Teachers' Retirement System of the State of Kentucky

The 78th Comprehensive Annual Financial Report

A Component Unit of the Commonwealth of Kentucky
Fiscal Years Ended June 30, 2018 and 2017

Teachers’ Retirement System
of the State of Kentucky
479 Versailles Road
Frankfort, Kentucky 40601-3800

GARY L. HARBIN, CPA
Executive Secretary

This report was prepared by the
Teachers' Retirement System staff.

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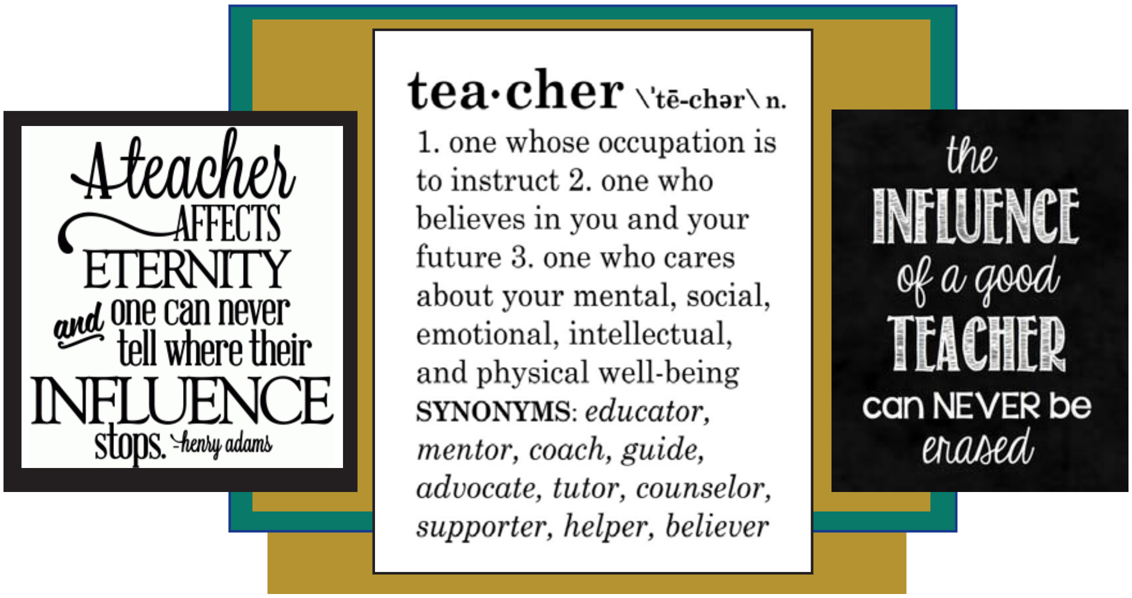


Introductory Section

CHAIR'S LETTER

Teachers' Retirement System of the State of Kentucky

December 17, 2018

Dear Members:

On behalf of the Board of Trustees and staff, I am pleased to present this Comprehensive Annual Financial Report of the Teachers' Retirement System of the State of Kentucky for the year ending June 30, 2018 and 2017, the 78th year of operation of the system. The accompanying reports from the independent auditor and the consulting actuary substantiate the financial integrity and the actuarial soundness of the system.

TRS closed the 2018 fiscal year with $21.3 billion net assets. The active membership totaled 72,565 and the retired membership was 54,377 with annual annuity and medical insurance benefits of $2.2 billion.

The Board of Trustees is committed totally to managing the retirement system funds in a prudent, professional manner. Every effort will be made to ensure that the system continues to operate in a fiscally sound manner. Present and future members of the system deserve to be able to avail themselves of the best possible retirement as authorized by statute.

We appreciate the support and cooperation extended by the governor and the legislature. This cooperation allows the system to meet not only current challenges but, to also make timely provisions for the future.

The Board of Trustees pledges to continue to administer the affairs of the Teachers' Retirement System in the most competent and efficient manner possible.

Sincerely,

Ron Sanders
Chair
Board of Trustees

LETTER OF TRANSMITTAL

Teachers' Retirement System of the State of Kentucky

December 17, 2018

Honorable Matthew G. Bevin, Governor
Commonwealth of Kentucky
Capitol Building
Frankfort, Kentucky

Dear Governor Bevin:

It is my pleasure to submit the 78th Comprehensive Annual Financial Report of the Teachers' Retirement System of the State of Kentucky (TRS), a component unit of the Commonwealth of Kentucky, for the fiscal years ended June 30, 2018 and 2017. Allow me to begin again this transmittal letter with an expression of my thanks for your work and the work of the General Assembly in approving a biennial budget that provides full pension funding for TRS of the actuarially determined employer contribution (ADEC) for the period. The importance of the consistent full funding of the retirement plan for Kentucky's teachers cannot be overstated.

TRS produced this annual report, which is required by state law and contains the annual audit and actuarial valuations of the retirement system, that provides you, the General Assembly and the public with information necessary to better understand TRS, which is the largest financial institution in the commonwealth. Contained within are numerous examples of how Kentucky teachers' future well-being is being provided for at a low cost with a great economic benefit for those educators and the state's businesses that receive many of the retirement dollars spent by the 89 percent of retirees who live in Kentucky and receive 91 percent of the retirement benefits paid by TRS.

