analogous to the accrued liability as measured using the individual entry age normal actuarial cost method less the fair value of assets (not the smoothed actuarial value of assets seen in actuarial valuations based on the Board's adopted assumptions and methods).

#### **Notes to Financial Statements**

#### Note 11. DB Plan Net Pension Liability and Actuarial Information (Continued)

For the valuation period ending June 30, 2016, a single discount rate of 7.50% was used to measure the total pension liability. Previously, the System had used an 8.00% discount rate. Based on the stated assumptions and the projection of cash flows, the pension plan's fiduciary net position and future contributions were projected to be available to finance 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.

The projection of cash flows used to determine this single discount rate assumed that plan member and employer contributions will be made at the current statutory levels and remain a level percentage of payroll. The projection of cash flows also assumed that the State's contribution plus the matching contributions will remain a constant percent of projected member payroll based on the past five years of actual contributions.

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

The target asset allocation and best estimates of arithmetic expected real rates of return for each major asset class as of June 30, 2016 are summarized in the following table:

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
Domestic All Cap Equity*	7.0%	6.2%
Domestic Large Cap Equity	10.0%	5.8%
Domestic Mid Cap Equity	13.0%	6.3%
Domestic Small Cap Equity	10.0%	7.0%
International Large Cap Equity	11.5%	6.6%
International Small Cap Equity	6.0%	6.6%
Core Plus Fixed Income	17.5%	1.6%
High-Yield Fixed Income	6.0%	4.9%
Private Equity	5.0%	8.3%
Real Estate**	7.0%	4.5%
Master Limited Partnerships	7.0%	7.7%
Total	100.0%	

\* The Domestic All Cap Equity total expected return is a combination of 3 rates – US Large Cap, US Mid Cap and US Small Cap.

\*\* The Real Estate total expected return is a combination of US Direct Real Estate (unleveraged) and US Value added Real Estate (unleveraged).

#### Notes to Financial Statements

#### Note 11. DB Plan Net Pension Liability and Actuarial Information (Continued)

**Sensitivity of the net pension liability to the single discount rate assumption:** The following table provides the sensitivity of the net pension liability to changes in the discount rate as of June 30, 2016. In particular, the table presents the plan's net pension liability, if it were calculated using a single discount rate that is one-percentage-point lower or one-percentage-point higher than the single discount rate:

		Current	
	1% Decrease	Discount	1% Increase
	(6.50%)	Rate (7.50%)	(8.50%)
Net pension liability	\$ 10,969,614,671	\$ 8,379,141,818	\$ 6,210,964,730

#### Note 12. New Accounting Pronouncements Issued, Not Yet Adopted

GASB Statement No. 73, Accounting and Financial Reporting for Pensions and Related Assets That Are Not Within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68 (GASB No. 73): GASB No. 73 was issued June 2015 and will be effective for the Plan beginning with its fiscal year ending June 30, 2016—except those provisions that address employers and governmental non-employer contributing entities for pensions that are not within the scope of Statement No. 68, which are effective for the Plan beginning with its fiscal year ending June 30, 2016—except those provisions that address employers and governmental non-employer contributing entities for pensions that are not within the scope of Statement No. 68, which are effective for the Plan beginning with its fiscal year ending June 30, 2017. The Statement establishes requirements for pensions not covered by Statement Nos. 67 and 68 which are essentially the same requirements as Statement No. 68. However, the lack of a pension plan that is administered through a trust that meets specified criteria is reflected in the measurements.

GASB Statement No. 74, *Financial Reporting for Postemployment Benefit* Plans *Other Than Pension Plans*, (OPEB) addresses reporting by OPEB plans that administer benefits on behalf of governments. This statement replaces GASB Statement No. 43, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*. GASB Statement No. 74 addresses the financial reports of defined benefit OPEB plans that are administered through trusts that meet specified criteria. This statement requires an OPEB liability to be included in the Statement of Fiduciary Net Position and the Statement of Changes In Fiduciary Net Position, as well as extensive note disclosures and required supplementary information related to the measurement of the OPEB liabilities for which assets have been accumulated, including information about the annual money weighted rates of return on plan investments. The provisions in this statement are effective for financial statements for fiscal years beginning after June 15, 2016. Management is evaluating GASB Statement No. 74 and its impact to the System's financial reporting and, if applicable, will implement it in the financial statements for the fiscal year ending June 30, 2017.

GASB Statement No. 75, Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions, addresses reporting by governments that provide OPEB to their employees and for governments that finance OPEB for employees of other governments. GASS Statement No. 75 replaces the requirements of GASS Statement No. 45, Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions. This statement requires governments to report a liability on the face of the financial statements for the OPEB that they provide by reporting, according to specified criteria, either a net OPEB liability, their proportionate share of the collective OPEB liability, or the total OPEB liability related to their employees. GASB Statement No. 75 requires governments in all types of OPEB plans to present more extensive note disclosures and required supplementary information about their OPEB liabilities. The provisions in this statement are effective for fiscal years beginning after June 15, 2017. Management is evaluating GASB Statement No. 75 and its impact to the System's financial reporting and, if applicable, will implement it in the financial statements for the fiscal year ending June 30, 2018.

#### **Notes to Financial Statements**

#### Note 12. New Accounting Pronouncements Issued, Not Yet Adopted (Continued)

GASB Statement No. 78, *Pensions Provided through Certain Multiple-Employer Defined Benefit Plans* amends the scope and applicability of Statement 68 to exclude pensions provided to employees of state or local governmental employers through a cost-sharing multiple-employer defined benefit pension plan that (1) is not a state or local governmental pension plan, (2) is used to provide defined benefit pensions both to employees of state or local governmental employers and to employees of employers that are not state or local governmental employers, and (3) has no predominant state or local governmental employer (either individually or collectively with other state or local governmental employers that provide pensions through the pension plan). GASB Statement No. 78 establishes requirements for recognition and measurement of pension expense, expenditures, and liabilities; note disclosures; and required supplementary information for pensions that have the characteristics described above.

The provisions in this statement are effective for fiscal years beginning after December 15, 2015. Management has evaluated GASB Statement No. 78 and its impact to the System's financial reporting and has determined it will not impact the System.

GASB Statement No.79, *Certain External Investment Pools and Pool Participants*, addresses accounting and financial reporting for certain external investment pools and pool participants. Specifically, it establishes criteria for an external investment pool to qualify for making the election to measure all of its investments at amortized cost for financial reporting purposes. An external investment pool qualifies for that reporting if it meets all of the applicable criteria established in GASB Statement No. 79. The specific criteria address (1) how the external investment pool transacts with participants; (2) requirements for portfolio maturity, quality, diversification, and liquidity; and (3) calculation and requirements of a shadow price. Significant noncompliance prevents the external investment pool from measuring all of its investments at amortized cost for financial reporting purposes. Professional judgment is required to determine if instances of noncompliance with the criteria established by GASB Statement No. 79 during the reporting period, individually or in the aggregate, were significant.

The majority of the provisions in this statement were effective for fiscal years beginning after June 15, 2015, with certain provisions effective for reporting periods beginning after December 15, 2015. Management has evaluated GASB Statement No. 79 and its impact to the System's financial reporting and has determined it will not impact the System.

GASB Statement No. 80, *Blending Requirements for Certain Component Units* amends the blending requirements for the financial statement presentation of component units of all state and local governments. The additional criterion requires blending of a component unit incorporated as a not-for-profit corporation in which the primary government is the sole corporate member. The additional criterion does not apply to component units included in the financial reporting entity pursuant to the provisions of Statement No. 39, *Determining Whether Certain Organizations Are Component Units*.

The provisions in this Statement are effective for reporting periods beginning after June 15, 2016. Management is evaluating GASB Statement No. 80 and its impact to the System's financial reporting and, if applicable, will implement it in the financial statements for the fiscal year ending June 30, 2017.

GASB Statement No. 81, *Irrevocable Split-Interest Agreements* requires that a government that receives resources pursuant to an irrevocable split-interest agreement recognize assets, liabilities, and deferred inflows of resources at the inception of the agreement. Furthermore, this Statement No. 81 requires that a government recognize assets representing its beneficial interests in irrevocable split-interest agreements that are administered by a third party, if the government controls the present service capacity of the beneficial interests. The Statement requires that a government recognize revenue when the resources become applicable to the reporting period.

#### **Notes to Financial Statements**

#### Note 12. New Accounting Pronouncements Issued, Not Yet Adopted (Continued)

The provisions in this statement are effective for fiscal years beginning after December 15, 2016. Management is evaluating GASB Statement No. 81 and its impact to the System's financial reporting and, if applicable, will implement it in the financial statements for the fiscal year ending June 30, 2018.

GASB Statement No. 82, *Pension Issues* - an amendment of GASB Statements No. 67, No. 68 and No. 73, seeks to address certain issues that have been raised with respect to those Statements. Specifically, Statement No. 82 addresses issues regarding (1) the presentation of payroll-related measures in 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 provisions in this statement are effective for fiscal years beginning after June 15, 2016, except for where the selection of assumptions in a circumstance in which an employer's pension liability is measured as of a date other than the employer's most recent fiscal year-end. In that circumstance, the requirements for the selection of assumptions are effective for that employer in the first reporting period in which the measurement date of the pension liability is on or after June 15, 2017. Management is evaluating GASB Statement No. 82 and its impact to the System's financial reporting (and the employers of the State) and, if applicable, will implement it in the financial statements for the fiscal year ending June 30, 2017.

# Schedule of Changes in Employers' Net Pension Liability (Unaudited) Fiscal Year Ended June 30, 2016

	Year Ended June 30					
		2016		2015		2014
Total pension liability:						
Service cost	\$	428,904,761	\$	415,702,261	\$	409,199,801
Interest		1,609,511,334		1,538,893,982		1,491,722,137
Benefit changes						
Difference between actual and expected return		(36,212,168)		(159,980,414)		(105,344,633)
Assumption changes		933,294,515		346,488,630		
Benefit payments		(1,257,276,705)	(	(1,201,350,907)		(1,153,051,607)
Refunds		(36,109,832)		(35,240,176)		(28,718,256)
Net change in total pension liability		1,642,111,905		904,513,376		613,807,442
Total pension liability:						
Beginning		20,551,132,567	1	19,646,619,191		19,032,811,749
Ending (a)		22,193,244,472		20,551,132,567		19,646,619,191
Plan fiduciary net position:						
Contributions-Employer/State		725,425,216		728,442,070		707,052,675
Contributions-Members		294,459,090		303,677,304		301,300,811
Net investment income		(357,443,247)		428,855,747		2,571,707,952
Benefit payments		(1,257,276,705)	(	(1,201,350,906)		(1,153,051,607)
Refunds		(36,109,832)		(35,240,176)		(28,718,256)
Administrative expense		(4,458,336)		(4,358,938)		(4,282,605)
Net change in plan fiduciary net position		(635,403,814)		220,025,101		2,394,008,970
Plan fiduciary net position:						
Beginning		14,449,506,469	1	4,229,481,368		11,835,472,398
Ending (b)		13,814,102,655	1	4,449,506,469		14,229,481,368
Plan's net pension liability (asset) (a)-(b)	\$	8,379,141,817	\$	6,101,626,098	\$	5,417,137,823

\*\*See notes to required supplementary information\*\*

Information to present a 10 year schedule is not currently available.

#### Notes to Schedule:

The Plan's net pension liability increased between 2015 and 2016 due to changes in assumptions adopted by the Board during 2015. The most notable change was the lowering of the System's discount rate from 8.0% to 7.5%.

#### Schedule of Employers' Net Pension Liability (Unaudited)

#### Fiscal Year Ended June 30, 2016

	Year Ended June 30			
		2016	2015	2014
Total pension liability Plan fiduciary net position <b>Plan's net pension liability</b>	\$	22,193,244,472 13,814,102,654 8,379,141,818	\$ 20,551,132,567 14,449,506,469 \$ 6,101,626,098	\$ 19,646,619,191 14,229,481,368 \$ 5,417,137,823
Plan fiduciary net position as a percentage of the total pension liability		62.24%	70.31%	72.43%
Covered-employee payroll	\$	4,206,558,429	\$ 4,338,247,200	\$ 4,304,297,300
Plan's net pension liability (asset) as a percentage of covered-employee payroll		199.19%	140.65%	125.85%

\*\*See notes to required supplementary information\*\*

Information to present a 10 year schedule is not currently available.

#### Notes to Schedule:

The covered employee payroll is an estimate of the actual payroll imputed from individual member contributions for each fiscal year.

#### Schedule of Contributions From Employers and Other Contributing Entities (Unaudited)

	 2016	2015		2014		2013	2012
Actuarially determined contributions Contributions in relation to the actuarially determined contribution:	\$ 723,528,050	\$ 550,652,420	\$	602,936,966	\$	619,805,640	\$ 588,287,377
Employers (Schools) State of Oklahoma, a non-employer	409,753,221	392,051,458		386,895,127		373,789,020	376,635,234
contributing entity	 315,671,995	336,390,612		320,157,548		327,505,309	304,995,663
Contribution deficiency (excess)	\$ (1,897,166)	\$ (177,789,650)	\$	(104,115,709)	\$	(81,488,689)	\$ (93,343,520)
Covered-employee payroll	\$ 4,206,558,429	\$ 4,338,247,200	\$	4,304,297,300	\$	3,933,100,000	\$ 3,924,800,000
Contributions as a percentage of covered- employee payroll	 17.25%	16.79%	1	16.43%	1	17.83%	17.37%
	 2011	2010		2009		2008	2007
Actuarially determined contributions Contributions in relation to the actuarially	\$ 822,419,996	\$ 742,286,289	\$	714,367,558	\$	590,495,652	\$ 575,745,142
determined contribution: Employers (Schools) State of Oklahoma, a non-employer	364,025,589	366,282,238		338,974,512		308,804,479	271,012,403
contributing entity	 274,452,205	254,375,139		279,672,051		288,036,554	264,904,170
Contribution deficiency (excess)	\$ 183,942,202	\$ 121,628,912	\$	95,720,995	\$	(6,345,381)	\$ 39,828,569
Covered-employee payroll	\$ 3,773,300,000	\$ 3,854,800,000	\$	3,807,900,000	\$	3,751,400,000	\$ 3,598,900,000
Contributions as a percentage of covered- employee payroll	 16.92%	16.10%	1	16.25%	1	15.91%	14.89%

\*\*See notes to required supplementary information\*\*

#### Schedule of Investment Returns (Unaudited) Fiscal Year Ended June 30, 2016

	Year E	Year Ended June 30		
	2016	2015	2014	
Annual money-weighted rate of return, net of investment expenses	-2.50%	3.04%	21.95%	
**See notes to required supplementary information**				

Information to present a 10 year schedule is not currently available.

#### NOTES TO REQUIRED SUPLEMETARY INFORMATION:

Actuarially determined contribution rates are calculated as of June 30.

Members and employers contribute based on statutorily fixed rates. The State of Oklahoma contributes 5.0% of revenues from sales taxes, use taxes, corporate and individual income taxes and lottery proceeds.

Beginning with fiscal year ending June 30, 2016, the Actuarially Determined Employer Contribution (ADEC) is determined as the employer contribution amount necessary to discharge the Unfunded Actuarial Accrued Liability over a period equal to the funding period for the current actuarial valuation for plan funding purposes (i.e., 14 years as of June 30, 2015). However, in no event shall the amortization period be in excess of a fixed period of twenty (20) years. ADEC rates are calculated as of June 30.

The ADEC was previously determined as the total employer contribution necessary to fund the normal cost and to amortize the UAAL as a level percentage of payroll over 30 years.

A new set of assumptions were adopted for the June 30, 2016 actuarial valuation and will be first reflected for the ADEC determination for the fiscal year ending 2017.

#### Methods and assumptions used to determine contribution rates:

•	
Actuarial cost method	Entry age normal
Amortization method	Level percentage of payroll
Amortization period	Amortization over an open 30-year period
Asset valuation method	5-year smooth market
Inflation	2.50%
Salary increase	Composed of 3.25% inflation, plus 1.00% productivity increase rate, plus step-rate promotional increases for members with less than 25 years of service
Investment rate of return	7.50%
Retirement age	Experience-based table of rates based on age, service and gender. Adopted by the Board in May 2015 in conjunction with the five year experience study for the period ending June 30, 2014
Mortality	RP-2000 Combined Mortality Table, projected to 2016 using Scale AA, multiplied by 60% for males and 50% for females

Schedule of Investment Expenses For the Year Ended June 30, 2016

Investment managers	\$    57,657,791
Investment consultants	885,000
Total investment expenses	\$ 58,542,791

## Schedule of Administrative Expenses For the Year Ended June 30, 2016

Salaries and benefits	\$ 3,172,152
General and miscellaneous	549,167
Professional/consultant fees	669,387
Travel and related expenses	45,474
Depreciation expense	 22,158
Total administrative expenses	\$ 4,458,338

#### Schedule of Professional/Consultant Fees For the Year Ended June 30, 2016

Actuarial	\$ 115,400
Medical	9,409
Legal	56,413
Audit	218,833
Data processing	12,931
Miscellaneous	 256,401
Total professional/consultant fees	\$ 669,387





# Investment Section

#### TEACHERS RETIREMENT SYSTEM OF OKLAHOMA PROFESSIONAL CONSULTANTS AND ADVISORS

#### DOMESTIC EQUITY MANAGERS

Advisory Research, Inc., All-Capitalization Chicago, Illinois Aronson + Johnson + Ortiz, Mid-Capitalization Core Philadelphia, Pennsylvania Cove Street Capital, LLC, Small-Capitalization Value El Segundo, California Epoch Investment Partners, Inc., All-Capitalization New York City, New York Frontier Capital Management, Mid-Capitalization Growth Boston, Massachusetts Frontier Capital Management Co. LLC, Small-Capitalization Value Boston, Massachusetts Geneva Capital Management Ltd., Small-Capitalization Growth Milwaukee, Wisconsin Hotchkis & Wiley Investment, Large-Capitalization Value Los Angeles, California Hotchkis & Wiley Investment, Mid-Capitalization Value Los Angeles, California Northern Trust, Domestic Equity Index Chicago, Illinois Neumeier Poma Investment Counsel, LLC, Small-Capitalization Growth Carmel, California Sawgrass Asset Management, LLC, Large-Capitalization Growth Jacksonville Beach, Florida Shapiro Capital Management Company, Inc., Small-Capitalization Value Atlanta, Georgia State Street Global Advisors, Domestic Equity Index Boston, Massachusetts Wasatch Advisors, Inc., Small-Capitalization Growth Salt Lake City, Utah Wellington Management Company, LLP, Mid-Capitalization Growth Boston, Massachusetts