This report conforms with the principles of governmental accounting and generally accepted accounting principles. Responsibility for both the accuracy of the data and the completeness and fairness of the presentation, including all disclosures, rests with TRS management. To the best of management's knowledge and belief, the enclosed data is accurate in all material aspects and reported in a manner designed to present fairly the financial position and results of operations of TRS for the years ended June 30, 2018 and 2017. Discussion and analysis of net assets and related additions and deductions are presented in Management's Discussion and Analysis in the Financial Section of this report.

Management is responsible for maintaining a system of internal controls to establish reasonable assurance that assets are safeguarded, transactions are executed accurately, and financial statements are presented fairly. Limits are inherent in all systems of internal control based on the recognition that the costs of such systems should be related to the benefits to be derived. Management believes TRS's controls provide this appropriate balance. The system of internal controls includes policies and procedures and an internal audit department that reports to the Board of Trustees.

PROFILE OF TRS

TRS began operations on July 1, 1940, as a cost-sharing, multiple-employer defined benefit plan. The primary purpose of the plan is to provide retirement annuity plan coverage for local school districts and other public educational agencies in the state. TRS is a blended component unit of the Commonwealth of Kentucky. The plan is described in the Notes to Financial Statements in the Financial Section of this report. Also, the Summary of Main System Provisions as Interpreted for Valuation Purposes in the Actuarial Section is useful in understanding benefit and contribution provisions. The number of TRS active and retired members is contained in the preceding board chair's letter. For most TRS retirees, the average annuity of $37,581 replaces Social Security. TRS usually provides a higher benefit at a normal cost that roughly is commensurate with the federal program.

An annual operating budget is prepared for the administration of the retirement system and approved by the 11-member Board of Trustees. Biennial budget requests also are submitted to the General Assembly for adoption. TRS's investment earnings pay for the agency's administrative expenses, which are among the lowest of its peers.

MAJOR INITIATIVES

The system continually seeks better to serve its membership as the highest levels of professionalism, integrity, performance and teamwork are required at all levels of the organization. TRS is an organization that does it right. As such, during the past year, TRS has continued work on several major initiatives concerning funding and cost containment for retiree health care, the investment program and information technology.

Implementation of the "Shared Responsibility" Solution for Funding Retiree Health Care and Careful Management of Medical Insurance Costs

Kentucky continues to be a national leader in prefunding retiree health care benefits as a result of the shared responsibility solution enacted in 2010 through the collective efforts of the Board of Trustees, the education community and elected officials. The plan immediately eliminated $3.1 billion in actuarial liability from the retired teacher health care plan. Combined with other cost control measures, more than $5 billion in actuarial accrued liability has been eliminated from the TRS Medical Insurance Fund. In only eight years, the medical insurance fund has reached 36.3 percent funding compared to pay-as-you-go status before the law took effect. With the six-year phase-in period having ended in 2016, the medical plan saw a one-year funding ratio increase in 2018 of 9.6 percentage points. This remarkable improvement confirms that the medical insurance fund is on schedule to be funded fully in 22 years. The shared responsibility solution is truly a significant accomplishment for the retirement security of current and future retired teachers.

TRS is efficient, effective and always working to improve the retirement security of Kentucky's teachers. The latest such initiative is the addition of a new personalized medicine pilot project under TRS's Medicare Eligible Health Plan. Personalized medicine uses DNA testing to help a patient's doctor make more effective treatment decisions for better health outcomes. This pilot, which began in fall 2017, is focused on making sure that a retiree's medications are safe and will be beneficial. Without this testing, medicines may be prescribed that won't work with a retiree's individual physiology (as shown through DNA testing) and that, in some cases, may be fatal. Coriell Life Sciences, which has been providing clinical research services for more than 65 years, is TRS's partner in the pilot. Besides the health benefit to retirees, the pilot is expected to provide significant cost savings to the plan by reducing adverse drug reactions and the trial-and-error period that some patients see. The effort won a national award in May from the State and Local Government Benefits Association (SALGBA).

The Board of Trustees regularly reviews the health care plan to contain costs and maintain a meaningful benefit for retired teachers. The move to Medicare Advantage, now in the 12th year, continues to be stable and financially feasible for TRS's members and the medical plan. The cost of coverage for 2019 is a reduction from the 2018 cost.

Some recent cost-saving initiatives include moving the TRS-sponsored Medicare Part D Employer Group Waiver drug plan from fully insured to a self-funded plan to achieve the greatest federal subsidies. Additionally, TRS is part of the Know Your Rx Coalition, which it joined in 2012.Through the coalition, TRS saves money leveraging greater prescription purchasing power, obtaining deeper drug discounts and increasing the rate at which prescriptions are filled with generic drugs from 73 percent to 88 percent. Additionally, coalition pharmacists work with retired teachers and their physicians to maximize prescription dollars both for the retiree and the medical plan, including supporting the personalized medicine pilot.