#### INTERNATIONAL EQUITY MANAGERS

Advisory Research, Inc., Small Capitalization Chicago, Illinois Allianz, Large Capitalization New York City, New York Causeway Capital Management, LLC, Large Capitalization Los Angeles, California Epoch Investment Partners, Inc., Small Capitalization New York City, New York Wasatch Funds, Small Capitalization Salt Lake City, Utah Wellington Management Company, LLP, Small Capitalization Boston, Massachusetts

#### FIXED INCOME MANAGERS

Hoisington Investment Management Co., Interest Rate Sensitive Austin, Texas Loomis, Sayles & Company, LP, Active Boston, Massachusetts Lord Abbett & Company, LLC, Core+ Active Jersey City, New Jersey MacKay Shields, LLC, Core+ Active New York City, New York

#### MASTER LIMITED PARTNERSHIPS

Chickasaw Capital Management Memphis, Tennessee Cushing MLP Dallas, Texas Advisory Research, Inc St. Louis, Missouri

#### PRIVATE EQUITY MANAGERS

Franklin Park, LLC, Private Equity Bala Cynwyd, Pennsylvania

#### REAL ESTATE

AEW Boston, Massachusetts American Realty Advisors Glendale, California Antheus Capital Englewood, New Jersey Dune Real Estate Partners New York City, New York GreenOak New York City, New York Heitman Real Estate Chicago, Illinois L & B Real Estate Dallas, Texas Landmark Partners Simsbury, Connecticut Starwood Capital Greenwich, Connecticut

#### ADVISORS AND CONSULTANTS

Northern Trust, Global Custodian/Securities Lending Chicago, Illinois The Bogdahn Group, Investment\_Consultant Tulsa, Oklahoma Gabriel, Roeder, Smith & Company, Actuarial Consultant Dallas, Texas Eide Bailly, LLP Independent Auditor Oklahoma City, OK Office of the Attorney General Oklahoma City, Oklahoma

# **Statement of Investment Policies**

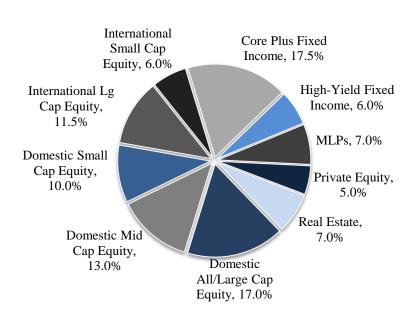
The policies and procedures of the Teachers' Retirement System of Oklahoma provide for a prudent and systematic investment process on behalf of its members, allowing for reasonable expenses of administration of the Fund, and providing for an orderly means whereby employees may be retired from active service with all pension benefits allowed by Oklahoma statutes. The Board of Trustees must follow the "prudent investor standard." In making investments, the Board must exercise the judgment, care, skill, prudence, and diligence under the circumstances that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character.

The Board diversifies investments to minimize risk. The investment objectives of the Board, as fiduciaries, are long-term rather than short-term. Board policy takes into consideration actuarial assumptions of the retirement program and any unfunded liabilities.

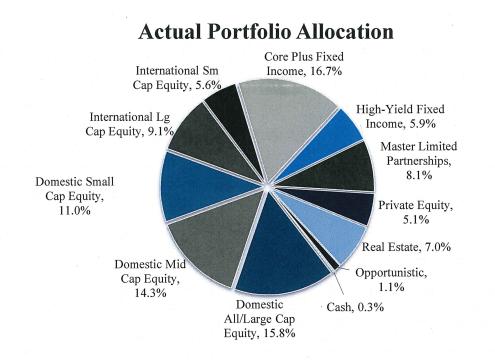
The investment balances presented in this section and the financial section are presented on the accrual basis of accounting.

# **Investment Allocation Policy**

In the pursuit of long-term returns in excess of our 7.5 percent actuarial assumption, while maintaining the goal of capital preservation, TRS has adopted a diversified policy asset allocation. The resulting diversified portfolio is designed to enhance long-term returns while mitigating short-term volatility. To those ends, the TRS policy allocation has a 57.5 percent allocation to domestic and developed market equities and a 23.5 percent allocation to fixed income. All investments are managed by external managers.



# **Policy Benchmark**



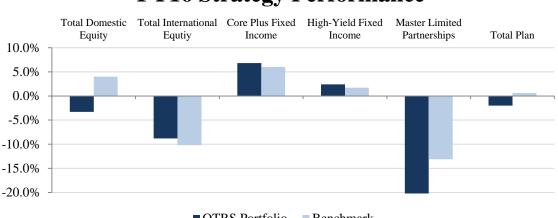
#### **Investment Performance**

To achieve the investment goals set forth by TRS's Investment Policy Statement, the Board of Trustees employ a strategy of active management. For the Fiscal Year 2016 the Fund realized a -2.0 percent rate of return, calculated using Market Value Rate of Return.

This report is prepared by:

Mena Kip

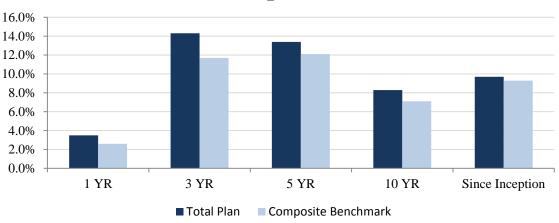
Melissa Kempkes Investment Analyst



# **FY16 Strategy Performance**

OTRS Portfolio Benchmark

Since inception, December 1, 1991, the TRS Composite has returned 9.2 percent, gross of fees, while the policy benchmark has returned 8.9 percent. Both return percentages are calculated using the Market Value Rate of Return. The policy benchmark consists of 25% Barclays Aggregate, 17.5% Russell 1000, 15% MSCI-ACWI Ex US, 12.5% Russell Midcap, 10% Russell 2000, 5% Russell 1000 + 400bp, 5% Merrill HY II Master, 5% Alerian MLP, and 5% NCREIF Fund open end.



# **OTRS Composite Returns**

Rates calculated using Market Value Rate of Return.

# **Top Holdings**

TRS's ten largest stock and fixed income holdings by fair value as of June 30, 2016 are listed below.

Ten Largest Stock Holdings		
Security	Shares	Fair Value
BANK OF AMERICA CORP	2,681,000	\$37,037,578
ENTEGRIS INC COM	2,452,978	26,127,123
LIVE NATION ENTERTAINMENT INC	1,497,518	21,927,358
TARGA RES CORP COM	819,000	28,594,311
CABELAS INC COM STK	682,856	34,801,195
MLP ENTERPRISE PRODS PARTNERS L P COM UNIT	1,150,000	16,754,356
LIONS GATE ENTMT CORP COM NEW	1,660,430	36,658,856
FIREEYE INC COM	2,006,200	29,313,997
MOSAIC CO/THE	1,217,400	47,694,185
ENLINK MIDSTREAM LLC	1,941,000	22,104,969

#### **Ten Largest Fixed Income Holdings**

Security	Quantity	Fair Value
UNITED STATES OF AMER TREAS BONDS DTD (1)	123,114,000	\$120,467,430
UNITED STATES TREAS BDS 3% <sup>(1)</sup>	88,600,000	99,635,445
UNITED STATES TREAS BONDS DTD 2.5% DUE 05-15-2046 REG <sup>(1)</sup>	89,700,000	88,162,828
UNITED STATES TREAS NTS DTD 1.25% DUE 11-15-2018 REG <sup>(1)</sup>	64,354,000	64,758,364
UNITED STATES TREAS BDS DTD 2.5% DUE 02-15-2046 REG <sup>(1)</sup>	46,290,000	45,201,624
FNMA SINGLE FAMILY MORTGAGE 3% 30 YEARS	33,859,000	34,765,820
UTD STATES TREAS 1.125% DUE 06-30-2021 <sup>(1)</sup>	30,105,000	30,262,581
FUT SEP 16 U.S. T-BONDS <sup>(1)</sup>	148,000	24,135,563
FUT SEP 16 CBT 5Y T-NOTE <sup>(1)</sup>	190,563	23,280,000
UNITED STATES TREAS BDS 1.375 <sup>(1)</sup>	18,500,000	20,767,899

(1) Securities are explicitly guaranteed by the United States Government.

\* A comprehensive list of the Plan's investments at June 30, 2016 may be obtained by contacting the Investment Analyst.

# **Investment Expenses**

For the Fiscal Year 2016, investment fees paid to investment management firms employed by TRS were as follows:

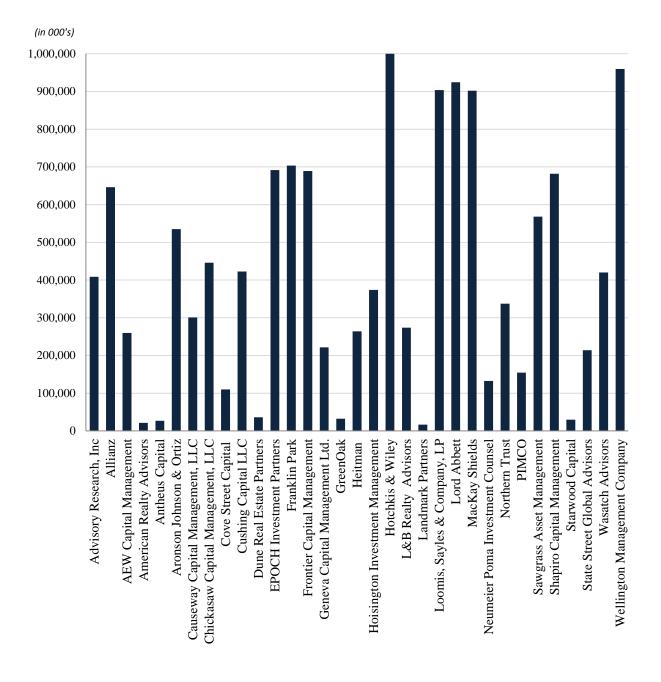
Investment Manager	Fees Paid
Advisory Research, All-Capitalization	\$569,275
Advisory Research, Int'l Equity	\$1,143,168
Advisory Research, MLP	\$1,107,414
AEW Capital Management, Core Real Estate	\$2,084,701
American Realty, Non-Core Real Estate	\$228,674
Antheus, Non-Core Real Estate	\$806,249
Aronson Johnson & Ortiz, Mid-Cap Equity	\$958,224
Bogdahn Group, Consultant	\$855,000
Causeway Capital, Int'l Equity	\$1,579,753
Chickasaw Capital Management, MLP	\$2,129,932
Cove Street Capital Small-Capitalization	\$740,613
Cushing Capital LLC, MLP	\$1,462,633
Dune, Real Estate	\$512,003
EPOCH Investment Partners, All-Capitalization	\$2,114,024
EPOCH Investment Partners, Int'l Equity	\$1,436,133
Franklin Park, Private Equity	\$4,092,290
Frontier Capital, Mid-Capitalization	\$1,477,823
Frontier Capital, Small-Capitalization	\$2,771,056
Geneva Capital Management, Small-Capitalization	\$1,117,900
GreenOak, Real Estate	\$500,035
Heitman, Real Estate	\$1,903,506
Hoisington Investment Management, Core Fixed	\$469,588
Hotchkis & Wiley, Mid-Capitalization	\$1,632,321
Hotchkis & Wiley, Large-Capitalization	\$2,358,806
L&B Realty Advisors Core Real Estate	\$912,961
Landmark, Non-Core Real Estate	\$350,000
Loomis Sayles, Core Fixed	\$901,634
Loomis Sayles, High Yield	\$1,218,464
Lord Abbett, Core Fixed	\$1,034,281
Lord Abbett, High Yield	\$985,195
MacKay Shields, Core Fixed	\$1,297,404
MacKay Shields, High Yield	\$1,145,454
Neumeier Poma Investment, Small-Capitalization	\$820,967
Northern Trust, Equity Index	\$40,772
Northern Trust, Int'l Equity Index	\$190,506
PIMCO, Opportunistic Fixed Income	\$2,203,494

Shapiro Capital Management, Small-Capitalization	\$4,914,528
Starwood, Non-Core Real Estate	\$493,663
State Street Gloabal Advisors, Equity Index	\$54,494
Wasatch Advisors Inc., Int'l Equity	\$1,747,137
Wasatch Advisors Inc., Small-Capitalization	\$1,750,341
Wellington Management, Int'l Equity	\$1,094,295
Wellington Management, Mid-Capitalization	\$1,278,204
Total	\$58,362,609

# **Investment Managers**

The Board of Trustees has hired the following investment management firms to manage the assets of the System. The investment managers have full discretion in the management of assets in their portfolios, subject to individual investment styles and the overall guidelines of TRS's Investment Policy Statement.

Investment Manager	Assets Under Management (000's)
Advisory Research, Inc	\$408,479
Allianz	\$646,224
AEW Capital Management	\$259,811
American Realty Advisors	\$21,158
Antheus Capital	\$26,875
Aronson Johnson & Ortiz	\$534,956
Causeway Capital Management, LLC	\$300,737
Chickasaw Capital Management, LLC	\$445,949
Cove Street Capital	\$110,013
Cushing Capital LLC	\$422,711
Dune Real Estate Partners	\$36,026
EPOCH Investment Partners	\$691,769
Franklin Park	\$703,585
Frontier Capital Management	\$688,902
Geneva Capital Management Ltd.	\$221,612
GreenOak	\$32,369
Heitman	\$263,908
Hoisington Investment Management	\$374,042
Hotchkis & Wiley	\$1,025,585
L&B Realty Advisors	\$273,939
Landmark Partners	\$16,781
Loomis, Sayles & Company, LP	\$903,682
Lord Abbett	\$924,654
MacKay Shields	\$901,983
Neumeier Poma Investment Counsel	\$132,438
Northern Trust	\$337,492
PIMCO	\$154,400
Sawgrass Asset Management	\$568,365
Shapiro Capital Management	\$681,659
Starwood Capital	\$29,650
State Street Global Advisors	\$213,924
Wasatch Advisors	\$419,937
Wellington Management Company	\$959,752
	\$13,733,368



## Assets Managed by Investment Manager

Domestic Equity	One	Three	Five
	Year	Years	Years
Teachers Retirement System of Oklahoma	-3.3%	9.5%	10.3%
Russell 3000	2.1%	11.1%	11.6%
S&P 500	1.7%	11.1%	11.7%
Russell 1000 Growth	3.0%	13.1%	12.3%
Russell 1000 Value	2.9%	9.9%	11.4%
Russell 2000	-6.7%	7.1%	8.4%
Russell 2000 Growth	-10.8%	7.7%	8.5%
Russell 2000 Value	-2.6%	6.4%	8.2%
Russell Mid Cap	0.6%	10.8%	10.9%
Russell Mid Cap Growth	-2.7%	10.5%	10.0%
Russell Mid Cap Value	3.2%	11.0%	11.7%
	One	Three	Five
International Equity	Year	Years	Years
Teachers Retirement System of Oklahoma	-8.8%	2.9%	2.8%
MSCI ACWI Ex-US	-10.2%	1.2%	0.1%
MSCI EAFE	-10.2%	210.0%	1.7%
MSCI EAFE Small Cap	-3.7%	7.3%	4.8%
Core Fixed Income	One	Three	Five
	Year	Years	Years
Teachers Retirement System of Oklahoma	6.8%	5.4%	6.0%
Barclay's Aggregate	6.0%	4.1%	3.8%
High Yield Fixed Income	One	Three	Five
	Year	Years	Years
Teachers Retirement System of Oklahoma	2.4%	5.1%	6.3%
ML High Yield II	1.7%	4.2%	5.7%
Master Limited Parnerships	One	Three	Five
Å	Year	Years	Years
Teachers Retirement System of Oklahoma	-21.7%	2.0%	8.7%
Alerian MLP Index	-13.1%	-5.4%	3.2%
Total Fund	-2.0%	7.5%	8.3%

Time-Weighted Rate of Return calculated using Market Value Rate of Return.