Implementation of Senate Bill 2

In June 2017, the board adopted an investment procurement policy, which built upon and centralized existing TRS investing procurement practices, to comply with the provisions of Senate Bill 2 (RS 2017). TRS was the first of the state's retirement systems to have its policy certified by the secretary of the Finance and Administration Cabinet. TRS operated the full fiscal year under that new policy. Additionally, TRS conducted several procurements through a request for proposals as required by KRS 45A, which SB 2 made applicable to TRS.

Investment Program

For the fiscal year ended June 30, 2018, the market value of TRS's investment program increased a net 10.51 percent in the retirement annuity fund pushing total plan assets to a record of $21.3 billion. While a one-year period is not determinative for a long-term investor such as TRS, it should be noted that the gross return of

10.81 percent was among the top 4 percent of public plans with more than $1 billion under management. During the last 10 years, TRS's investment returns rank in the top 2 percent of those plans. Moreover, during the last 30 years, TRS investment returns of 8.39 percent have bettered the long-term assumed rate of return of 7.5 percent. Net returns exceeded the assumed rate as well for the one-, three-, five- and 10-year periods.

A multiyear program of diversifying the portfolio continued in line with TRS's focus on fundamental value and risk control. These ongoing efforts are a continuation of a disciplined investment process and long-term focus on retirement security. This focus has generated exceptionally stable returns through the system's history, and management has every confidence that it will do so in the future. TRS's investment program continues to be recognized as a leader in the public pension community for governance structure, trustee education and cost effectiveness.

TRS regularly obtains independent reviews and always is seeking to improve its investment program and continue the tradition of adhering to best governance practices that lead to sound investment returns. As recently as a year ago, with the additional funding provided in the just-concluded 2016-18 biennial budget, TRS conducted an asset liability modeling study and reviewed actuarial assumptions. The studies confirmed TRS's approach and the importance of the consistent full funding of the ADEC.

Information Technology

The Pathway information technology system continues to be a success, allowing members to access account information online - available anytime from anywhere. The member self-service portal in Pathway, its mobile device application and the TRS website continued to be updated. A site index was added to the website. Staff worked with the Kentucky Department for Libraries and Archives to update TRS's records retention schedule consistent with Pathway's data and document storage capabilities.

Communications

To reach members more easily, TRS continued using Facebook and Twitter accounts to communicate information about the system on a timelier basis. In less than three years, the Facebook account has received almost 2,600 likes, and posts often reach more than 1,000 users - led by 33,239 users who saw a post on the system's investment performance for fiscal year 2017.

Also, TRS continued informational offerings for members, about 750 of whom attended seminars in addition to more than 660 people who participated in webinars. More than 360 members were seen at locations around the state for retirement counseling sessions. The 16 TRS counselors saw more than 8,055 visitors in the office and completed 26,917 retirement estimates.

Internal and External Reviews

TRS responds to legislative and administration inquiries and mandates throughout the year. In connection with pension legislation, TRS received - and responded to - numerous requests from legislators, the executive branch, constituent groups and others to provide accurate information about the experience of TRS. Among those were presentations on actuarial assumptions and responding to questions regarding compliance with Senate Bill 2 (2017 RS), both for the Public Pension Oversight Board. TRS also filed responses in a case that stemmed from one of those bills.

ECONOMIC CONDITION

The economic condition of the system is based primarily on investment earnings. The Investment Section of this report contains asset allocations, strategic target ranges for investments, discussion of the current year market environment and historical performance schedules, among others.

As of June 30, 2018, the retirement system's total funds reached $21.3 billion in market value. The retirement system's investment performance has been strong in recent years relative to its peers. As of June 30, 2018, TRS achieved one-year gross returns of 10.81 percent with top 4 percent investment performance. The fiscal year was characterized by robust U.S. equity markets that benefitted from strong economic and corporate fundamentals.

TRS has beaten the independent investment consultant's public fund index in the one-, three-, five- and 10-year periods, achieving top 4 percent performance over the one-year period and top 2 percent for the 10-year period. This record validates policy changes adopted by the board and implemented by the Investment Committee over the last several years. TRS's commitment to best practices, stringent risk controls and fundamental value philosophy in investing helps ensure long-term retirement security for Kentucky's teachers.

According to KRS 161.430, the TRS Board of Trustees is responsible for investing the assets of the system. The board delegates investment authority to the Investment Committee. The committee works closely with experienced investment counselors and the system's professional staff in evaluating and selecting investment allocations.

The investment objectives of the board are to ensure that funds shall be invested solely in the interest of its members and their beneficiaries and that investment income shall be used for the exclusive purpose of providing benefits to the members and their beneficiaries, while making payment of reasonable expenses in administering the plan and its trust funds. The investment program shall also provide a reasonable rate of total return with major emphasis being placed upon the protection of the invested assets.

TRS's investment portfolio experienced an increase in value during the 2017-2018 fiscal year as the market value went from $19,433,790,384 to $20,947,875,299. The increase in value of the portfolio was the result of favorable market conditions and additional funding provided by the governor and General Assembly for the pension fund. Interest income, dividends and employer and employee contributions also provided significant income to the portfolio.

Investment income totaled $2,031,190,545 for 2017-2018 compared to $2,572,143,912 for 2016-2017. The major contributing factor of the increase in total return from TRS's investment portfolio resulted from the net appreciation in fair value of investments of $1,641,761,365 at June 30, 2018, compared to net appreciation of $2,254,023,748 at June 30, 2017.

As mentioned earlier, it should be noted that TRS annuities bolster the Commonwealth of Kentucky's economy, as 89 percent of retired teachers reside within the state while 91 percent of the pension benefits paid remain in the commonwealth. TRS paid about $2.2 billion in total benefits (retirement, medical, etc.) during the fiscal year.

FUNDING

The continued benefits from the additional funding in the 2016-18 state budget contained in HB 303 (2016 RS) were seen as TRS received 97 percent of the ADEC in the biennium's final year after 99 percent in the first year.

Based on recommendations of the Board of Trustees, the General Assembly establishes, by statute, the contribution levels that are to be made by members and employers to fund the liabilities of the system. Each year, an independent actuary performs a valuation to determine whether the current levels of contribution will be sufficient to cover the cost of benefits earned by members.

From fiscal year 2009 through the end of the most recent biennium, the state had not paid the full recommended annual employer contribution necessary to prefund the benefit requirements of members of the retirement system as determined by the actuary. Over this period, because of not making the additional appropriation beyond salary-based contributions, the actuary says the state's annual additionally required employer contributions have grown significantly from $60.5 million (fiscal year 2009) to $551.1 million (fiscal year 2021). The following schedule details the growth of the additional annual employer contributions payable by the state:

Fiscal Year	Cumulative Increase as a % of Payroll	Cumulative Increase in Annual Retirement Appropriations Payable by the State
2009	1.88%	$ 60,499,800
2010	2.46	82,331,200
2011	3.59	121,457,000
2012	5.81	208,649,000
2013	7.27	260,980,000
2014	8.02	299,420,000
2015	10.42	386,400,000
2016	12.97	487,400,000
2017	13.80	520,372,000
2018	13.49	512,883,000
2019	14.61	553,597,000
2020	14.10	538,253,000
2021	14.27	551,092,000

(Source: TRS Report of the Actuary on the Annual Valuation Prepared as of June 30, 2018).

The board always has acted as required by state law and recommended annual employer contributions payable by the state that would ensure that the state meets the contractual obligations to members. Again, management is appreciative, and teachers can be as well, of the full funding provided in the 2018-2020 budget.

The latest actuarial valuation was for the period ending June 30, 2018. This report reflects the system's actuarial value of assets totaling $19.5 billion and actuarially determined liabilities totaling $33.8 billion. The funded ratio of actuarial assets to liabilities is 57.7 percent, which is an increase from the previous year and is due primarily to market appreciation of investments, smoothing of investment returns and additional legislative appropriations. The actuary reports: "In our opinion, the system has not been funded on an actuarially sound basis since, historically, the full actuarially determined contributions were not made by the employer. However, an additional appropriation of $474.7 million was made during fiscal year 2018, and it is our understanding that the state budget includes additional appropriations to the pension plan for fiscal years 2019 and 2020. If contributions by the employer to the System in subsequent fiscal years are less than those required, the assets are expected to become insufficient to pay promised benefits. However, assuming that contributions to the System are made by the employer and state from year to year in the future at rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the assets to provide the benefits called for under the System may be safely anticipated."

Annual required employer contributions for the defined benefit plan are provided in the Schedule of Employer Contributions in the Required Supplemental Information of the Financial Section of this report. Based on the 2018 valuation report, the actuary recommends a cumulative increase in employer contributions of 14.27 percent of pay for the 2020-2021 fiscal year as detailed in the Contribution Rates tables in the Summary of Principal Results in the Actuarial Section of this report.

TRS MEDICAL INSURANCE PLAN

The shared responsibility solution for funding retiree health care, which went into effect on July 1, 2010, provides a method of prefunding retiree health care over the next 22 years. In only eight years, the medical insurance fund has reached 36.3 percent funding compared to pay-as-you-go status before the law took effect (with the most recent year being a gain of 9.6 percentage points). The results confirm that the medical insurance fund is on schedule to be funded fully in 22 years and that the 2010 solution is working. The shared responsibility solution for funding retiree health care will help ensure the retirement security of the state's teachers. An actuarial valuation of the Medical Insurance Plan for the fiscal year ended June 30, 2018, indicated that the fund has an unfunded liability of $2.1 billion. Annual required employer contributions for the Medical Insurance Fund are provided in the Schedule of Employer Contributions in the Required Supplemental Information of the Financial Section.

The actuary's opinion is that "if the contributions to the Medical Insurance Fund (MIF) continue at the current statutorily required levels, the funded ratio of the retiree medical plan will continue to increase, and the ability of the MIF to fund the benefits called for under the retiree medical plan will improve."

Additionally, the board is pursuing steps to realize true cost containment at both the state and national levels, and teachers and taxpayers will continue to benefit from those efforts.