# Schedule of Brokerage Commissions Paid

Year Ended June 30, 2016

Brokers	Principal Traded ( <i>in 000's</i> )	Sum of Commission Base	Commissions Per Share
ABEL/NOSER CORP	10,432	8,805,600	0.03
ALLEN & CO INC	238	390,124	0.04
ANCORA SECURITIES INC.	5,275	5,781,076	0.04
AUERBACH GRAYSON & CO	2,213	4,599,710	0.01
AVONDALE PARTNERS, LLC	4,320	3,377,947	0.04
B. RILEY AND CO., LLC	3,057	2,461,457	0.04
B.RILEY & CO. LLC	4,251	3,561,346	0.04
BAADER BANK AG	9	6,219	0.07
BANCO SANTANDER S.A. NEW YORK	186	136,658	0.00
BANK OF AMERICA CORPORATION	389,751	634,420,141	0.02
BANK OF AMERICA, N.A.	171	248,577	0.05
BANK VONTOBEL AG	200	171,347	0.06
BANQUE PARIBAS PARIS	575	404,279	0.01
BARCLAYS CAPITAL	22,345	40,156,981	0.01
BARCLAYS CAPITAL INC	80,382	154,383,975	0.02
BARCLAYS CAPITAL SECURITIES LIMITED	554	705,851	0.04
BARRINGTON RESEARCH ASSOC	3,119	3,411,005	0.03
BLOOMBERG TRADEBOOK LLC	15,656	19,467,274	0.03
BMO CAPITAL MARKETS CORP	5,108	5,295,904	0.02
BMO NESBITT BURNS INC	1,992	1,802,649	0.02
BNP PARIBAS SECURITIES (ASIA) LTD.	2,361	20,147	2.36
BNP PARIBAS SECURITIES CORPORATION	16,576	8,521,161	0.04
BNP PARIBAS SECURITIES SERVICES SA	736	8,635	2.45
BNY CONVERGEX	9,915	28,661,650	0.04
BNY CONVERGEX EXECUTION SOLUTIONS	123,245	169,528,492	0.02
BREAN CAPITAL LLC	123,213	35,249	0.02
BROADCORT CAPITAL (THRU ML)	100	363,955	0.02
BROADPOINT CAPITAL	1,100	1,805,466	0.01
BROCKHOUSE & COOPER NY	211	824,258	0.02
BTIG, INC.	35,040	53,364,458	0.03
BUCKINGHAM RESEARCH	7,164	6,383,510	0.02
	/,104	0,505,510	0.04

	Principal Traded	Sum of Commission	Commissions
Brokers	(in 000's)	Base	Per Share
CANTOR CLEARING SERVICES	2,434	2,907,791	0.01
CANTOR FITZGERALD AND CO.	2,328	3,212,295	0.02
CANTOR FITZGERALD AND CO. INC.	68,234	59,816,495	0.03
CANTOR FITZGERALD EUROPE	4	6,037	0.00
CAPITAL INSTITUTIONAL SERV NEW YORK	33,648	54,353,904	0.03
CHARLES SCHWAB AND CO., INC.	9,497	23,961,982	0.02
CHEEVERS AND COMPANY, INC.	1,379	3,032,182	0.03
CIBC WORLD MARKETS CORP.	6,334	3,257,229	0.04
CIMB SECURITIES (USA), INC.	138	48,709	0.02
CITIBANK CANADA	204	47,450	0.02
CITIBANK N.A.	8,845,645	300,300,420	0.27
CITIGROUP GLOBAL MARKETS INC.	284,378	189,549,926	0.04
CITIGROUP GLOBAL MARKETS LIMITED	5,757	2,635,476	0.02
CITIGROUP GLOBAL MKT TAIWAN	0,707	2,000,170	0.02
SEC CO	6,027	424,266	0.01
CJS SECURITIES INC	2,314	2,939,017	0.04
CL KING & ASSOCIATES NEW YORK	2,479	3,358,544	0.04
CLEARVIEW CORRESPONDENT SERV	10.451		0.04
	12,471	20,969,757	0.04
CLSA AUSTRALIA PTY LTD	140	54,403	0.02
CLSA SINGAPORE PTE LTD.	32,354	324,354	0.72
COLLINS STEWART	7,160	8,268,827	0.04
CONVERGEX EXECUTION SOLUTION	15,443	16,032,319	0.02
CORMARK SECURITIES INC	596	137,143	0.02
CORNERSTONE MACRO LLC	5,191	4,611,856	0.04
COWEN AND COMPANY, LLC	27,548	35,637,537	0.04
CRAIG-HALLUM CAPITAL GROUP LLC.	8,678	7,084,361	0.04
CREDIT AGRICOLE CIB	7,816	7,705,987	0.04
CREDIT RESEARCH & TRADING CORP NY	3,951	6,007,814	0.04
CREDIT SUISSE AG, NEW YORK BRANCH	153,945	166,235,677	0.03
CREDIT SUISSE FIRST BOSTON SA CTVM	146	19,820	0.02
CREDIT SUISSE SECURITIES (USA) LLC	37,195	51,977,307	0.02
СТVМ			

	Principal Traded	Sum of Commission	Commissions
Brokers	(in 000's)	Base	Per Share
CREDIT SUISSE	1.067	1 102 204	0.01
SECURITIES(EUROPE)LTD	1,067	1,103,394	0.01
D CARNEGIE AB	36	3,126	0.08
D.A. DAVIDSON AND CO	7,743	13,647,989	0.04
DAIWA CAPITAL MARKETS AMERICA INC.	20,101	168,543	2.35
DANSKE BANK A/S	317	296,624	0.00
DEMATTEO MONNESS LLC	2,304	2,195,487	0.04
DEUTSCHE BANK SECURITIES INC.	125,927	319,358,647	0.01
DEUTSCHE BANK SECURITITES	59	68,580	0.01
DEUTSCHE SECURITIES AUSTRALIA	27	<b>62.025</b>	0.00
	27	63,935	0.00
DNB BANK ASA	1,068	103,438	0.06
DNB MARKETS CUSTODY	205	25,903	1.35
DOUGHERTY & COMPANY	403	419,080	0.04
DOUGHERTY & COMPANY LLC	204	116,016	0.04
DOUGHERTY DAWKINS STRAND & BIGELOW	722	1,049,263	0.04
DOWLING PARTNERS	147	250,488	0.04
DREXELHAMILTONLLC	1,175	1,709,260	0.02
EQUITA SIM S.P.A.	297	235,076	0.02
ERSTE GROUP BANK AG	118	95,140	0.02
EXANE S.A.	216	180,026	0.06
FIDELITY CAP MKTS NEW YORK- DTC00226	5,319	17,067,663	0.01
FIDELITY CLEARING CANADA, ULC	5,392	2,169,251	0.01
FIRST ANALYSIS NEW YORK	397	622,591	0.04
FIRST CLEARING CORPORATION	83,685	52,474,328	0.04
FLEET SECURITIES	1,443	1,539,564	0.04
	1,445	1,557,504	0.05
FRIEDMAN, BILLINGS, RAMSEY INTL LTD	4,262	5,365,037	0.04
FRIEDMANBILLINGANDRAMSEY	8,215	4,280,350	0.04
GABELLI & COMPANY	629	1,085,749	0.03
GOLDMAN SACHS INTERNATIONAL	4,160	8,898,311	0.00
GOLDMAN, SACHS AND CO.	272,372	429,411,629	0.02
GUGGENHEIM CAPITAL, LLC	10,835	16,453,640	0.03
GUZMAN & COMPANY NEW YORK	6,932	13,990,538	0.02
GUZMAN AND COMPANY	5,145	12,943,623	0.01
HEIGHT SECURITIES LLC	2,930	2,491,494	0.04

Brokers	Principal Traded ( <i>in 000's</i> )	Sum of Commission Base	Commissions Per Share
HSBC (GLBL MRKTS EQUITIES	· · · ·		
OPERATION	736	47,290	0.09
HSBC BANK PLC	1,645	1,419,319	0.01
IMPERIAL CAPITAL	6,198	6,979,933	0.03
INDST & COMM BANK OF CHINA	307,129	315,323,957	0.03
INSTINET EUROPE LIMITED	17,395	2,935,473	0.04
INSTINET FRANCE S.A.	59	217,694	0.01
INSTINET INVESTMENT SERVICES LIMITE	148,340	562,191,297	0.01
INSTINET, LLC	5	12,601	0.01
INTERMONTE SIM S.P.A.	44	32,220	0.03
INVESTEC BANK PLC	167	193,968	0.00
INVESTMENT TECHNOLOGY GROUP			
INC.	14,682	46,753,731	0.02
INVESTMENT TECHNOLOGY GROUP			
LTD.	12,032	12,470,160	0.00
ISI GROUP INC.	106,862	83,181,943	0.03
ITAU UNIBANCO S/A	427	78,680	0.01
ITG AUSTRALIA LIMITED	194	228,889	0.01
ITG HONG KONG LIMITED	999	51,765	0.06
ITG INC.	187	566,128	0.01
J.P. MORGAN CLEARING CORP.	342,604	421,928,993	0.02
J.P. MORGAN SECURITIES PLC	18,827	6,155,047	0.01
JANNEY MONTGOMERY SCOTT NEW			
YORK	8,752	6,838,283	0.04
JEFFERIES INTERNATIONAL LTD	572	693,263	0.00
JEFFERIES LLC.	80,088	135,915,920	0.02
JMP SECURITIES	915	1,079,569	0.04
JNK SECURITIES INC	11,642	29,911,242	0.01
JOH. BERENBERG,GOSSLER UND CO.KG	3,444	2,849,906	0.02
JOHNSON RICE & COMPANY	34,241	22,355,988	0.03
JOHNSON RICE & COMPANY LLC	40,287	22,240,290	0.03
JOHNSON RICE NEW YORK	9,966	9,377,951	0.03
JONES TRADING INSTITUTIONAL SERVICE	270,904	250,232,963	0.03
JP MORGAN SECURITIES AUSTRALIA LTD	39	81,958	0.00
JPMORGAN SECURITIES (ASIA PACIFIC)	690	146,526	0.20

	Principal Traded	Sum of Commission	Commissions
Brokers	(in 000's)	Base	Per Share
KAS BANK N.V	76	52,483	0.06
KCG AMERICAS LLC	3,995	5,033,727	0.02
KEPLER CAPITAL MARKETS	99	71,912	0.04
LEERINK SWAN & COMPANY	304	433,510	0.04
LIBERUM CAPITAL INC	144	192,730	0.00
LIQUIDNET ASIA LIMITED	4,895	55,595	2.33
LIQUIDNET EUROPE LIMITED	565	1,591,039	0.00
LIQUIDNET INC	97,721	121,884,825	0.02
LONGBOW SECURITIES	3,392	6,457,036	0.04
LOOP CAPITAL MARKETS LLC	37	407,354	0.00
LUMINEX TRADING AND ANALYTICS	23	253,527	0.00
MACQUARIE BANK LIMITED	307,620	18,027,207	0.13
MACQUARIE CAPITAL (EUROPE)			
LIMITED	151	255,898	0.00
MACQUARIE SECURITIES USA INC	12,156	10,257,637	0.04
MAINFIRST BANK AG	215	154,596	0.04
MEDIOBANCA SPA	241	191,334	0.01
MERRILL LYNCH INTERNATIONAL LIMITED	38,049	71,024,371	0.01
MERRILL LYNCH PIECE FENNER & SMITH	835,791	53,061,635	0.04
MIZUHO CAPITAL MARKETS CORPORATION	4,743	5,598,217	0.04
MIZUHO SECURITIES USA INC.	12,034	66,217	1.67
MKM PARTNERS	16,266	19,179,701	0.03
MORGAN STANLEY AND CO., LLC	194,578	149,785,315	0.03
MORGAN STANLEY AND	17 1,070	119,700,010	0.02
CO.INTRNTNAL PLC	3,446	104,460	1.44
MORGAN STANLEY TAIWAN LIMITED	1,914	133,657	0.02
NATIONAL FINANCIAL SERVICES LLC	511,954	501,564,168	0.01
NEEDHAM & COMPANY	1,137	2,172,429	0.03
NEEDHAM AND CO INC	538	1,219,260	0.03
NEEDHAM AND COMPANY LLC	2,597	2,218,643	0.04
NOMURA SECURITIES NEW YORK	9,251	140,820	1.38
NORTHERN TRUST COMPANY, THE	378,223	951,710,118	0.01
NUMIS SECURITIES INC.	356	358,063	0.00
NUMIS SECURITIES LIMITED	1,496	1,530,548	0.01
ODDO ET CIE	277	208,624	0.06

Brokers	Principal Traded ( <i>in 000's</i> )	Sum of Commission Base	Commissions Per Share
OPPENHEIMER AND CO, INC.	9,230	13,175,519	0.04
PAREL	253	216,466	0.07
PAVILION GLOBAL MARKETS LTD	45	67,935	0.00
PEEL HUNT LLP	22	28,113	0.00
PERSHING LLC	51,639	41,472,139	0.04
PERSHING SECURITIES LIMITED	1,064	953,151	0.01
PETERCAM S.A.	331	251,710	0.09
PICKERING ENERGY PARTNERS INC	7,727	5,450,551	0.04
PIPER, JAFFRAY AND HOPWOOD	19,102	16,495,526	0.04
RABOBANK NEDERLAND	55	202,184	0.00
RAYMOND JAMES AND ASSOCIATES	77,388	71,516,876	0.04
RAYMOND JAMES LTD.	627	1,034,823	0.02
RBC CAPITAL MARKETS, LLC	158,558	147,710,448	0.04
RBC DOMINION SECURITIES INC.	1,256	1,309,409	0.03
RBC EUROPE LIMITED	407	622,612	0.00
RENAISSANCE MACRO SECURITIES	112	245,684	0.04
ROBERT W. BAIRD CO.INCORPORATED	56,906	62,717,934	0.04
ROSENBLATT SECURITIES LLC	25,798	162,002,910	0.04
ROTH CAPITAL PARTNERS	7,176	7,381,960	0.01
SANDLER O'NEIL & PARTNERS	830	767,687	0.04
SANDLER O'NEILL NEW YORK	263	415,444	0.03
SANFORD C. BERNSTEIN AND CO.,			
LLC	89,234,190	181,490,091	1.37
SANFORD C. BERNSTEIN LTD	2,864	3,394,140	0.00
SEAPORT SECS NY	9,435	4,550,600	0.04
SG AMERICAS SECURITIES LLC	65,484	203,340,750	0.01
SG SECURITIES (HK) LIMITED	338	93,775	0.02
SIDOTI & COMPANY LLC	12,733	11,697,926	0.04
SOCIETE GENERALE LONDON BRANCH	406	521,752	0.00
STATE STREET BK & TRST CO,N.A NW			
YK	10,126	20,838,531	0.02
STEPHENS INC.	25,162	28,005,239	0.03
STIFEL NICOLAUS & CO,INCORORATED	59,851	71,103,537	0.03
STRATEGAS SECURITIES LLC	692	204,221	0.04
SUNTRUST ROBINSON HUMPHREY, INC.	6,074	8,011,612	0.04
SVENSKA HANDELSBANKEN	652	247,071	0.04

	Principal Traded	Sum of Commission	Commissions
Brokers	(in 000's)	Base	Per Share
TELSEY ADVISORY GROUP LLC	543	886,024	0.04
THEMIS TRADING LLC	21,801	141,784,514	0.01
TOPEKA CAPITAL MARKETS	7,665	5,618,823	0.03
UBS AG STAMFORD BRANCH	145,710	185,720,482	0.03
UBS LIMITED	6,303	5,997,180	0.00
UBS SECURITIES ASIA LIMITED	54,884	1,530,927	0.11
UBS SECURITIES CANADA INC.	5	992	0.01
WEDBUSH MORGAN SECURITIES	5,803	6,933,340	0.04
WEEDEN AND CO	23,617	34,660,577	0.02
WELLS FARGO BANK, N.A.	167,402	74,956,815	0.05
WILLIAM BLAIR AND COMPANY	35,170	52,603,572	0.03
WILLIAMS CAPITAL GROUP L.P., THE	280	1,172,897	0.01
WOLFE RESEARCH SECURITIES	3,655	2,573,026	0.03
WOOD AND COMPANY	432	55,057	0.11
WUNDERLICH SECURITIES	2,251	1,875,220	0.04

# Summary of Investments June 30, 2016

		Percentage
<b>Type of Investment</b>	Fair Value	of Total <u>Fair Value</u>
Fixed Income:		
U S Government Securities	\$ 1,189,054,218	8.57%
Corporate Bonds	1,520,378,647	10.95%
International Bonds	392,972,354	2.83%
Total Fixed Income	3,102,405,219	22.35%
Equities:		
Domestic	6,383,729,112	46.00%
International	2,159,656,157	15.56%
Total Equities	8,543,385,269	61.56%
Other Investments		
Private Equity	869,758,312	6.27%
Real Estate	974,464,418	7.02%
Total Other Investments	1,844,222,730	13.29%
Short-Term Investments:		
Short-term Investments Norhtern Trust	338,984,787	2.44%
Money Markets	49,963,685	0.36%
Total Short-Term Investments	388,948,472	2.80%
Total Investments	\$13,878,961,690	100.0%

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# Actuarial Section



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October 26, 2016

Board of Trustees Teachers' Retirement System of Oklahoma Oliver Hodge Education Building 2500 N. Lincoln Boulevard, 5<sup>th</sup> Floor Oklahoma City, Oklahoma 73105

#### SUBJECT: ACTUARIAL VALUATION AS OF JUNE 30, 2016

Dear Members of the Board:

At the request of the Teachers' Retirement System of Oklahoma (the System), Gabriel Roeder Smith & Company (GRS) has performed the actuarial valuation of the System. The information in the Actuarial Section is based on our annual actuarial valuation report, with the most recent valuation conducted as of June 30, 2016, and is intended to be used in conjunction with the full report.

This letter and the schedules listed below represent GRS' certification of the funded status as required for the financial report for the fiscal year ended June 30, 2016 for the System. GRS prepared the *Sensitivity of the Net Pension Liability*, the *Schedule of Changes in the Employers' Net Pension Liability and Related Ratios*, and the *Schedule of Employer Contributions* of the Required Supplementary Information and the *Notes to the Required Supplementary Information* presented in the Financial Section of this report. Additionally, GRS prepared the *Executive Summary*, the *Schedule of Increases and Decreases of Benefit Recipients*, the *Total Experience Gain or Loss*, the *Solvency Test*, and the *Schedule of Funding Progress* presented in the Actuarial Section of this report. Full actuarial valuation reports have also been provided to the System.

#### ACTUARIAL VALUATION

The primary purposes of the actuarial valuation are to determine the adequacy of the current employer contribution rates and the level of dedicated State revenue, to describe the current financial condition of the System, and to analyze changes in the System's condition. In addition, the actuarial valuation produces various summaries of the data.

#### FINANCING OBJECTIVES

The member, employer, and "grant matching" contribution rates, as well as the dedicated State revenue, are established by law. Members contribute 7.00% of covered compensation. The contribution rate for employers covered by the Education Employees Service Incentive Plan (EESIP) is 9.50%. For employers not covered by the EESIP—the comprehensive and regional four-year universities—the contribution rate is 8.55%. No employer contribution rate changes are currently scheduled. There is also an additional contribution made by the comprehensive universities, the Initial Funding Surcharge, which is equal to 2.50% of the payroll for those

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employees who elect to join the Alternate Retirement Plan in lieu of joining the System. This contribution will continue through FY 2034 or until June 30 of the year in which the unfunded actuarial accrued liability of the participating institutions is reduced to zero, if earlier. In addition, the State of Oklahoma contributes a percentage of its revenues from sales taxes, use taxes, corporate income taxes, individual income taxes, and lottery proceeds to the System. This percentage is currently 5.00%, and no changes are scheduled in this rate. Additionally, the System receives "grant matching" contributions from employers for positions whose funding comes from federal sources or certain grants. The matching contribution rate for FY 2016 was 8.25% but will decrease to 7.70% for FY 2017.

For the fiscal year ending June 30, 2016, the dedicated State revenue plus the matching contribution was equivalent to a contribution rate of approximately 7.1% of covered payroll. However, because these contribution sources are unrelated to the covered payroll of the System, our outlook for the future contribution level from these sources also incorporates the prior four years of actual contributions, resulting in a five-year average of 7.8%. The Initial Funding Surcharge has been excluded from this outlook for future contribution levels since it will only be paid for a temporary period of time.

The employer payroll contribution—9.50% for most employers and 8.55% for the comprehensive and regional universities—is projected to average about 9.3% of payroll, so on a combined basis, we expect that the contributing entities will contribute 17.1% of covered payroll (7.8% + 9.3% = 17.1%) in the future.

The dedicated State revenue along with the local and matching contributions, when combined with the contributions made by members, are intended to pay for the normal cost and to amortize the unfunded actuarial accrued liability of the System.

#### **DEFERRED ASSET LOSSES/GAINS**

The actuarial value of assets is based upon the market value (or, fair value), but asset gains and losses – earnings greater or less than the assumed annual investment return – are recognized at a rate of 20% per year for five years.

The market value of assets (also known as the fair value of assets) returned (2.2%) for the fiscal year ending June 30, 2016. However, the actuarial value of assets returned slightly less than the assumed rate of 8.00% for the same period due to the continued recognition of asset gains over the past few years. As a result, a comparison of valuation results based on the actuarial value of assets (generally, UAAL and funded ratio) show little change in the financial health of the System prior to the recognition of other sources of actuarial gains or losses since the return on the actuarial value of assets was only slightly lower than the 8.00% expectation. However, a comparison of results based on market value of assets might indicate a slight step-back since the return on the market value of assets fell short of the 8.00% expectation. It should be noted that results based on the actuarial value, as well as the market value, provide important information about the financial health of the System.

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It should be noted that the actual investment returns for the fiscal year ending June 30, 2016 were measured against the prior investment return assumption of 8.00% which was applicable to that period. Future investment returns will be measured against the current investment return assumption of 7.50%.

The current actuarial value of \$14.578 billion is \$764 million higher than the market value (or fair value) of \$13.814 billion, and the actuarial value of assets is approximately 105.5% of the market value.

#### PROGRESS TOWARD REALIZATION OF FINANCING OBJECTIVES

The unfunded actuarial accrued liability (UAAL) as of June 30, 2015 was \$6.921 billion based on the actuarial value of assets, and it increased to \$7.615 billion this year. As a result, the System's funded ratio—actuarial value of assets divided by the actuarial accrued liability decreased from 66.6% to 65.7% as of June 30, 2016. This decrease was primarily due to the impact of the assumption changes effective with this valuation. Prior to the recognition of the assumption change impact, the funded ratio was 68.6%. This funded ratio decreases to 62.2% measured on the market value (or fair value) of assets as of June 30, 2016.

The funded status is one of many metrics used to show trends and develop future expectations about the health of a retirement system. The funded status measure alone is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

The period required to completely amortize the UAAL based upon the contribution schedule is called "the funding period." Based upon the current statutory contribution schedule and the market value (or fair value) of assets, the funding period increased from 14 years as of June 30, 2015 to 23 years in the current valuation. The increase is due to the assumption changes as well as the loss on the market value of assets. Based upon the current contribution and benefit provisions, assuming no actuarial gains or losses in the future, and assuming the market value of assets returns 7.5%, the UAAL is expected to trend steadily down to zero over the next 23 years.

#### **BENEFIT PROVISIONS**

Our actuarial valuation as of June 30, 2016 reflects the benefit and contribution provisions set forth in current statutes. There were no bills enacted during the 2016 State of Oklahoma legislative session that had an actuarial impact upon the System.

A summary of all major plan provisions contained within this valuation is included in the section titled "Summary of Plan Provisions".

#### ACTUARIAL ASSUMPTIONS AND METHODS

Assumptions are set by the Board of Trustees, taking into account the recommendations of the System's actuary. The System has an experience investigation study performed every fifth year. Except for certain economic assumptions, the actuarial assumptions used in this valuation are based upon the 2014 Experience Investigation Study Report, dated May 13, 2015, measuring the experience investigation period FY2010 – FY2014. In September 2016, the Board adopted a decrease in the inflation rate from 3.00% to 2.50% resulting in corresponding 0.50% decreases in the investment return (8.00% to 7.50%), the wage inflation (3.75% to 3.25%) and the payroll growth rate (3.25% to 2.75%). The current actuarial assumptions were first utilized in the June 30, 2016 actuarial valuation report.

We believe the assumptions are internally consistent and reasonable, based on the actual experience of the System, and meet the parameters set by Actuarial Standards of Practice issued by the Actuarial Standards Board. The actuarial assumptions and methods used to develop the *Schedule of Changes in the Employers' Net Pension Liability and Related Ratios* and the *Schedule of Employer Contributions*, noted above, meet the parameters set forth for the disclosures presented in the Financial Section by Government Accounting Standards Board Statement No. 67.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods.

A summary of the actuarial methods and assumptions incorporated into this valuation is included in the section titled "Summary of Actuarial Assumptions and Methods".

#### DATA

Member data for retired, active, and inactive participants was supplied as of June 30, 2016 by the System's staff. We have not subjected this data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data. Asset information as of June 30, 2016 was supplied by the auditors and by the System's staff. GRS is not responsible for the accuracy or completeness of the information provided to us.

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#### **CERTIFICATION**

All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, the results presented also comply with the requirements of the Oklahoma statutes and, where applicable, the Internal Revenue Code. The undersigned are independent actuaries. They are Enrolled Actuaries and Members of the American Academy of Actuaries, and they are experienced in performing valuations for large public retirement systems. They meet all of the Qualification Standards of the American Academy of Actuaries.

Respectfully submitted, Gabriel, Roeder, Smith & Company

Mark R. Randall

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Item	2016	2015
Membership		
• Number of		
- Active members	90,167	90,388
- Retirees and beneficiaries	60,680	58,929
- Inactive, vested	11,066	10,457
- Inactive, nonvested	11,450	9,930
- Total	173,363	169,704
• Payroll	\$ 4,255 million	\$ 4,232 million
Statutory contribution rates	FY 2017	FY 2016
Employers in EESIP	9.50%	9.50%
Regional universities	8.55%	8.55%
• Federal/grant salaries	7.70%	8.25%
• Members	7.00%	7.00%
• State (% of tax revenues)	5.00%	5.00%
Assets		
Market value	\$ 13,814 million	\$ 14,405 million
Actuarial value	\$ 14,578 million	\$ 13,772 million
• Return on market value	-2.2%	2.7%
• Return on actuarial value	8.0%	13.1%
State/local/federal contributions	\$725 million	\$728 million
• External cash flow %	-2.0%	-1.5%
• Ratio of actuarial to market value	105.5%	95.6%
Actuarial Information		
Normal cost %	10.47%	9.98%
Unfunded actuarial accrued		
liability (UAAL)	\$ 7,615 million	\$ 6,921 million
Funded ratio	65.7%	66.6%
• Funding period (years)	23	14
Gains/(losses)		
Asset experience	(\$7) million	\$ 626 million
Liability experience	198 million	17 million
Benefit changes	0 million	0 million
Legislative Changes	0 million	0 million
Assumption Changes	(933) million	(426) million
• Total	(\$742) million	\$ 217 million
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# **Executive Summary**

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# Schedule of Active Member Valuation Data Periods Ended June 30

Valuation			Annual	% Increase in
Valuation Date	Number	Annual Payroll	Average Pay	Average Pay
2007	88,133	3,598,926,888	40,835	6.13%
2008	88,678	3,751,436,376	42,304	3.60%
2009	89,388	3,807,914,178	42,600	0.70%
2010	89,896	3,854,772,123	42,880	0.66%
2011	88,085	3,773,283,867	42,837	-0.10%
2012	87,778	3,924,843,696	44,713	4.38%
2013	89,333	3,933,056,084	44,027	-1.53%
2014	89,570	4,002,883,716	44,690	1.51%
2015	90,388	4,231,846,057	46,819	4.76%
2016	90,167	4,254,783,265	47,188	0.79%

# Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption.

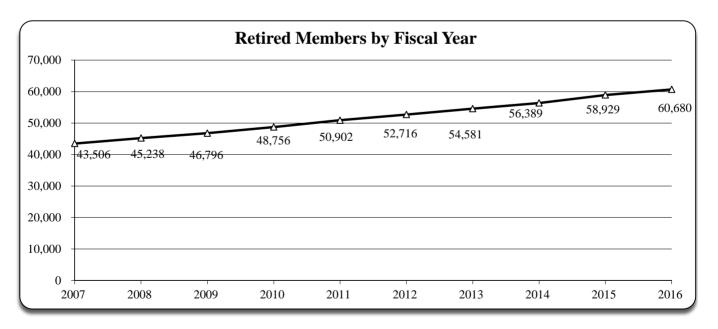
The following table provides the sensitivity of the net pension liability to changes in the discount rate as of June 30, 2015. In particular, the table presents the plan's net pension liability, if it were calculated using a single discount rate that is one-percentage-point lower or one-percentage-point higher than the single discount rate:

Current Single Rate							
1% Decrease	Assumption	1% Increase					
6.50%	7.50%	85.00%					
\$10,969,614,671	\$8,379,141,818	\$6,210,964,730					

# Schedule of Increases and Decreases of Benefit Recipients Periods Ended June 30

	Add	ed to Rolls	Removed from Rolls		Rolls-End of Year		% Increase	Average
Year		Annual		Annual		Annual	in Annual	Annual
Ended	<u>No.</u>	Allowances*	<u>No.</u>	Allowances	<u>No.</u>	Allowances	Allowances	Allowances
2007	2,696	48,762,552	972	8,907,437	43,506	726,444,989	5.8%	16,698
2008	2,807	46,858,028	1,075	8,758,271	45,238	764,544,746	5.2%	16,900
2009	2,593	77,839,485	1,035	7,161,393	46,796	835,222,838	9.2%	17,848
2010	2,906	47,150,133	946	7,952,632	48,756	874,420,339	4.7%	17,935
2011	2,960	71,573,599	814	6,358,676	50,902	939,635,263	7.5%	18,460
2012	3,003	59,122,021	1,189	10,098,394	52,716	988,658,890	5.2%	18,754
2013	3,305	76,049,460	1,440	22,392,434	54,581	1,042,315,916	5.4%	19,097
2014	3,208	74,367,565	1,400	22,188,183	56,389	1,094,495,298	5.0%	19,410
2015	4,053	96,652,350	1,513	24,486,087	58,929	1,166,661,561	6.6%	19,798
2016	3,420	83,343,346	1,669	27,476,789	60,680	1,222,528,118	4.8%	20,147

\* Includes post-retirement increases for members who retired in previous years and changes occurring due to plan options which offer a continuing monthly benefit payment to beneficiaries.



Item	Year Ending June 30, 2016	Year Ending June 30, 2015
(1)	(2)	(3)
1. Actuarial assets, beginning of year	\$ 13,771,884,292	\$ 12,368,960,848
2. Contributions during year	\$ 1,019,884,306	\$ 1,032,119,374
3. Benefits and refunds paid	\$ (1,293,386,537)	\$ (1,236,591,083)
4. Administrative expenses	\$ (4,458,337)	N/A
5. Assumed net investment income at 8%:		
a. Beginning of year assets	\$ 1,101,750,743	\$ 989,516,868
b. Contributions	40,795,372	41,284,775
c. Benefits and refunds paid	(51,735,461)	(49,463,643)
d. Administrative expenses	(178,333)	N/A
e. Total	\$ 1,090,632,321	\$ 981,338,000
<ol> <li>Expected actuarial assets, end of year (Sum of Items 1 through 4)</li> </ol>	\$ 14,584,556,045	\$ 13,145,827,139
7. Actual actuarial assets, end of year	\$ 14,577,868,730	\$ 13,771,884,292
8. Asset gain (loss) for year (Item 6 - Item 5)	\$ (6,687,315)	\$ 626,057,153

# **Investment Experience Gain or Loss**

# Solvency Test

The system's funding objective is to meet long term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the system will pay all promised benefits when due – the ultimate test of financial soundness.

A short-term solvency test is one way of evaluating a system's progress under its funding program. In a short-term solvency test, the plan's present assets are compared with:

- 1. Active member contributions on deposit;
- 2. The liabilities for future benefits to present retirees;
- 3. The liabilities for terminated employees with vested benefits; and
- 4. The liabilities for service already rendered by active members.

In a system that has been following the level contribution rate of payroll financing principle, the liabilities for active member contributions on deposit (liability 1), the liabilities for future benefits to present retirees (liability 2), and the liabilities for terminated employees with vested benefits (liability 3) will be fully covered by present assets except in rare circumstances. In addition, the liabilities for service already rendered by active members (liability 4) will be partially covered by the remainder of present assets. Generally, if the system has been using level contribution rate financing, the funded portion of liability 4 will increase over time. Following is a summary of the solvency test:

# **Solvency Test**

Actuarial Accrued Liability and Percent of Active Member Payroll for:

	Accumulate Contribution	s Including	Retiree Beneficiaries Receiving	s Currently	 	ated Not Yet Benefits	]	Employer I Portion of Nonveste		-	Portion of Cov		ued Lia y Asset	
June 30,	(1)	% of Payroll	(2)	% of Payroll	 (3)	% of Payroll		(4)	% of Payroll	arial Value f Assets	(1)	(2)	(3)	(4)
2007	\$ 4,057.5	113%	\$ 7,730.3	215%	\$ 331.6	9%	\$	3,905.0	109%	\$ 8,421.9	100%	56%	0%	0%
2008	4,323.0	115%	8,919.6	238%	370.1	10%		4,734.2	126%	9,256.8	100%	55%	0%	0%
2009	4,563.9	120%	9,312.4	245%	398.1	10%		4,676.6	123%	9,439.0	100%	52%	0%	0%
2010	4,743.9	123%	10,216.3	265%	419.2	11%		4,601.2	119%	9,566.7	100%	47%	0%	0%
2011	4,931.4	131%	9,316.6	247%	379.9	10%		2,932.9	78%	9,960.6	100%	54%	0%	0%
2012	5,087.4	130%	9,814.2	250%	443.8	11%		3,242.6	83%	10,190.5	100%	52%	0%	0%
2013	5,252.6	134%	10,315.6	262%	469.3	12%		2,935.7	75%	10,861.1	100%	54%	0%	0%
2014	5,221.1	130%	10,780.2	269%	726.8	18%		2,847.5	71%	12,369.0	100%	66%	0%	0%
2015	5,377.9	127%	11,499.9	272%	534.3	13%		3,280.5	78%	13,771.9	100%	73%	0%	0%
2016	5,494.8	129%	12,466.8	293%	610.9	14%		3,620.7	85%	14,577.9	100%	73%	0%	0%

Note: Dollar amounts in millions

# Schedule of Funding Progress (As required by GASB #25)

Valuation Date (1)	Actuarial Value of Assets (AVA) (2)	Actuarial Accrued Liability (AAL) (3)	Unfunded Actuaria Accrued Liability (UAAL) (3) - (2) (4)	l Funded Ratio (2)/(3) (5)	Annual Covered Payroll (6)	UAAL as % of Payroll (4)/(6) (7)
June 30, 2007	\$8,421.9	\$16,024.4	\$7,602.5	52.6%	\$3 <i>,</i> 598.9	211.2%
June 30, 2008	\$9 <i>,</i> 256.8	\$18,346.9	\$9,090.1	50.5%	\$3,751.4	242.3%
June 30, 2009	\$9 <i>,</i> 439.0	\$18,950.9	\$9 <i>,</i> 512.0	49.8%	\$3,807.9	249.8%
June 30, 2010	\$9,566.7	\$19,980.6	\$10,414.0	47.9%	\$3,854.8	270.2%
June 30, 2011	\$9 <i>,</i> 960.6	\$17,560.8	\$7,600.2	56.7%	\$3,773.3	201.4%
June 30, 2012	\$10,190.5	\$18,588.0	\$8,397.6	54.8%	\$3,924.8	214.0%
June 30, 2013	\$10,861.1	\$18,973.2	\$8,112.1	57.2%	\$3,933.1	206.3%
June 30, 2014	\$12,369.0	\$19,575.6	\$7,206.6	63.2%	\$4,002.9	180.0%
June 30, 2015	\$13,771.9	\$20,692.6	\$6,920.7	66.6%	\$4,231.8	163.5%
June 30, 2016	\$14,577.9	\$22,193.4	\$7,615.6	65.7%	\$4,254.8	179.0%

Note: Dollar amounts in millions

# SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY AND RELATED RATIOS

Fiscal year ending June 30,	 2016	 2015	 2014
Total Pension Liability			
Service Cost	\$ 428,904,761	\$ 415,702,261	\$ 409,199,801
Interest	1,609,511,334	1,538,893,982	1,491,722,137
Benefit Changes	0	0	0
Difference between actual & expected experience	(36,212,168)	(159,980,414)	(105,344,633)
Assumption Changes	933,294,515	346,488,630	0
Benefit Payments	(1,257,276,705)	(1,201,350,907)	(1,153,051,607)
Refunds	 (36,109,832)	 (35,240,176)	 (28,718,256)
Net Change in Total Pension Liability	\$ 1,642,111,905	\$ 904,513,376	\$ 613,807,442
Total Pension Liability - Beginning	20,551,132,567	19,646,619,191	19,032,811,749
Total Pension Liability - Ending (a)	\$ 22,193,244,472	\$ 20,551,132,567	\$ 19,646,619,191
Plan Fiduciary Net Position			
Contributions - Employer/State	\$ 725,425,216	\$ 728,442,070	\$ 707,052,675
Contributions - Member	294,459,090	303,677,304	301,300,811
Net Investment Income	(357,443,247)	428,855,748	2,571,707,952
Benefit Payments	(1,257,276,705)	(1,201,350,907)	(1,153,051,607)
Refunds	(36,109,832)	(35,240,176)	(28,718,256)
Administrative Expense	(4,458,337)	(4,358,938)	(4,282,605)
Other	0	0	0
Net Change in Plan Fiduciary Net Position	\$ (635,403,815)	\$ 220,025,101	\$ 2,394,008,970
Plan Fiduciary Net Position - Beginning	14,449,506,469	14,229,481,368	11,835,472,398
Plan Fiduciary Net Position - Ending (b)	\$ 13,814,102,654	\$ 14,449,506,469	\$ 14,229,481,368
Net Pension Liability - Ending (a) - (b)	\$ 8,379,141,818	\$ 6,101,626,098	\$ 5,417,137,823
Plan Fiduciary Net Position as a Percentage			
of Total Pension Liability	62.24 %	70.31 %	72.43 %
Covered Employee Payroll	\$ 4,206,558,429	\$ 4,338,247,200	\$ 4,304,297,300
Net Pension Liability as a Percentage			
of Covered Employee Payroll	199.19 %	140.65 %	125.85 %
Notes to Schedule:			

The covered employee payroll is an estimate of the actual payroll, imputed from individual member contributions, for the fiscal years ending June 30, 2014 through June 30, 2016.

The change in Total Pension Liability resulting from assumption changes in fiscal year ending 2015 is attributible to the new assumptions adopted by the Board in May 2015.

The change in Total Pension Liability resulting from assumption changes in fiscal year ending 2016 is attributible to the new economic assumptions adopted by the Board in September 2016.