PROFESSIONAL SERVICES

Professional consultants are appointed by the Board of Trustees to perform services that are essential to the effective and efficient operation of TRS. Certifications from the board's external auditor and independent actuary are enclosed in this report. The system's consultants, which are appointed by the board, are listed in the Additional Supporting Schedules of the Financial Section and in the Investment Section's Professional Service Providers table and Health Insurance Trust Professional Service Providers table.

NATIONAL RECOGNITION

The System was honored by two national professional organizations in regard to the administration of the retirement program.

GFOA Certificate of Achievement

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Teachers' Retirement System of the State of Kentucky for its Comprehensive Annual Financial Report (CAFR) for the fiscal year ended June 30, 2017. The Certificate of Achievement is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports.

To be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized comprehensive annual financial report, whose contents conform to program standards. Such CAFRs must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for one year. TRS has received the Certificate of Achievement for the last 30 consecutive years (fiscal years ended 1988-2017). TRS believes the current report, which is being submitted to GFOA, continues to conform to the Certificate of Achievement program requirements.

PPCC Achievement Award

The Public Pension Coordinating Council (PPCC) awarded a Certificate of Achievement to the Teachers' Retirement System of the State of Kentucky for 2018 for implementing and maintaining high professional standards in administering the affairs of the system. The award is based on compliance with principles judged to underlie exemplary retirement system achievements in the areas of benefits, actuarial valuation, financial reporting, investments, funding and disclosure. Those principles widely are acknowledged to be marks of excellence in the public pension industry.

The PPCC is a coalition of three national associations that represent public retirement systems and administrators. Combined, these associations serve retirement systems that provide pension coverage for most of the nation's 16 million employees of state and local government. The associations that form the PPCC are the National Association of State Retirement Administrators, the National Council on Teacher Retirement and the National Conference on Public Employee Retirement Systems.

NCTR Executive Committee

I am past-president of the National Council on Teacher Retirement (NCTR). NCTR is a national, nonprofit organization with a mission to promote effective governance and benefits administration in state and local public pension systems in order that adequate and secure retirement benefits are provided to educators and other plan participants. NCTR membership includes 69 state, territorial, local and university pension systems with combined assets in excess of $2 trillion, serving more than 18 million active and retired teachers, non-teaching personnel and other public employees.

Public Sector HealthCare Roundtable

Additionally, I serve on the Board of Directors and as president of the Public Sector HealthCare Roundtable. The roundtable is a national coalition of public sector health care purchasers that was formed to ensure that the interests of the public sector are represented properly during the formulation, debate and implementation of federal health care policies. Membership in the Roundtable is open to any statewide, regional or local governmental unit that provides health care coverage for public employees and retirees.

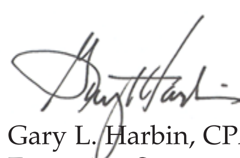
ACKNOWLEDGEMENTS

The preparation of this report reflects the combined efforts of the TRS staff, under the leadership of the Board of Trustees. The report is intended to provide complete and reliable information that serves as a basis for making management decisions and for determining compliance with legal provisions. It also is used to determine responsible stewardship of the assets contributed by TRS members and their employers.

This report is located at the TRS web address https://trs.ky.gov/financial-reports-information/#CAFR and is made available to all system employer members, whose cooperation continues to contribute significantly to TRS's success, and who form the vital link between TRS and its active members.

TRS management and staff are committed to the continued operation of an actuarially sound and efficient retirement system. Again, thanks to you and the General Assembly for the full pension funding in the budget that is ensuring retirement security for teachers. Your support is an essential part of this commitment, and we look forward to working with you.

Respectfully submitted,



Gary L. Harbin, CPA
Executive Secretary

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Lay Trustee
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Alison Wright
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Active Teacher Trustee
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Allison Ball
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Appointed
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Laura Schneider
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Tollesboro

Teachers' Retirement System
of the State of Kentucky
479 Versailles Road
Frankfort, Kentucky 40601-3800

ADMINISTRATIVE STAFF

GARY L. HARBIN, CPA
Executive Secretary

ROBERT B. BARNES, JD
General Counsel and
Deputy Executive Secretary
Operations

ERIC WAMPLER, JD
Deputy Executive Secretary
Finance & Administration

TOM SIDEREWICZ, CFA
Chief Investment Officer

PROFESSIONAL CONSULTANTS

ACTUARY

Cavanaugh Macdonald Consulting, LLC
3550 Busbee Parkway, Suite 250
Kennesaw, GA 30144