FY Ending June 30	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2014	\$ 602,936,966	\$ 707,052,675	\$ (104,115,709)	\$ 4,304,297,300	16.43%
2015	550,652,420	728,442,070	(177,789,650)	4,338,247,200	16.79%
2016	723,528,050	725,425,216	(1,897,166)	4,206,558,429	17.25%

# SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION SCHEDULE OF EMPLOYER CONTRIBUTIONS

# NOTES TO SCHEDULE OF CONTRIBUTIONS

Valuation Date:	June 30, 2016
Notes	Members and employers contribute based on statutorily fixed rates. The State of Oklahoma contributes 5.0% of revenues from sales taxes, use taxes, corporate and individual income taxes, and lottery proceeds. An additional contribution is made for members whose salary is paid from federal funds or certain grant money.
	Beginning with the fiscal year ending June 30, 2016, the Actuarially Determined Employer Contribution (ADEC) is determined as the employer contribution amount necessary to discharge the Unfunded Actuarial Accrued Liability over a period equal to the funding period for the current actuarial valuation for plan funding purposes (i.e., 14 years as of June 30, 2015). However, in no event shall the amortization period be in excess of a fixed period of twenty (20) years. ADEC rates are calculated as of June 30.
	The ADEC was previously determined as the total employer contribution necessary to fund the normal cost and to amortize the UAAL as a level percentage of payroll over 30 years.
	A new set of assumptions were adopted for the June 30, 2016 actuarial valuation and will be first reflected for the ADEC determined for the fiscal year ending 2017.
Methods and Assumptions Used	to Determine Contribution Rates:
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll
Remaining Amortization Period	14 years
Asset Valuation Method	5-year smoothed market
Inflation	3.00%
Salary Increases	Composed of 3.00% inflation, plus 0.75% productivity increase rate, plus step-rate promotional increases for members with less than 25 years of service.
Investment Rate of Return	8.00%
Retirement Age	Experience-based table of rates based on age, service, and gender. Adopted by the Board in May 2015 in conjunction with the five year experience study for the period ending June 30, 2014.

RP-2000 Combined Mortality Table for males with White Collar Adjustments with fully generational projection by Scale BB from the table's base year of 2000. For females, the GRS Southwest Region Teacher Mortality Table, scaled at 105%, with fully generational projection by Scale BB from the table's base year of 2012.

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# **SUMMARY OF PLAN PROVISIONS**

1. <u>Effective Date</u>: July 1, 1943.

2. <u>Plan Year</u>: Twelve-month period ending June 30th.

3. <u>Administration</u>: The Teachers' Retirement System of Oklahoma is administered by a Board of Trustees, which is responsible for administration of the System and investment of System assets. Three members serve ex officio, while a total of ten others are appointed by the Governor (six), the President of the Senate (two), and the Speaker of the House (two), according to various guidelines. Additionally, a statewide organization representing retired educators shall appoint a member to the Board who shall be a nonvoting member.

4. <u>Type of Plan</u>: The System is a qualified governmental defined benefit retirement plan. For GASB purposes, it is a cost-sharing multiple-employer PERS.

5. <u>Eligibility</u>: All employees of any public school in Oklahoma, including public colleges and universities, are eligible to participate in the System. Classified personnel (teachers, supervisors, principals, registered school nurses, administrators, etc.) are required to participate, beginning at their date of employment. Non-classified employees (all other employees, such as drivers, secretaries, janitors, cooks, etc.) may, but are not required to, participate. Certain other State employees, such as employees of the System itself, participate in the System. Beginning July 1, 2004, new employees hired by the comprehensive universities (Oklahoma University, the Health Sciences Center, and Oklahoma State University) may elect to join an alternate plan provided by the universities in lieu of joining OTRS. The election to join the alternate plan is irrevocable.

6. <u>Maximum Pay</u>: Prior to July 1, 1995, contributions under this System were based on pay up to a maximum dollar amount. Members could choose between a \$40,000 maximum and a \$25,000 maximum. The member's Final Average Compensation was limited by this same maximum, so the member's election affected both benefits and contributions.

The maximum was removed for most members effective July 1, 1995. It no longer applies in determining the required member and employer contributions. It does still have an impact, however. As noted below, benefits based on service earned before July 1, 1995 are limited by the \$40,000 or \$25,000 maximum, whichever was elected. This cap may be modified for members in the Education Employees Service Incentive Plan (EESIP). See Item 22 below discussing the EESIP provisions.

In addition, the cap on salary continued to apply after June 30, 1995 to members employed by one of the comprehensive universities who entered the System before July 1, 1995. The cap on salary for contribution purposes is shown in the schedule below. All caps were removed effective July 1, 2007.

	Elected <u>\$40,000 Maximum</u>	Elected <u> \$25,000 Maximum</u>
1995/1996	\$44,000	\$27,500
1996/1997	49,000	32,500
1997/1998	54,000	37,500
1998/1999	59,000	42,500
1999/2000	59,000	42,500
2000/2001	64,000	47,500
2001/2002	69,000	52,500
2002/2003	74,000	57,500
2003/2004	79,000	62,500
2004/2005	84,000	67,500
2005/2006	89,000	72,500
2006/2007	94,000	77,500
Thereafter	No limit	No limit

Benefits for the members employed by the comprehensive universities, except for those hired on or after July 1, 1995, are limited by the pay caps for the period before July 1, 2007.

7. <u>Member Contributions</u>: Generally, active members contribute 7.00% of all compensation to the System. A school district may pay all or part of the contribution for its employees.

8. <u>Employer Contributions</u>: Employers are required to contribute a fixed percentage of pay on behalf of active members. The employer contribution rate is now applied to all pay, although historically the rate was not applied to pay above the cap on salary.

The employer contribution rate for years from July 1, 2002 through December 31, 2006 was 7.05% of covered salary. Effective January 1, 2007, the employer contribution rate paid by all employers covered by the EESIP increased to 7.60%. This rate then increased to 7.85% effective July 1, 2007, 8.35% effective January 1, 2008, 8.50% effective July 1, 2008, 9.00% effective January 1, 2010. For employers not covered by the EESIP—the comprehensive and regional four-year universities—the rate increased to 7.55% effective January 1, 2008, 8.05% effective January 1, 2009, and 8.55% effective January 1, 2010.

In addition, the State of Oklahoma contributes 5.00% percent of revenues from sales taxes, use taxes, corporate income taxes and individual income taxes. The 5.00% rate became effective on July 1, 2007. The rates are shown in the following schedule on the next page.

	State
<b>Fiscal Year</b>	<b>Contribution Percentage</b>
FY 2003	3.54%
FY 2004	3.54%
FY 2005	3.75%
FY 2006	4.00%
FY 2007	4.50%
FY 2008	5.00%
Thereafter	5.00%

Beginning in FY 2006, the State also contributes 5.00% of lottery proceeds.

If a member's salary is paid from federal funds or certain grant money, an additional contribution (the grant matching contribution) is required. The matching contribution rate is set by the Board of Trustees annually and is expressed as a percentage of federal/grant salaries.

	Federal/Grant
<b>Fiscal Year</b>	<b>Contribution Percentage</b>
FY 2003	5.00%
FY 2004 to 2005	4.50%
FY 2006	5.00%
FY 2007 to 2008	7.00%
FY 2009 to 2010	7.50%
FY 2011	6.50%
FY 2012	7.00%
FY 2013	8.00%
FY 2014 to 2016	8.25%
FY 2017	7.70%

9. <u>Service</u>: Employees receive credit for a year of service if they are contributing members for at least six months within one school year. For service performed on or after July 1, 2013, fractional service will be awarded for less than full-time employment performed during the contract year. Fractional service credit will be added together and the resulting sum will be included in the retirement formula calculations.

Credit may also be granted for service prior to the System's effective date, and nonclassified employees can purchase credit for their prior service once they have joined the System. Credit is also available for some out-of-state and military service under certain circumstances.

Finally, members receive a year of service credit if they have accumulated 120 days of unused sick leave at termination. As of August 1, 2012, if a member has less than 120 days of unused sick leave at termination, additional service credit for sick leave days shall be equal to the number of unused sick leave days divided by 120 days.

10. <u>Final Average Compensation (FAC)</u>: The average of the member's compensation for the three or five years on which the highest contributions are paid. For persons becoming members before July 1, 1992, the averaging period is three years. For other members, the averaging period is five years. For service prior to July 1, 1995, the FAC is limited to \$40,000 or \$25,000, depending on the member's election and participation in the EESIP as discussed in Item 6 above and in Item 22.

## 11. <u>Normal Retirement</u>

- a. <u>Eligibility</u>: A member is eligible to retire and receive a Normal Retirement benefit if (i) the member is at least age 62 and has credit for five or more years of service, or (ii) the sum of the member's age and service is at least 80 (Rule of 80). For members joining after June 30, 1992, a "Rule of 90" is used instead of the "Rule of 80". Members joining after October 31, 2011 are eligible if (i) the member is at least age 65 and has credit for five or more years of service, or (ii) the member is at least age 60 and meets the "Rule of 90".
- b. <u>Monthly Benefit</u>: 2% of FAC (limited to \$40,000 or \$25,000, as appropriate) times years of service prior to July 1, 1995, plus 2% of FAC (unlimited) times years of service after June 30, 1995. Special provisions apply to members covered by the EESIP (see Item 22 below). Other special provisions apply to higher education members for service during the period July 1, 1995 through June 30, 2007 if their pay in any year in this period exceeded the applicable maximum. Monthly benefits are equal to one-twelfth of the calculated amount.
- c. <u>Payment Form</u>: Benefits are paid as a monthly life annuity, with a guarantee that if the payments made do not exceed the member's accumulated contributions, determined as of the date of retirement, the balance will be paid in a lump-sum to the member's beneficiary. This payment form is referred to as the "Maximum Option" since it initially provides the largest annuity. Optional forms of payment are available; see below.

## 12. <u>Early Retirement</u>

- a. <u>Eligibility</u>: A member is eligible to retire early if the member is at least age 55 and has credit for five or more years of service, or at any age after 30 years of service. For members joining after October 31, 2011, a member is eligible to retire early if the member is at least age 60 and has credit for five or more years of service.
- b. <u>Monthly Benefit</u>: The Normal Retirement benefit (based on current years of service) multiplied by the applicable early retirement factor below.

Retirement Age	Actuarial Equivalent Factors for Members Joining before November 1, 2011	Statutory Factors for Members Joining after October 31, 2011
65 or later	1.000000	1.00
64	1.000000	0.93
63	1.000000	0.86
62	1.000000	0.80
61	0.907808	0.73
60	0.825271	0.65
59	0.751219	N/A
58	0.684644	N/A
57	0.624673	N/A
56	0.570554	N/A
55	0.521634	N/A
54	0.477344	N/A
53	0.437186	N/A
52	0.400720	N/A
51	0.367562	N/A
50	0.337374	N/A

## c. Early Retirement Factor:

d. <u>Payment Form</u>: Same as for Normal Retirement above.

## 13. <u>Disability Retirement</u>

- a. <u>Eligibility</u>: A member is eligible provided (i) he/she has credit for at least 10 years of service and (ii) the disability is approved by the Medical Board appointed by the Board of Trustees.
- b. <u>Monthly Benefit</u>: Same as for Normal Retirement above (based on current service).
- c. <u>Payment Form</u>: The disability benefit commences immediately upon the member's retirement. Benefits are reduced or cease entirely upon recovery or reemployment prior to age 60. Disability benefits are payable as a monthly life annuity, with a guarantee that if the payments made do not exceed the sum of the member's accumulated contributions as of the date of retirement, the balance will be paid in a lump-sum to the member's beneficiary. A married, disabled member may elect a reduced benefit under the Joint & 100% Survivor option (with pop up) form of payments (Option 2 described in Item 17 below).

## 14. <u>Vested Termination Benefit</u>

- a. <u>Eligibility</u>: A member with at least 5 years of service who does not withdraw his/her contributions from the fund is eligible for a vested termination benefit.
- b. <u>Monthly Benefit</u>: Same as for Normal Retirement above (based on current service). If benefits commence prior to age 62 (age 65 for members joining after October 31, 2011), they may be reduced for Early Retirement above.
- c. <u>Payment Form</u>: Same as for Normal Retirement above.

## 15. <u>Withdrawal (Refund) Benefit</u>

- a. <u>Eligibility</u>: All members leaving covered employment with less than 5 years of service for a reason other than the member's death. Optionally, members eligible for other benefits may withdraw their contributions in lieu of the regular benefits due.
- b. <u>Benefit</u>: The member who withdraws receives a lump-sum payment of his/her employee contributions, plus a portion of the interest credited by the System on these contributions. Interest is credited at an annual rate of 8%. The portion of the interest paid on termination depends on the member's years of service as follows:

	Percent of
Years of	Interest
Service	Refunded
0-15	50%
16-21	60%
22-25	75%
26 or more	90%

#### 16. <u>Death in Service</u>

- a. <u>Eligibility</u>: Death must have occurred while an active member.
- b. <u>Benefit</u>: Upon the death of an active member, a refund of the member's contributions and 100% of the interest credited is paid. In addition, a lump sum of \$18,000 will be paid. If the member is eligible for retirement (early or normal) at the time of death, and the member is married, the spouse may elect to receive a monthly life annuity equal to the retirement benefit for which the member was eligible, reduced as though the member had elected to receive benefits under Option 2 (see below). This annuity is paid in lieu of both (i) the \$18,000 lump-sum death benefit and (ii) the refund of contributions.

The spouse of an EESIP eligible member can elect to receive the enhanced benefit described under Item 22 below.

17. <u>Optional Forms of Payment</u>: In addition to the "Maximum Option" described under Normal Retirement, above, there are optional forms of payment available on an actuarially equivalent basis, as follows:

- a. <u>Option 1</u> A modified cash refund annuity payable for life with a guaranteed refund of the member's contributions and interest, less the total of the "annuity" payments paid. (The "annuity" payment is the portion of the monthly benefit provided by the member's own account balance.)
- b. <u>Option 2</u> A joint life annuity payable while both the member and the joint annuitant are alive; and if the member dies before the joint annuitant, continuing without change to the joint annuitant; or if the joint annuitant dies before the member, "popping-up" to the original life annuity amount and continuing for the life of the member.
- c. <u>Option 3</u> A joint life annuity payable while both the member and the joint annuitant are alive; and if the member dies before the joint annuitant, continuing at 50% of this amount for the joint annuitant's lifetime; or if the joint annuitant dies before the member, "popping-up" to the original life annuity amount and continuing for the life of the member.
- d. <u>Option 4</u> A life annuity with a guarantee that if the member dies before 120 payments (10 years) have been made; the payments will be continued to the member's beneficiary for the balance of the ten-year period.
- e. <u>PLSO Option</u> A partial lump-sum option (PLSO) is allowed for those members with at least 30 years of service upon retirement. The amount of the PLSO is equal to 12, 24, or 36 times the member's monthly retirement benefit, determined before applying any reduction for the PLSO or any other optional form of payment. A member who elects to receive a PLSO will have his/her monthly retirement benefit reduced on an actuarial basis to compensate for the fact that a PLSO is provided. A member who elects a PLSO may elect any of the other optional forms of payment as well, taking a further reduction in the annuity amount.

Actuarial equivalence is based on tables adopted by the Board of Trustees.

18. <u>Special Retirees</u>: This is a group of retirees who have been granted a special \$150 per month benefit although they did not fulfill the requirements for service retirement. With cost of living increases, the special retirees now average \$195 per month.

## 19. <u>Supplemental Medical Insurance</u>

- a. Eligibility: All retired members (including service retirees and disabled retirees but excluding the special retirees and spouses or beneficiaries) who have at least 10 years of service credit are eligible for a supplemental medical insurance payment.
- b. Monthly Benefit: Eligible members receive the smaller of (i) a Medicare supplement benefit, if eligible, or (ii) an amount between \$100 and \$105 per month, depending on service and Final Average Compensation.
- c. Payment Form: Benefits are payable as a life annuity on behalf of the retired member to (i) the Oklahoma Employees' Group Insurance Plan, if the member has health coverage under this Plan, or (ii) to the member's former employer, if the member retains health coverage under a plan maintained by the former employer.

## 20. <u>Post-retirement Death Benefit</u>

- a. Eligibility: All retired members (including service retirees and disabled retirees but excluding the special retirees and spouses or beneficiaries) are eligible for a post-retirement death benefit.
- b. Benefit: A lump-sum payment of \$5,000.

21. <u>Cost-of-living Increase</u>: From time to time, the System has been amended to grant certain post-retirement benefit increases. However, the System has no automatic cost-of-living increase features.

22. <u>EESIP</u>: The Education Employees Service Incentive Plan (EESIP) was created in 2006. Active members are eligible for the EESIP if they have service prior to July 1, 1995, are active on or after July 1, 2006, and are not employed by one of the comprehensive or regional four-year universities.

The EESIP allows for two years of service prior to July 1, 1995 to be computed at an enhanced or eliminated cap for each year that the employee has worked beyond Normal Retirement Age at the time of retirement.

For each "uncapped" year, the \$40,000 cap applicable to service before July 1, 1995 is increased to \$60,000 for retirements in FY 2007, to \$80,000 for retirements in FY 2008, and the cap is removed beginning July 1, 2008. The employee that elects the enhanced benefit must pay the accumulations, at 10% interest, of contributions that would have been required but for the cap then in place. Payment is required only for years FY 1988 through FY 1995 even if more than 8 years of service prior to July 1, 1995 are being "uncapped." Payment is required only for those years of service that are computed at an elevated or eliminated cap.

Contributions are required at the following rates for salary in excess of the \$25,000 or \$40,000 cap earned in years FY 1998 through FY 1995:

<b>Fiscal Year</b>	<b>Contribution Percentage</b>
FY 1995	8.00%
FY 1994	9.00%
FY 1993	11.00%
FY 1992	11.00%
FY 1991	11.00%
FY 1990	10.50%
FY 1989	10.00%
FY 1988	10.00%

For those members electing the enhanced benefit, the payment required is 50% of the accumulated balance in FY 2007, 75% of the accumulated balance in FY 2008 and 100% of the accumulated balance on or after FY 2009.

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# SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

## I. <u>Valuation Date</u>

The valuation date is June 30th of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

## II. <u>Actuarial Cost Method</u>

Because the employer contribution rate is set by statute, the actuarial valuation is used to determine the number of years required to amortize the Unfunded Actuarial Accrued Liability (UAAL), or the funding period.

The Individual Entry Age Normal actuarial cost method assigns the plan's total unfunded liabilities (the actuarial present value of future benefits less the actuarial value of assets) to various periods. The unfunded actuarial accrued liability is assigned to years prior to the valuation, and the normal cost is assigned to the year following the valuation. The remaining costs are the normal costs that will be recognized in future years. The resulting actuarially determined contribution requirement is composed of (i) the applicable year's normal cost, plus (ii) a payment intended to reduce the unfunded actuarial accrued liability.