AUDITOR

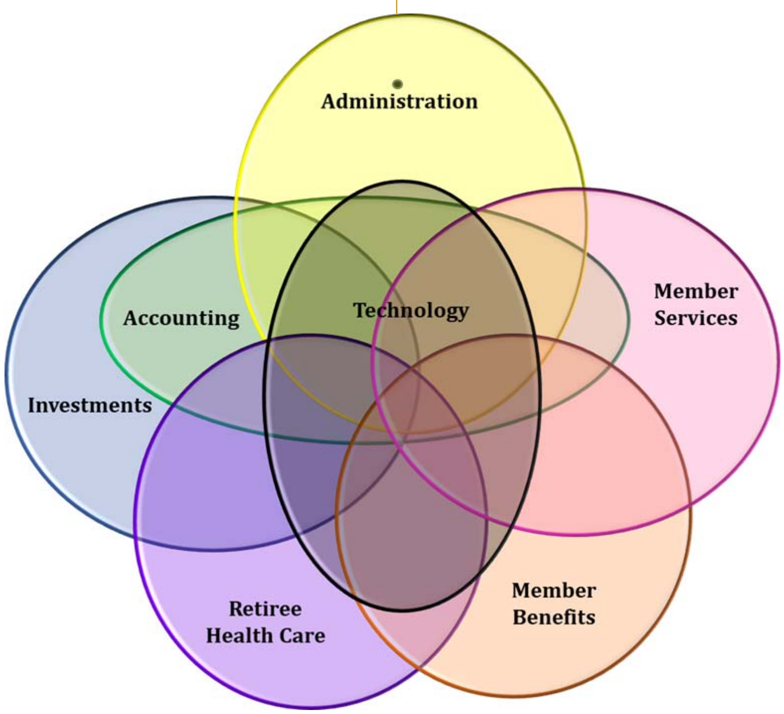
Blue & Co., LLC
250 West Main Street
Suite 2900
Lexington, KY 4057

See the Schedules of Contracted Investment Management Expenses, Transaction Commissions and Professional Service Providers on pages 105, 108, 109, 116 and 117 for a list of investment fees and external asset managers.

Teachers' Retirement System
Organizational Chart

BOARD OF TRUSTEES
Ron Sanders, Chair
Alison Wright, Vice Chair
John Boardman
Frank Collecchia
Hollis Gritton
Brenda McGown
Lynn Patterson, Ed.D.
Laura Schneider
Josh Underwood
Allison Ball
Wayne Lewis, Ph.D.

INTERNAL AUDITOR



ADMINISTRATION

EXECUTIVE SECRETARY
Gary L. Harbin, CPA

DEPUTY EXECUTIVE SECRETARY OF FINANCE
Eric Wampler, JD

DEPUTY EXECUTIVE SECRETARY OF OPERATIONS and **GENERAL COUNSEL**
Robert B. Barnes, JD

INTERNAL AUDITOR
Nate Van Sickel

INVESTMENTS
Tom Siderewicz, CFA

ACCOUNTING
Mark Whelan, CPA

RETIREE HEALTH CARE
Jane C. Gilbert, CPA

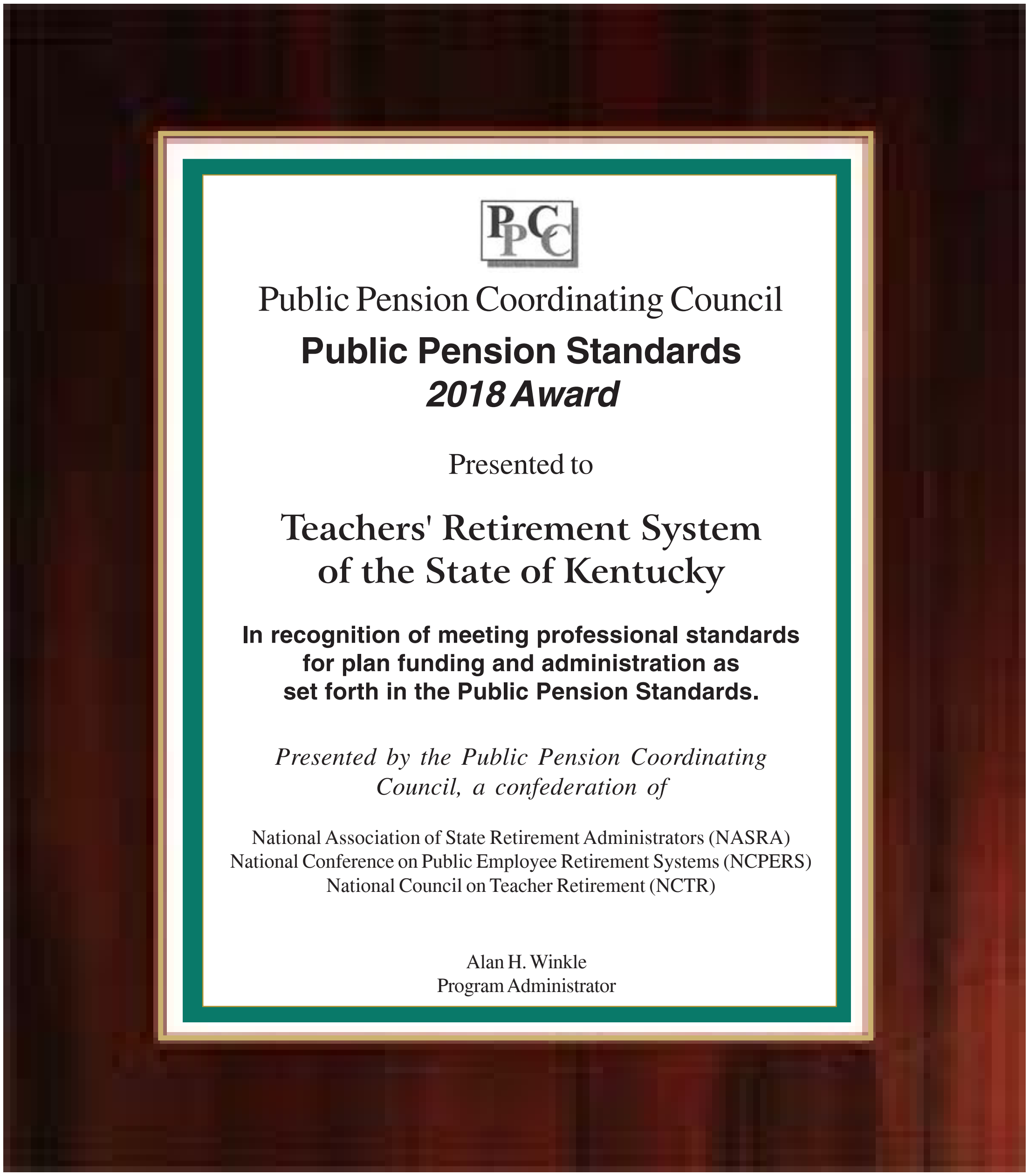
TECHNOLOGY
Jon Cordray

MEMBER SERVICES MEMBER BENEFITS
Becky Niece

GFOA CERTIFICATE OF ACHIEVEMENT

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Teachers' Retirement System of the State of Kentucky. The TRS has received the Certificate of Achievement for the last 30 consecutive years (fiscal years ended 1988-2017).

PPCC ACHIEVEMENT AWARD



The Public Pension Coordinating Council awarded a Certificate of Achievement to the Teachers' Retirement System of the State of Kentucky for 2018 for implementing and maintaining high professional standards in administering the affairs of the System. The award is based on compliance with principles judged to underlie exemplary retirement system achievements in the areas of benefits, actuarial valuation, financial reporting, investments and disclosure. Those principles widely are acknowledged to be marks of excellence for retirement systems. It represents the highest standards of excellence in the public pension industry.

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Teachers' Retirement System of the State of Kentucky

2018

Financial Section

CPAs / ADVISORS

blue

Blue & Co., LLC / 250 West Main Street, Suite 2900 / Lexington, KY 40507
main 859.253.1100 fax 859.253.1384 email blue@blueandco.com

Independent Auditor's Report

Board of Trustees
Teachers' Retirement System of the State of Kentucky
Frankfort, Kentucky

Report on the Financial Statements

We have audited the accompanying financial statements of the Teachers' Retirement System of the State of Kentucky (TRS), a component unit of the Commonwealth of Kentucky, as of and for the year ended June 30, 2018, and the related notes to the financial statements, which collectively comprise the component unit financial statements on pages 22 through 28.

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

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to TRS'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 TRS'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 opinions.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the Teachers' Retirement System of the State of Kentucky as of June 30, 2018, and the changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

The financial statements of the Teachers' Retirement System of the State of Kentucky for the year ended June 30, 2017, were audited by other auditors whose report dated November 14, 2017, expressed unmodified opinions on those statements.

Independent Auditor's Report (continued) Page 2

Report on Required Supplementary Information

Accounting principles generally accepted in the United States of America require that management's discussion and analysis on pages 4 through 8, and the defined benefit pension plan and other postemployment benefit plan supplemental schedules on pages 68 through 77, 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 audits 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 TRS's basic financial statements. The 2018 information on the additional supporting schedules (pages 78 through 80) is presented for purposes of additional analysis and is not a required part of the basic financial statements. The Schedule of Administrative Expenses, Schedule of Professional Services and Contracts, and Schedule of Contracted Investment Management Expenses are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audits 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 Schedule of Administrative Expenses, Schedule of Professional Services and Contracts, and Schedule of Contracted Investment Management Expenses are fairly stated, in all material respects, in relation to the basic financial statements as a whole. The 2017 information on the additional supporting schedules (pages 78 through 80) was subjected to the auditing procedures applied in the 2017 audit of the basic financial statement by other auditors, whose report on such information stated that it was fairly statement in all material respects in relation to the 2017 basic financial statements as a whole.

The introductory, investment, actuarial and statistical sections have not been subjected to 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.

Other Reporting Required by *Government Auditing Standards*

In accordance with Government Auditing Standards, we have also issued our report dated November 15, 2018 on our consideration of the TRS's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with Government Auditing Standards in considering the TRS's internal control over financial reporting and compliance.

Blue & Co., LLC

Blue & Co., LLC

Lexington, Kentucky

November 15, 2018

TEACHERS' RETIREMENT SYSTEM OF THE STATE OF KENTUCKY
MANAGEMENT'S DISCUSSION AND ANALYSIS

This discussion and analysis of the Teachers' Retirement System of the State of Kentucky (TRS, System, or Plan) financial performance provides an overview of the defined benefit and medical insurance plans' financial year ended June 30, 2018. Please read it in conjunction with the respective financial statements, which begin on page 22.