The normal contribution is determined using the Individual Entry Age Normal method. Under this method, a calculation is made to determine the rate of contribution which, if applied to the compensation of each individual member during the entire period of anticipated covered service, would be required to meet the cost of all benefits payable on his behalf. The salary-weighted average of these rates is the normal cost rate. This calculation reflects the plan provisions that apply to each individual member. The employer normal cost rate is equal to (i) the normal cost rate, plus (ii) the expected administrative expenses, minus (iii) the member contribution rate.

The actuarial accrued liability is the difference between the total present value of future benefits and the actuarial present value of future normal costs. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of assets.

The funding period is calculated as the number of years required to fully amortize the UAAL, assuming that: (a) future market earnings, net of investment-related expenses, will equal 7.50% per year, (b) there will be no liability gains/losses or changes in assumptions, (c) the number of active members will remain unchanged, (d) active members who leave employment will be replaced by new entrants each year, and (e) employer contributions and dedicated State revenue will remain the same percentage of payroll as projected for the current fiscal year.

The Entry Age actuarial cost method is an "immediate gain" method (i.e., experience gains and losses are separately identified as part of the UAAL). However, they are amortized over the same period applied to all other components of the UAAL.

#### III. <u>Actuarial Value of Assets</u>

The actuarial value of assets is equal to the market value, adjusted for a five-year phase in of actual investment return in excess of expected investment return. The actual return is calculated net of investment-related expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's market value of assets, adjusted for contributions, administrative expenses, benefits paid, and refunds.

Prior to the June 30, 2015, the actual and expected returns on plan assets were also determined net of administrative expenses.

#### IV. <u>Actuarial Assumptions</u>

- A. <u>Economic Assumptions</u>
  - 1. Investment return: 7.50% per year, net of investment-related expenses and compounded annually, composed of an assumed 2.50% inflation rate and a 5.00% net real rate of return.
  - 2. Administrative expenses: 0.10% of valuation payroll per year

Years of Service	Service-Related Component	Total Salary Increase Rate
(1)	(2)	(3)
0	8.00%	11.25%
1-2	1.50%	4.75%
3-4	1.25%	4.50%
5-11	1.00%	4.25%
12-17	0.75%	4.00%
18-21	0.50%	3.75%
22-24	0.25%	3.50%
25 or more	0.00%	3.25%

3. Salary increase rate: A 3.25% wage inflation component, including 2.50% price inflation, plus a service-related component as shown below:

- 4. Payroll growth rate: In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 2.75% per year. This increase rate has no allowance for future membership growth.
- 5. Future ad hoc cost-of-living increases: None.

#### B. <u>Demographic Assumptions</u>

- 1. Mortality rates after retirement or termination.
  - a. Healthy males RP-2000 Combined Healthy mortality table for males with White Collar Adjustments. Generational mortality improvements in accordance with Scale BB from the table's base year of 2000.
  - b. Healthy females GRS Southwest Region Teacher Mortality Table, scaled at 105%. Generational mortality improvements in accordance with Scale BB from the table's base year of 2012.
  - c. Disabled males RP-2000 Mortality Table for disabled males, multiplied by 75%, no set back.
  - d. Disabled females RP-2000 Mortality Table for disabled females, multiplied by 100%, no set back.
- 2. Mortality rates for active members RP-2000 Employee Mortality tables, with male rates multiplied by 60% and female rates multiplied by 50%.

<u>Mortality Improvement</u>: The nondisabled annuity mortality assumption includes an explicit generational mortality improvement assumption. To account for future mortality improvement for disabled annuitants and active members, the tables and table multipliers selected above were chosen so that the assumed mortality rates are smaller than the rates observed in the last experience study, covering experience for FY 2010 – FY 2014. The ratio of the actual number of deaths occurring during this period to the expected number based on the selected assumptions was:

- 116% for disabled male annuitants
- 120% for disabled female annuitants
- 127% for active male members
- 116% for active female members

	Expected Disabilities Occurring		
	per 100 Lives		
	Male	Female	
Age	Members	Members	
(1)	(2)	(3)	
25	0.023	0.020	
30	0.023	0.020	
35	0.032	0.040	
40	0.059	0.100	
45	0.090	0.160	
50	0.270	0.240	
55	0.405	0.370	
60	0.158	0.260	
65	0.000	0.000	

3. Disability rates - Based on 2015 Experience Study, males and females separate. Sample rates are shown below:

Disability rates are applied only for members with 10 or more years of service, since rates were developed based on exposure for this group.

4. Termination Rates – Rates based on the member's service, developed from the 2015 Experience Study. Rates reflect terminations for causes other than death, disability or retirement. Sample rates are shown below:

Credited Service	
(Years)	Males and Females
(1)	(2)
0	23.00
1	18.00
2	13.00
3	11.00
4	9.00
5	8.25
6	7.50
7	6.75
8	6.00
9	5.25
10	4.50
11	4.25
12	4.00
13	3.75
14	3.50
15	3.25
16	3.00
17	2.75
18	2.50
19	2.25
20	2.00
21	1.75
22	1.75
23	1.50
24	1.50
25 or more	0.00

Expected Terminations per 100 Lives

Termination rates are not applied to a member who is eligible for a retirement benefit (reduced or unreduced).

	Expected Retirements per 100 Lives						
	Unreduced	Retirement	Reduced R	Retirement			
Age	Males	Females	Males	Females			
Under 50	0.0	0.0	0.0	0.0			
50	12.0	12.5	0.0	0.0			
51	12.0	12.5	0.0	0.0			
52	12.0	12.5	0.0	0.0			
53	12.0	12.5	0.0	0.0			
54	12.0	12.5	0.0	0.0			
55	12.0	12.5	1.0	1.5			
56	12.0	14.0	1.8	2.0			
57	12.0	14.0	2.0	2.3			
58	12.0	14.0	2.3	2.5			
59	12.0	16.0	2.5	2.8			
60	12.0	16.0	2.8	3.0			
61	15.0	20.0	3.0	3.5			
62	21.0	25.0	10.0	10.0			
63	19.0	20.0	7.5	7.5			
64	15.0	20.0	7.5	7.5			
65	25.0	25.0					
66	22.5	25.0					
67	22.5	25.0					
68	20.0	22.5					
69	20.0	22.5					
70	20.0	22.5					
71	20.0	22.5					
72	20.0	22.5					
73	20.0	22.5					
74	20.0	22.5					
75 and over	100.0	100.0					

5. Retirement rates - Separate male and female rates, based on age, developed from the 2015 Experience Study. Sample rates are shown below:

The retirement assumption was further modified for members hired after June 30, 1992. The probability of retirement upon first eligibility for Rule of 90 reflects the accumulated probably of retirement between Rule of 80 and Rule of 90, as applicable.

#### C. <u>Other Assumptions</u>

- 1. Percent married: 80% of employees are assumed to be married.
- 2. Age difference: Males are assumed to be three years older than females.
- 3. Percent electing annuity on death (when eligible): All of the spouses of married participants who die after becoming eligible for a retirement benefit are assumed to elect an annuity, in lieu of the \$18,000 lump sum and refund.
- 4. Percent electing deferred termination benefit: vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
- 5. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at age 62 (age 65 if hired on or after November 1, 2011).
- 6. Supplemental medical insurance: All members, whether currently active, inactive, or retired, are assumed to be eligible to receive the supplemental insurance benefit, if they have at least 10 years of service credit at retirement.
- 7. Members who retire with at least 24 years of credited service are assumed to have 120 days of unused sick leave for which they will receive one year of service credit. This assumption only applies to reduced and unreduced retirement.
- 8. No assumption was made that current active members employed by the comprehensive universities will elect to transfer out of OTRS.
- 9. Reemployment, purchase of service, transfers: No recognition is made of (i) future member reimbursements upon reemployment, (ii) future purchase of additional service, or (iii) special transfer provisions.
- 10. For EESIP eligible employees, if the refund amount to be paid exceeds the actuarial present value of the additional benefit, then we assume the member does not elect the enhanced benefit.
- 11. Decrement timing: Decrements of all types are assumed to occur mid-year.

#### V. <u>Participant Data</u>

Participant data was supplied on an electronic file for (i) active members, (ii) inactive vested members who are entitled to a future deferred benefit, (iii) inactive nonvested members who are entitled to a refund of their employee contributions, and in some cases a portion of the accumulated interest, and (iv) members and beneficiaries receiving benefits.

The data for active and inactive, non-retired members included date of birth, date of hire, gender, years of service, salary, employee contributions and accumulated interest on employee contributions. The data also included a code to indicate whether the employee had elected to make contributions on salary above \$25,000, and a code indicating the type of employer (comprehensive university, other college or university, or other employer). For retired members and beneficiaries, the data included date of birth, gender, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and a form of payment code.

Individual member contributions for the 12 months prior to the valuation date were used to determine the actual salary for plan members in the prior plan year. The valuation assumptions for salary increases were used to determine the projected salary for the current plan year. Additionally, contributing members were assumed to accrue one additional year of service between the end of the prior employment year and the valuation date.

Additional assumptions were made to correct for missing or inconsistent data. These had no material impact on the results presented.

Some inactive, nonvested employees who are entitled to a refund are not included in the data, but a liability for their refund is included instead in the Suspense Fund, which is included in the liability.

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# Statistical Section

#### **Statistical Section Summary**

The Statistical Section presents several schedules that provide financial trends analysis of the Teachers' Retirement System of Oklahoma's overall financial health and additional analytical information on membership data and retirement benefits. The schedules beginning on page 115 through page 124 provide data depicting active membership, level of monthly benefits, years of service, and retirement options. The schedules on page 125 to page 131 provide financial data showing revenues and expenses. On page 132 to page 135 these schedules report the financial impact of retirees in the state of Oklahoma and the participating employers. The source of the information in these schedules is derived from internal information unless otherwise noted.

## Retired Members by Type of Benefit

Fiscal Year Ended June 30, 2016

Amount of Monthly	Number of Retired		Т	ype of Retin	ement *					Option Sel	ected #		
Benefit	Members	1	2	3	4	5	6	Α	В	С	D	Ε	G
Under \$500	7,347	4,111	2,492	325	85	329	4	3,491	1,654	1,606	332	259	4
\$501-\$1,000	9,954	6,538	1,916	703	78	719	0	4,369	2,145	2,374	829	237	0
\$1,001-\$1,500	8,998	7,545	333	612	10	497	0	3,308	1,925	2,651	946	168	0
\$1,501-\$2,000	13,853	12,975	47	582	0	250	0	4,482	3,331	4,336	1,418	287	0
\$2,001-\$2,500	11,776	11,295	12	432	0	37	0	3,497	2,669	3,932	1,375	302	0
\$2,501-\$3,000	4,801	4,605	2	189	0	5	0	1,541	924	1,630	612	94	0
\$3,001-\$3,500	1,957	1,902	1	52	0	1	0	671	343	691	207	44	0
\$3,501-\$4,000	831	812	0	19	0	0	0	334	105	283	93	16	0
Over \$4,000	1,163	1,132	1	28	1	1	0	380	130	477	153	23	0
	Totals	50,915	4,805	2,943	173	1,840	4	22,072	13,227	17,981	5,965	1,430	4

#### \* Type of Retirement

Type 1 - Normal retirement for age and service

Type 2 - Early retirement

Type 3 - Beneficiary payment (Normal retirement)

Type 4 - Beneficiary payment (Early retirement)

Type 5 - Disability retirement

Type 6 - Special annuitants

#### **# Option Selected**

Option A – The Maximum Retirement Plan – provides the greatest monthly lifetime benefit.

Option B – Retirement Option 1 – provides for a decreased rate of reduction of a member's account balance.

Option C - Retirement Option 2 - known as the 100% joint survivor annuity - provides for a reduced monthly benefit to the member for life. Upon the death of the

Option D - Retirement Option 3 - known as the 50% joint survivor annuity - provides a similar benefit as Option 2; however, upon the death of the member, the

Option E - Retirement Option 4 - provides a reduced monthly benefit payable to the member for life. In the event of the member's death within 120 months from the

Option G – Special Annuitants – a former teacher, who taught a minimum of ten years in the public schools of Oklahoma prior to July 1, 1943, receives a special annuity.

## Average Benefit Payments Fiscal Years Ended June 30

				ears of Cred				
<b>Retirement Effective Date</b>	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40+
Period 7/1/2006 to 6/30/2007		****	****	** ***		** ***	**	
Average monthly benefit	\$289	\$548	\$844	\$1,319	\$1,825	\$2,025	\$2,692	\$3,03
Average final average salary	\$27,920	\$31,084	\$33,123	\$37,294	\$41,634	\$45,283	\$48,400	\$50,85
Number of retired members	145	318	349	453	601	490	260	8
Period 7/1/2007 to 6/30/2008								
Average monthly benefit	\$331	\$558	\$897	\$1,294	\$1,846	\$2,243	\$2,767	\$3,53
Average final average salary	\$31,448	\$32,300	\$34,616	\$36,877	\$42,274	\$46,606	\$50,852	\$56,65
Number of retired members	155	324	346	512	568	528	271	10.
Period 7/1/2008 to 6/30/2009								
Average monthly benefit	\$366	\$610	\$955	\$1,360	\$1,896	\$2,319	\$3,073	\$3,83
Average final average salary	\$35,522	\$34,547	\$36,411	\$38,874	\$44,043	\$49,044	\$55,906	\$65,22
Number of retired members	135	302	324	497	502	465	234	134
Period 7/1/2009 to 6/30/2010								
Average monthly benefit	\$365	\$613	\$952	\$1,365	\$1,895	\$2,319	\$3,074	\$3,850
Average final average salary	\$35,555	\$34,709	\$36,329	\$38,995	\$44,020	\$49,040	\$55,956	\$65,319
Number of retired members	135	299	321	496	499	465	232	13
Period 7/1/2010 to 6/30/2011								
Average monthly benefit	\$354	\$672	\$982	\$1,510	\$2,000	\$2,414	\$3,101	\$3,922
Average final average salary	\$33,629	\$37,158	\$38,819	\$42,813	\$46,536	\$50,704	\$57,768	\$63,268
Number of retired members	195	377	355	586	564	607	366	16.
Period 7/1/2011 to 6/30/2012								
Average monthly benefit	\$405	\$680	\$1,096	\$1,550	\$2,012	\$2,514	\$3,113	\$3,922
Average final average salary	\$37,155	\$37,678	\$41,877	\$44,299	\$46,467	\$52,837	\$57,201	\$64,38
Number of retired members	228	383	350	572	551	585	326	18
Period 7/1/2012 to 6/30/2013								
Average monthly benefit	\$392	\$726	\$1,128	\$1,568	\$2,075	\$2,568	\$3,262	\$4,01
Average final average salary	\$36,669	\$39,042	\$43,668	\$44,636	\$47,848	\$53,682	\$58,935	\$64,743
Number of retired members	203	320	342	520	576	538	350	16
Period 7/1/2013 to 6/30/2014								
Average monthly benefit	\$393	\$772	\$1,137	\$1,638	\$2,113	\$2,694	\$3,394	\$4,256
Average final average salary	\$35,420	\$40,470	\$43,459	\$46,149	\$48,545	\$55,667	\$60,993	\$69,444
Number of retired members	235	337	335	498	557	482	335	167
Period 7/1/2014 to 6/30/2015								
Average monthly benefit	\$402	\$720	\$1,172	\$1,611	\$2,171	\$2,653	\$3,429	\$3,972
Average final average salary	\$35,345	\$38,407	\$44,188	\$45,786	\$49,969	\$55,048	\$61,810	\$63,623
Number of retired members	240	419	403	469	643	504	352	17
Period 7/1/2015 to 6/30/2016								
Average monthly benefit	\$437	\$736	\$1,232	\$1,728	\$2,260	\$2,710	\$3,557	\$4,25
Average final average salary	\$437	\$736	\$1,232	\$1,728	\$2,260	\$2,710	\$3,557	\$4,25
Number of retired members	245	404	414	\$49,733 392	\$32,074 604	432	323	\$08,20 170
ramoer of reuted members	243	404	414	392	004	432	323	1/0

## Principal Participating Employers Current Year (2016) and Nine Years Ago (2007)

	Fiscal Year 2016			Fiscal Year 2007		
	Covered		Percentage of	Covered		Percentage of
Participating Employer	Members	Rank	Total System	Members	Rank	Total System
OKLAHOMA CITY PUBLIC SCHOOLS	5,193	1	5.45%	4,495	1	4.86%
OKLAHOMA STATE UNIVERSITY	4,001	2	4.20%	4,045	3	4.37%
TULSA PUBLIC SCHOOLS	3,832	3	4.02%	4,127	2	4.46%
MOORE PUBLIC SCHOOLS	2,646	4	2.78%	2,226	6	2.41%
UNIVERSITY OF OKLAHOMA	2,589	5	2.72%	2,868	4	3.10%
EDMOND PUBLIC SCHOOLS	2,522	6	2.65%	2,377	5	2.57%
OU HEALTH SCIENCES CENTER	1,930	7	2.03%	2,138	7	2.31%
MID-DEL PUBLIC SCHOOLS	1,833	8	1.92%	1,657	10	1.79%
PUTNAM CITY PUBLIC SCHOOLS	1,801	9	1.89%	1,694	9	1.83%
BROKEN ARROW PUBLIC SCHOOLS	1,763	10	1.85%	1,465	12	1.58%
* All Other	67,175		70.50%	65,395		70.71%

Total (606 Employers)	95,285	100.00%	92,487	100.00%

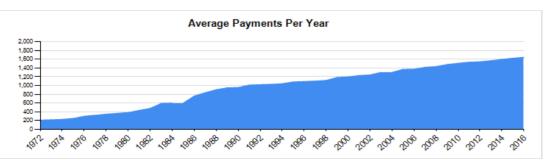
Туре	Participating	Members
School Districts	509	51,133
Higher Education	24	9,743
Career Technology	28	4,346
State Agencies	23	1,300 653
Other	12	653

#### Schedule of Average Payment Amounts Fiscal Year Ended June 30, 2016

Date	Regular Annuitants
Lana 20, 1049	
June 30, 1948	\$33
June 30, 1954	\$75
X 00 10 C0	<u></u>
June 30, 1960	\$83
June 30, 1970	\$179
June 30, 1972	\$209
June 30, 1973	\$217
June 30, 1974	\$226
June 30, 1975	\$248
June 30, 1976	\$297
June 30, 1977	\$321
X 20 1050	\$2.1 <i>5</i>
June 30, 1978	\$345
June 30, 1979	\$365
Julie 30, 1979	\$303
June 30, 1980	\$382
Julie 30, 1900	\$502
June 30, 1981	\$432
,	
June 30, 1982	\$480
June 30, 1983	\$592
June 30, 1984	\$600
June 30, 1985	\$600
	• - · ·
June 30, 1986	\$761
Lana 20, 1097	¢007
June 30, 1987	\$837
June 30, 1988	\$907
June 30, 1700	\$ <b>9</b> 07
June 30, 1989	\$949
· · · · · · · · · · · · · · · · · · ·	ψ/ተ/

Date	Regular Annuitants	Special Annuitants		
June 30, 1990	\$956	\$159		
June 30, 1991	\$1,013	\$159		
June 30, 1992	\$1,021	\$159		
June 30, 1993	\$1,030	\$159		
June 30, 1994	\$1,044	\$159		
June 30, 1995	\$1,084	\$163		
June 30, 1996	\$1,093	\$163		
June 30, 1997	\$1,105	\$163		
June 30, 1998	\$1,119	\$163		
June 30, 1999	\$1,187	\$172		
June 30, 2000	\$1,199	\$172		
June 30, 2001	\$1,231	\$175		
June 30, 2002	\$1,246	\$175		
June 30, 2003	\$1,304	\$175		
June 30, 2004	\$1,304	\$180		
June 30, 2005	\$1,373	\$187		
June 30, 2006	\$1,376	\$191		
June 30, 2007	\$1,419	\$191		
June 30, 2008	\$1,437	\$191		
June 30, 2009	\$1,483	\$194		
June 30, 2010	\$1,511	\$195		
June 30, 2011	\$1,537	\$195		
June 30, 2012	\$1,547	\$195		
June 30, 2013	\$1,571	\$195		
June 30, 2014	\$1,601	\$195		
June 30, 2015	\$1,627	\$195		
June 30, 2016	\$1,650	\$195		

Note that figures after June 30, 1989, do not include monthly medical premiums.

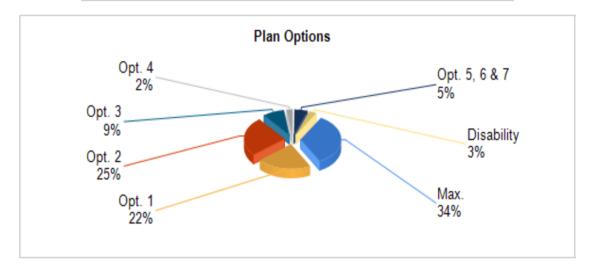


	Fiscal Year Ended June 30, 2016						
Years of Service	All Active Personnel						
Under 5 years	50,961						
5-9	11,691						
10-14	9,107						
15-19	7,828						
20-24	5,057						
25-29	3,204						
30-34	1,471						
35-39	660						
40-44	152						
45-49	28						
50-54	6						
55-59	2						
Totals	90,167						
Salary Range	All Active Personnel						
Under \$5,000	1,369						
\$5,001-\$10,000	1,666						
\$10,001-\$15,000	5,112						
\$15,001-\$20,000	5,370						
\$20,001-\$25,000	3,608						
\$25,001-\$30,000	2,842						
\$30,001-\$35,000	7,185						
\$35,001-\$40,000	15,389						
\$40,001-\$45,000	14,266						
\$45,001-\$50,000	9,144						
\$50,001-\$55,000	5,694						
\$55,001-\$60,000	3,778						
\$60,001-\$65,000	2,786						
\$65,001-\$70,000	2,131						
\$70,001-\$75,000	1,776						
\$75,001 and Above	8,049						
Totals	90,167						
Average Age (years)	45.8						
Average Salary	\$46,819						
Average Salary							

### Schedule of Retired Members by Type of Benefits

Selected Plan Options Fiscal Year Ended June 30, 2016

				Average		
	Ret	Retired Members			% of	
Option	Male	Female	Total	Payment	Total	
Maximum	3,798	16,737	20,535	\$1,563	34%	
Option 1	2,937	10,290	13,227	\$1,587	22%	
Option 2	7,869	7,506	15,375	\$1,838	25%	
Option 3	2,040	3,156	5,196	\$1,967	9%	
Option 4	408	983	1,391	\$1,545	2%	
Options 5, 6 & 7	849	2,268	3,117	\$1,397	5%	
Disability	480	1,359	1,840	\$974	3%	
Totals	18,382	42,298	60,680	\$1,646	100%	



Maximum - provides for the greatest possible benefit.

Option 1 - provides for a decreased rate of reduction of member's account balance.

Option 2 - provides for a reduced monthly benefit to the member for life. Upon death of the member, the designated beneficiary will continue to receive the same monthly benefit for life.

Option 3 - provides a similar benefit as Option 2; however, upon death of the member, the monthly benefit to the designated beneficiary is one-half of the benefit of the member.

Option 4 – provides a reduced monthly benefit. In the event of the member's death within 120 months from the date of retirement, the balance of the payments are continued to the beneficiary designated at the time of retirement. Options 5, 6 & 7 – represents beneficiaries of options 2, 3 & 4.

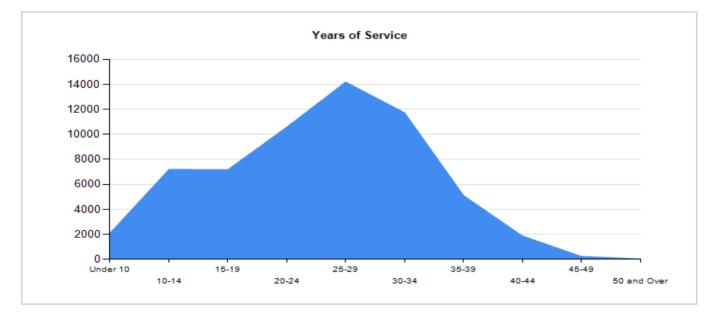
Disability - upon meeting requirements, a vested member may receive a monthly benefit.

Special Annuitants - a former teacher, who taught a minimum of ten years in the public schools of Oklahoma prior to July 1, 1943.

## Distribution by Years of Service

Fiscal Year Ended June 30, 2016

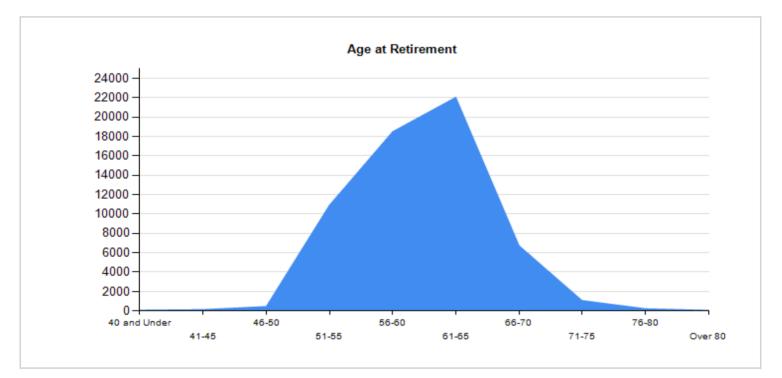
Years of				Average
Creditable	Ret	Monthly		
Service	Male	Female	Total	Payment
Under 10	755	1,352	2,107	\$377
10-14	1,963	5,234	7,197	\$549
15-19	1,919	5,258	7,177	\$881
20-24	2,364	8,229	10,593	\$1,345
25-29	4,092	10,103	14,195	\$1,832
30-34	4,144	7,590	11,734	\$2,228
35-39	2,051	3,065	5,116	\$2,799
40-44	834	1,040	1,874	\$3,378
45-49	113	123	236	\$3,978
50 and Over	20	12	32	\$4,104
Totals	18,255	42,006	60,261	\$1,646



## Distribution by Age at Retirement

Fiscal Year Ended June 30, 2016

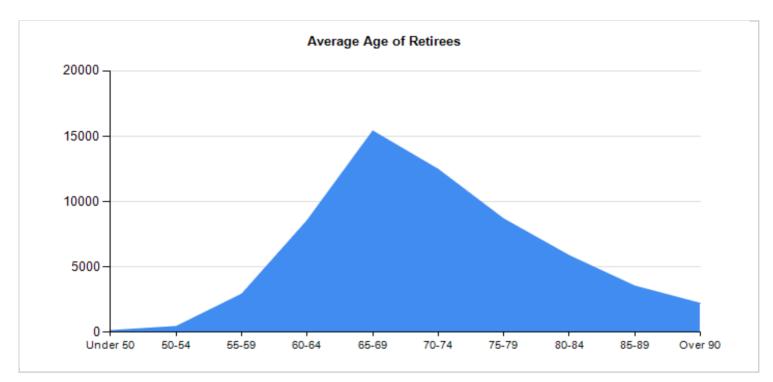
Age at	Retired Members		Average Monthly	Average Length of Service	
Retirement	Male	Female	Total	Payment	(Years)
40 and Under	19	59	78	\$720	13.0
41-45	34	112	146	\$957	15.8
46-50	127	334	461	\$1,223	20.1
51-55	4,162	6,832	10,994	\$1,954	28.5
56-60	5,132	13,491	18,623	\$1,640	25.4
61-65	6,194	16,005	22,199	\$1,525	23.2
66-70	2,209	4,589	6,798	\$1,640	23.1
71-75	392	690	1,082	\$1,549	23.0
76-80	83	149	232	\$1,447	23.0
Over 80	30	37	67	\$1,052	19.0
Totals	18,382	42,298	60,680	\$1,646	24.8



## Distribution by Retiree Age Fiscal Year Ended June 30, 2016

	Total Retired	Average Length of	Average Monthly
Age	Members	Service	Payment
Under 50	139	17.0	\$1,154
50-54	452	25.5	\$1,903
55-59	2,950	26.9	\$1,975
60-64	8,620	25.8	\$1,902
65-69	15,514	24.9	\$1,789
70-74	12,558	24.4	\$1,645
75-79	8,735	24.1	\$1,495
80-84	5,913	23.7	\$1,338
85-89	3,567	24.4	\$1,273
Over 90	2,232	25.8	\$1,209
Totals	60,680	24.8	\$1,646

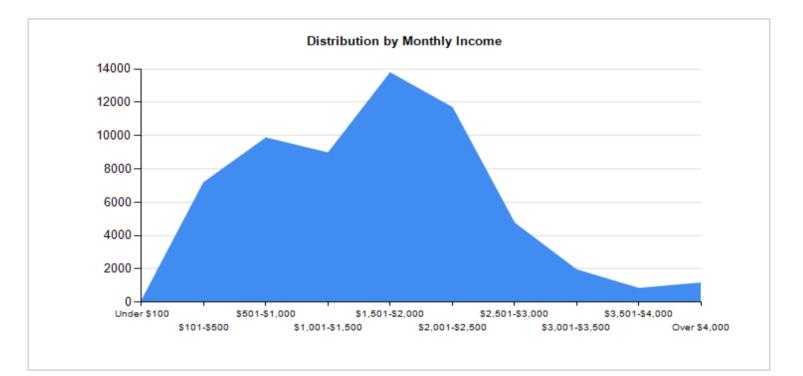
Average age of retired members is 71.2 years.



## Distribution by Monthly Income

Fiscal Year Ended June 30, 2016

Monthly Income	Retired Members	Total	Average Payment
Under \$100	101	\$8,191	\$82
\$101-\$500	7,239	\$2,353,053	\$327
\$501-\$1,000	9,935	\$7,248,930	\$735
\$1,001-\$1,500	9,026	\$11,347,968	\$1,266
\$1,501-\$2,000	13,874	\$24,248,955	\$1,760
\$2,001-\$2,500	11,776	\$25,925,336	\$2,217
\$2,501-\$3,000	4,789	\$12,884,677	\$2,709
\$3,001-\$3,500	1,954	\$6,239,429	\$3,215
\$3,501-\$4,000	830	\$3,064,450	\$3,719
Over \$4,000	1,156	\$5,848,495	\$5,095
Totals	60,680	\$99,169,484	\$1,646



#### Schedule of Changes in Net Position 401 (a) Plan For Periods Ended June 30

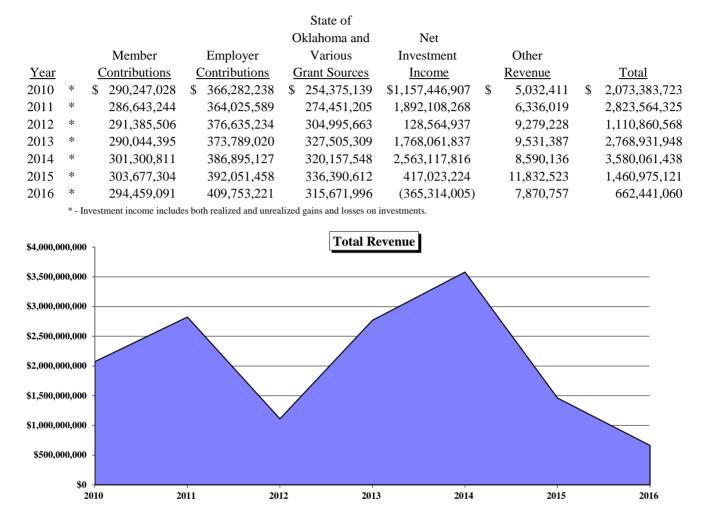
								Total
								Changes in
		Ade	lditions			Deductions		Net Position
	<u>Contrib</u>	outions	State and	Net Investment	Benefit	Refunds and	Administrative	
Year	<u>Member</u>	Employer	Federal Matching	Income	Payments [Variable]	Annuity Payments	Expenses	
2010 * \$	290,247,028	\$ 366,282,238	\$ 254,375,139	\$ 1,162,479,318	\$ 912,912,714	\$ 30,409,340	\$ 4,979,589	\$1,125,082,080
2011 *	286,643,244	364,025,589	274,451,205	1,898,444,287	979,245,846	35,211,171	4,716,480	1,804,390,828
2012 *	291,385,506	376,635,234	304,995,663	137,844,165	1,036,132,586	32,076,398	4,273,189	38,378,395
2013 *	290,044,395	373,789,020	327,505,309	1,777,593,224	1,095,144,055	28,894,193	4,156,867	1,640,736,833
2014 *	301,300,811	386,895,127	320,157,548	2,571,707,952	1,153,051,607	28,718,256	4,282,605	2,394,008,970
2015 *	303,677,304	392,051,458	336,390,612	428,855,747	1,201,350,906	35,240,176	4,358,938	220,025,101
2016 *	294,459,091	409,753,221	315,671,996	(357,443,248)	1,257,276,705	36,109,832	4,458,338	(635,403,815)

\* - Net investment income includes both securities lending income and realized and unrealized gains and losses on investments.

#### Schedule of Changes in Net Position 403 (b) Plan For Periods Ended June 30

							Total Changes in
		Addi	tions	3		Deductions	 Net Position
	<u>C</u>	ontributions	Ne	t Investment	R	efunds and	
Year		Member		Income	Ann	uity Payments	
2010 *	\$	5,402,646	\$	28,788,108	\$	44,542,103	\$ (10,351,349)
2011 *		5,010,856		27,192,952		23,709,394	8,494,414
2012 *		3,448,031		5,811,083		22,661,333	(13,402,219)
2013 *		2,910,706		15,012,065		23,838,151	(5,915,380)
2014 *		3,026,532		24,174,857		21,343,243	5,858,146
2015 *		2,823,513		3,607,327		21,822,979	(15,392,139)
2016 *		2,222,812		2,836,367		19,731,438	(14,672,259)

\* - Net investment income includes both securities lending income and realized and unrealized gains and losses on investments.

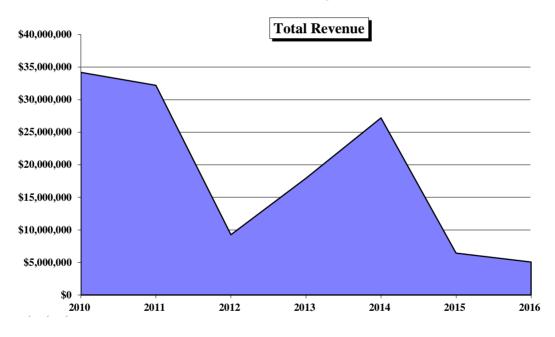


#### Schedule of Revenue by Source 401 (a) Plan For Periods Ended June 30

		Member	Investment	
Year		<b>Contributions</b>	Income	<u>Total</u>
2010	*	\$ 5,402,646	\$ 28,788,108	\$ 34,190,754
2011	*	5,010,856	27,192,952	32,203,808
2012	*	3,448,031	5,811,083	9,259,114
2013	*	2,910,706	15,021,065	17,931,771
2014	*	3,026,532	24,174,857	27,201,389
2015	*	2,823,513	3,607,327	6,430,840
2016	*	2,222,812	2,836,367	5,059,179

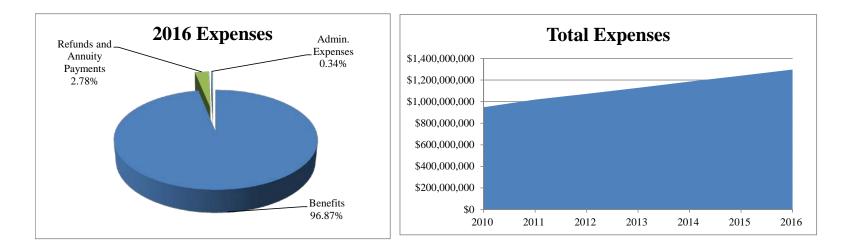
#### Schedule of Revenue by Source 403 (b) Plan For Periods Ended June 30

\* - Investment income includes both realized and unrealized gains and losses on investments.



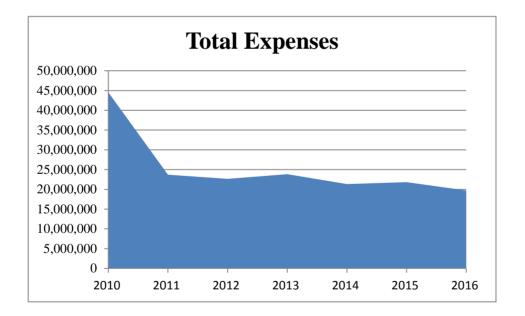
#### Schedule of Expenses by Type 401 (a) Plan For Periods Ended June 30

		Refunds and	Administrative	
Year	Benefits	Annuity Payments	Expenses	Total
2010	\$ 912,912,714	\$ 30,409,340	\$ 4,979,589	\$ 948,301,644
2011	979,245,846	35,211,171	4,716,480	1,019,173,497
2012	1,036,132,586	32,076,398	4,273,189	1,072,482,173
2013	1,095,144,055	28,894,193	4,156,867	1,128,195,115
2014	1,153,051,607	28,718,256	4,282,605	1,186,052,468
2015	1,201,350,907	35,240,176	4,358,938	1,240,950,021
2016	1,257,276,705	36,109,832	4,458,338	1,297,844,875



#### Schedule of Expenses by Type 403 (b) Plan For Periods Ended June 30

• •	Refunds and		
<u>Year</u>	Annuity Payments		
2010	\$ 44,542,103		
2011	23,709,394		
2012	22,661,333		
2013	23,838,151		
2014	21,343,243		
2015	21,822,979		
2016	19,731,438		

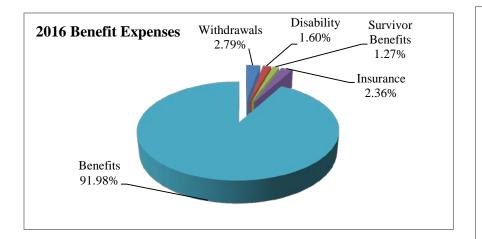


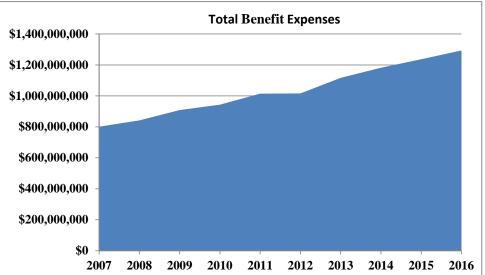
Statistical Section

## Schedule of Benefit Expenses by Type

For Periods Ended June 30

		Disability	Insurance	Survivor	Withdrawal	
Year	Age And Service Benefits	Benefits	Payments	Benefits	of Accounts	Total
2007	\$710,990,189	\$15,454,800	\$30,491,840	\$10,275,879	\$33,829,654	\$801,042,362
2008	\$748,710,866	\$15,866,880	\$30,404,352	\$11,591,627	\$35,254,496	\$841,828,221
2009	\$818,781,566	\$16,441,272	\$30,523,203	\$10,527,153	\$32,130,596	\$908,403,790
2010	\$854,573,317	\$16,803,072	\$29,916,471	\$11,619,585	\$30,409,340	\$943,321,785
2011	\$921,893,090	\$17,742,173	\$29,405,228	\$10,205,355	\$35,211,171	\$1,014,457,017
2012	\$923,869,182	\$18,055,036	\$29,607,919	\$12,339,834	\$32,076,398	\$1,015,948,369
2013	\$1,016,274,986	\$18,713,611	\$31,809,399	\$17,393,994	\$32,295,274	\$1,116,487,264
2014	\$1,088,077,119	\$19,310,123	\$30,135,639	\$15,527,726	\$28,718,256	\$1,181,769,863
2015	\$1,136,433,283	\$20,093,601	\$30,362,551	\$14,461,472	\$35,240,176	\$1,236,591,082
2016	\$1,189,645,360	\$20,731,886	\$30,522,251	\$16,377,208	\$36,109,832	\$1,293,386,537





### Retirees in the State of Oklahoma by County

Of the 60,680 pensioners and beneficiaries in the Teachers' Retirement System of Oklahoma, 89% or 53,229 remain state of Oklahoma residents. As such, benefit payments of approximately \$1,083,431,142.97 this year alone went into the State's communities and businesses. Since money changes hands several times, the System's payments have a dramatic effect on the State's economy.

County	Recipients	Annual Payment
Adair	401	\$8,302,834
Alfalfa	120	\$2,311,589
Atoka	240	\$4,573,242
Beaver	90	\$1,679,241
Beckham	318	\$6,415,096
Blaine	187	\$3,558,034
Bryan	813	\$16,524,033
Caddo	576	\$11,038,967
Canadian	1,491	\$30,676,346
Carter	709	\$13,093,750
Cherokee	1,015	\$21,125,630
Choctaw	237	\$4,779,296
Cimarron	43	\$734,138
Cleveland	3,453	\$73,899,412
Coal	83	\$1,523,342
Comanche	1,588	\$33,564,441
Cotton	93	\$1,658,879
Craig	218	\$3,819,137
Creek	784	\$15,081,204
Custer	561	\$11,754,514
Delaware	459	\$9,374,232
Dewey	136	\$2,835,640
Ellis	54	\$1,024,776
Garfield	796	\$16,613,709
Garvin	431	\$8,693,599
Grady	674	\$13,368,441
Grant	84	\$1,676,160
Greer	103	\$2,132,297
Harmon	79	\$1,498,263
Harper	85	\$1,651,153
Haskell	246	\$4,647,722
Hughes	195	\$4,029,008
Jackson	422	\$9,937,863
Jefferson	78	\$1,648,098
Johnston	264	\$5,924,361
Kay	651	\$12,770,080
Kingfisher	237	\$4,856,276
Kiowa	185	\$3,536,471
Latimer	224	\$3,967,559

County	Recipients	Annual Payment
Lefore	764	\$15,727,584
Lincoln	467	\$9,074,818
Logan	505	\$9,321,581
Love	99	\$1,952,751
Major	137	\$2,680,236
Marshall	279	\$5,634,044
Mayes	612	\$12,739,254
Mcclain	628	\$11,516,405
Mccurtain	613	\$11,791,634
Mcintosh	410	\$8,292,487
Murray	212	\$4,444,449
Muskogee	1,237	\$25,342,376
Noble	174	\$3,102,038
Nowata	94	\$1,929,633
Okfuskee	186	\$3,425,993
Oklahoma	9,658	\$200,058,582
Okmulgee	749	\$14,756,659
Osage	205	\$3,756,241
Ottawa	688	\$12,253,108
Pawnee	210	\$4,044,203
Payne	2,133	\$44,491,414
Pittsburg	669	\$12,703,487
Pontotoc	847	\$17,024,432
Pottawatomie	926	\$18,515,104
Pushmataha	200	\$3,925,675
Roger Mills	82	\$1,568,515
Rogers	970	\$19,512,351
Seminole	405	\$8,099,884
Sequoyah	678	\$13,548,566
Stephens	624	\$12,693,347
Texas	235	\$4,488,249
Tillman	133	\$2,890,266
Tulsa	7,200	\$151,949,075
Wagoner	443	\$8,975,746
Washington	634	\$11,204,866
Washita	204	\$3,884,416
Woods	243	\$4,823,933
Woodward	253	\$4,988,910

### 2016 Participating Employers

ACHILLE ADA ADAIR AFTON AGRA ALBION ALEX ALINE CLEO ALLEN ALLEN-BOWDEN ALTUS ALVA AMBER-POCASSET **ANADARKO** ANDERSON ANTLERS ARAPAHO-BUTLER ARDMORE ARKOMA ARNETT ASHER ATOKA AVANT BALKO BANNER BARNSDALL BARTLESVILLE BATTIEST BEARDEN BEAVER BEGGS BELFONTE BENNINGTON BERRYHILL BETHANY BETHEL **BIG PASTURE** BILLINGS **BINGER-ONEY** BISHOP BIXBY BLACKWELL **BLAIR BLANCHARD** BLUEJACKET BOISE CITY BOKOSHE **BOONE-APACHE** BOSWELL BOWLEGS BOWRING BRAGGS **BRAY-DOYLE BRIDGE CREEK** BRIGGS BRISTOW **BROKEN ARROW** BROKEN BOW BRUSHY BUFFALO

#### **Public School Districts**

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CACHE

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**BUFFALO VALLEY** DALE BURLINGTON DARLINGTON BURNS FLAT-DILL CITY DAVENPORT BUTNER DAVIDSON DAVIS DEER CREEK DEER CREEK-LAMONT CALERA DENISON CALUMET DEPEW DEWAR CAMERON DEWEY CANADIAN DIBBLE DICKSON CANEY VALLEY DOVER CANTON DRUMMOND CANUTE DRUMRIGHT CARNEGIE DUKE CARNEY DUNCAN CASHION DURANT CATOOSA EAGLETOWN CAVE SPRINGS EARLSBORO CEMENT **EDMOND** CENTRAL EL RENO CENTRAL HIGH **ELDORADO** CHANDLER ELGIN CHATTANOOGA ELK CITY CHECOTAH ELMORE CITY CHELSEA **EMPIRE** CHEROKEE ENID CHEYENNE ERICK CHICKASHA EUFAULA CHISHOLM FAIRLAND CHOCTAW/NICOMA PARK FAIRVIEW CHOUTEAU-MAZIE FANSHAWE CIMARRON FARGO CLAREMORE FELT CLAYTON FLETCHER **CLEORA** FLOWER MOUND **CLEVELAND** FOREST GROVE CLINTON FORGAN COALGATE FORT COBB-BROXTON COLBERT FORT GIBSON COLCORD FORT SUPPLY FORT TOWSON COLEMAN COLLINSVILLE FOX COMANCHE FOYIL COMMERCE FREDERICK FREEDOM CORDELL FRIEND COTTONWOOD FRINK-CHAMBERS COVINGTON-DOUG FRONTIER COWETA GAGE GANS CRESCENT GARBER CROOKED OAK GEARY CROWDER **GERONIMO** CRUTCHO **GLENCOE** CUSHING **GLENPOOL** GLOVER DAHLONEGAH GOODWELL - 133 -

GORE GRACEMONT **GRAHAM-DUSTIN** GRAND VIEW GRANDFIELD GRANDVIEW GRANITE GRANT GREASY GREENVILLE GROVE GROVE **GUTHRIE GUYMON** GYPSY HAILEYVILLE HAMMON HANNA HARDESTY HARMONY HARRAH HARTSHORNE HASKELL HAWORTH HAYWOOD HEALDTON **HEAVENER** HENNESSEY **HENRYETTA** HILLDALE HINTON HOBART HODGEN HOLDENVILLE HOLLIS HOLLY CREEK HOMINY HOOKER HOWE HUGO HULBERT HYDRO-EAKLY **IDABEL INDIAHOMA INDIANOLA** INOLA JAY **JENKS JENNINGS** JONES JUSTICE JUSTUS-TIAWAH **KANSAS KELLYVILLE KENWOOD KEOTA KETCHUM** KEYES **KEYS KEYSTONE** 

Teachers' Retirement System of Oklahoma

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2016 Comprehensive Annual Financial Report

#### Statistical Section

### 2016 Participating Employers

KIEFER **KILDARE** KINGFISHER KINGSTON KINTA KIOWA **KONAWA** KREBS **KREMLIN-HILLSDALE** LANE LATTA LAVERNE LAWTON LEACH LEEDEY LEFLORE LEXINGTON LIBERTY LIBERTY LINDSAY LITTLE AXE LOCUST GROVE LOMEGA LONE GROVE LONE STAR LONE WOLF LOOKEBA-SICKLES LOWREY LUKFATA LUTHER MACOMB MADILL MANGUM MANNFORD MANNSVILLE MAPLE MARBLE CITY MARIETTA MARLOW MARYETTA MASON MAUD MAYSVILLE **MCALESTER** MCCORD **MCCURTAIN** MCLOUD MEDFORD MEEKER MERRITT MIAMI MID-DEL MIDDLEBERG MIDWAY MILBURN MILL CREEK MILLWOOD MINCO MOFFETT

Public School Districts (continued)

Public School Districts (continued)						
MOORE	PLEASANT GROVE	SPRINGER				
MOORELAND	POCOLA	STERLING				
MORRIS	PONCA CITY	STIDHAM				
MORRISON	POND CREEK - HUNTER	STIGLER				
MOSELEY	PORTER CONSOLIDATED	STILLWATER				
MOSS	PORUM	STILLWATER				
MOUNDS	POTEAU	STONEWALL				
MOUNDS MOUNTAIN VIEW-GOTEBO		STONEWALL				
MOUNTAIN VIEW-GOTEBO MOYERS						
	PRESTON	STRATFORD				
MULDROW	PRETTY WATER	STRINGTOWN				
MULHALL-ORLANDO	PRUE	STROTHER				
MUSKOGEE	PRYOR	STROUD				
MUSTANG	PURCELL	STUART				
NASHOBA	PUTNAM CITY	SULPHUR				
NAVAJO	QUAPAW	SWEETWATER				
NEW LIMA	QUINTON	SWINK				
NEWCASTLE	RATTAN	TAHLEQUAH				
NEWKIRK	RAVIA	TALIHINA				
NINNEKAH	RED OAK	TALOGA				
NOBLE	REYDON	TANNEHILL				
NORMAN	RINGLING	TECUMSEH				
NORTH ROCK CREEK	RINGWOOD	TEMPLE				
NORWOOD	RIPLEY	TENKILLER				
NOWATA	RIVERSIDE	TERRAL				
OAK GROVE	ROBIN HILL	TEXHOMA				
OAKDALE	ROCK CREEK	THACKERVILLE				
OAKS MISSION	ROCKY MOUNTAIN	THOMAS-FAY-CUSTER				
OILTON	ROFF	TIMBERLAKE INDEPENDENT				
OKARCHE	ROLAND	TIPTON				
OKAY	RUSH SPRINGS	TISHOMINGO				
OKEENE	RYAL	TONKAWA				
OKEENE OKEMAH	RYAN	TULSA				
OKLAHOMA CITY						
	SALINA	TUPELO				
OKLAHOMA UNION	SALLISAW	TURKEY FORD				
OKMULGEE	SAND SPRINGS	TURNER				
OKTAHA	SAPULPA	TURPIN				
OLIVE	SASAKWA	TUSHKA				
OLUSTEE	SAVANNA	TUSKAHOMA				
OOLOGAH TALALA	SAYRE	TUTTLE				
OPTIMA	SCHULTER	TWIN HILLS				
OSAGE	SEILING	TYRONE				
OSAGE HILLS	SEMINOLE	UNION				
OWASSO	SENTINEL	UNION CITY				
PADEN	SEQUOYAH	VALLIANT				
PANAMA	SHADY GROVE	VANOSS				
PANOLA	SHADY POINT	VARNUM				
PAOLI	SHARON MUTUAL	VELMA ALMA				
PAULS VALLEY	SHATTUCK	VERDEN				
PAWHUSKA	SHAWNEE	VERDIGRIS				
PAWNEE	SHIDLER	VIAN				
PEAVINE	SILO	VICI				
PECKHAM	SKIATOOK	VINITA				
PEGGS	SMITHVILLE	WAGONER				
PERKINS TRYON	SNYDER	WAINWRIGHT				
PERRY	SOPER	WALTERS				
PIEDMONT	SOUTH COFFEYVILLE	WANETTE				
PIONEER	SOUTH ROCK CREEK	WAPANUCKA				
PIONEER-PLEASANT VALE		WARNER				
PITTSBURG	SPERRY	WASHINGTON				
PLAINVIEW	SPIRO	WATONGA				
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Teachers' Retirement System of Oklahoma

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## 2016 Participating Employers Public School Districts (continued)

Public School Districts (continued)							
WATTS	WELLSTON	WHITESBORO	WRIGHT CITY				
WAUKOMIS	WESTERN HEIGHTS	WICKLIFFE	WYANDOTTE				
WAURIKA	WESTVILLE	WILBURTON	WYNNEWOOD				
WAYNE	WETUMKA	WILSON	WYNONA				
WAYNOKA	WEWOKA	WILSON	YALE				
WEATHERFORD	WHITE OAK	WISTER	YARBROUGH				
WEBBERS FALLS	WHITE ROCK	WOODALL	YUKON				
WELCH	WHITEBEAD	WOODLAND	ZANEIS				
WELEETKA	WHITEFIELD	WOODWARD	ZION				
Career and Technology Centers							
AUTRY	GORDON COOPER	METRO TECH	RED RIVER SCHOOL				
CADDO-KIOWA	GREAT PLAINS	MID-AMERICA	SOUTHERN OKLAHOMA				
CANADIAN VALLEY	GREEN COUNTRY	MOORE-NORMAN	SOUTHWEST				
CENTRAL OKLAHOMA	HIGH PLAINS	NORTHEAST	TRI COUNTY				
CHISHOLM TRAIL	INDIAN CAPITOL	NORTHWEST	TULSA				
EASTERN OKLAHOMA CO	KIAMICHI	PIONEER	WES WATKINS				
FRANCIS TUTTLE	MERIDIAN	PONTOTOC	WESTERN				
	<u>Colleges an</u>	<u>d Universities</u>					
CAMERON UNIV	N OKLA COLLEGE	OU HEAT TH SCIENCES	THI SA COMMUNITY COL				

CAMERON UNIV CARL ALBERT STATE	N OKLA COLLEGE NE OKLA A&M COLLEGE	OU HEALTH SCIENCES REDLANDS COMM. COLLEGE	TULSA COMMUNITY COLLEGE UNIV CENTER AT PONCA CITY
CONNORS STATE COLLEGE		ROGERS STATE UNIV	UNIV OF CENTRAL OKLA
EAST CENTRAL STATE	NW OKLA STATE UNIV	ROSE STATE COLLEGE	UNIV OF OKLA
EASTERN OKLA STATE	OKC COMMUNITY COLLEGE	SE OKLA STATE UNIV	UNIV OF SCIENCES & ARTS
LANGSTON UNIV	OKLA PANHANDLE ST UNIV	SEMINOLE STATE COLLEGE	W OKLA STATE COLLEGE
MURRAY STATE COLLEGE	OKLA STATE UNIV	SW OKLA STATE UNIV	
Other Entities			
ABLE CHARTER SCHOOL BOARD OF PRIVATE VOC	DEPT OF EDUCATION DEPT OF REHAB SERVICE	KIPP REACH COLLEGE KIPP TULSA COLLEGE PREP	S E OKLA INTERLOCAL COOP STATEWIDE VIRTUAL CHARTER SCHOOL BOARD
BOARD OF REGENTS FOR HIGHER ED	EPIC CHARTER	OFFICE OF EDUCATIONAL QUALITY AND ACCOUNTABILITY	STREET SCHOOL
BOARD OF REGENTS OF OK COLLEGE	FIVE STAR INTERLOCAL	OKLA SCHOOL OF SCIENCE & MATH	TEACHERS RETIREMENT SYSTEM
C C O S A	HARDING CHARTR PREP	OKLA STUDENT LOAN	TRI-COUNTY INTERLOCAL CO-OP
CAREER TECH	HARDING FINE ARTS CENTER	OKLAHOMA YOUTH ACADEMY CHARTER	TULSA SCHOOL OF ARTS& SCIENCES
CHOCTAW NATION	HARPER ACADEMY	OMES	UNIVERSITY CENTER OF
INTERLOCAL COOP	CHARTER SCHOOL		SOUTHERN OKLA
DEBORAH BROWN	INDEPENDENCE CHRTR	OSAGE COUNTY	WESTERN VILLAGE CHARTER
DEPT OF CORRECTIONS	MIDL SCHOOL JOHN REX CHARTER ELEM SCHOOL	INTERLOCAL COOP QUARTZ MOUNTAIN	SCHOOL