USING THIS FINANCIAL REPORT

Because of the long-term nature of the defined benefit retirement annuity plan, and the medical and life insurance plans, financial statements alone cannot provide sufficient information to properly reflect the ongoing perspective of the System. The Statement of Fiduciary Net Position and Statement of Changes in Fiduciary Net Position (on pages 22-25) provide information about the activities of the defined benefit retirement annuity plan, medical insurance plan, life insurance plan and the tax-sheltered annuity plan as a whole. The Teachers' Retirement System of the State of Kentucky is the fiduciary of funds held in trust for its members.

The Required Supplementary Information includes historical trend information about the funded status of the defined benefit retirement annuity plan, the medical insurance plan and life insurance plan presented as required by accounting standards. The Schedules of Employer Contributions present historical trend information about the required contributions of employers and the contributions made by employers in relation to the requirement. These schedules provide information that contributes to understanding the changes over time in the funded status of the plans. Separate reports prepared by the actuary using board adopted funding methodology provide a long-term, ongoing plan perspective and the progress made in accumulating sufficient assets to pay benefits and insurance premiums when due.

TEACHERS' RETIREMENT SYSTEM AS A WHOLE

In the fiscal year ended June 30, 2018, the System's combined fiduciary net position increased by $1,502.7 million - from $19,754.8 million in 2017 to $21,257.5 million in 2018. In 2016, the combined net position totaled $17,638.5 million. The following summaries focus on the fiduciary net position and changes in fiduciary net position of the System's defined benefit retirement annuity plan, medical insurance plan, and life insurance plan.

Summary of Fiduciary Net Position
(In millions of dollars)

Categories	Defined Benefit Plan 2018	Defined Benefit Plan 2017	Defined Benefit Plan 2016	Medical Insurance Plan 2018	Medical Insurance Plan 2017	Medical Insurance Plan 2016	Life Insurance Plan 2018	Life Insurance Plan 2017	Life Insurance Plan 2016
Cash & Investments	$ 19,885.8	$ 18,649.0	$ 16,707.7	$ 1,140.7	$ 922.6	$ 681.4	$ 83.7	$ 86.6	$ 90.1
Receivables	110.8	135.0	119.5	59.0	44.6	58.3	0.8	1.2	1.2
Capital Assets	16.3	18.1	17.0						
Total Assets	20,012.9	18,802.1	16,844.2	1,199.7	967.2	739.7	84.5	87.8	91.3
Total Liabilities	(31.3)	(94.4)	(31.4)	(9.4)	(8.8)	(5.9)			(0.4)
Net Position	$ 19,981.6	$ 18,707.7	$ 16,812.8	$ 1,190.3	$ 958.4	$ 733.8	$ 84.5	$ 87.8	$ 90.9

*TOTALS	2018	2017	2016**
Cash & Investments	$ 21,110.2	$ 19,658.2	$ 17,479.2
Receivables	170.6	180.8	179.0
Capital Assets	16.3	18.1	17.0
Total Assets	21,297.1	19,857.1	17,675.2
Total Liabilities	(40.7)	(103.2)	(37.7)
Net Position	$ 21,256.4	$ 19,753.9	$ 17,637.5

* *Other Funds consisting of the 403(b) Tax Shelter Plan, the Excess Benefit Fund and the Losey Scholarship fund had a combined fiduciary net position of $1.1 million for the year ended 2018 and $1.0 million for years ended 2017 and 2016.*

** *Reflects revised amounts reported for 2016 as described in Note 2 in the 2017 report.*

Management's Discussion and Analysis (continued) ...

The fiduciary net position of the defined benefit retirement annuity plan increased by 6.8 percent ($19,981.6 million compared to $18,707.7 million) and in 2016, the fiduciary net position of the defined benefit plan totaled $16,812.8 million. The increases are primarily due to additional employer contributions from the state and improvements in market conditions. Net investment income increased net position by approximately $2 billion in 2018 and the 2017 net investment income was $2.7 billion more than 2016. The defined benefit retirement annuity plan assets are restricted to providing monthly retirement allowances to members and their beneficiaries.

The fiduciary net position of the medical insurance plan increased by 24.2 percent ($1,190.3 million compared to $958.4 million) primarily due to increased contributions from members and employers due to legislation passed in 2010. This compares to 2016 where fiduciary net position of the medical insurance fund totaled $733.8 million. Plan assets are restricted to providing hospital and medical insurance benefits to members and their spouses.

Summary of Changes in Fiduciary Net Position

(In millions of dollars)

Categories	Defined Benefit Plan			Medical Insurance Plan			Life Insurance Plan		
	2018	2017	2016	2018	2017	2016	2018	2017	2016
ADDITIONS									
Member Contributions	$ 319.1	$ 313.6	$ 313.0	$ 130.8	$ 128.8	$ 128.1	$	$	$
Employer Contributions	1,048.7	1,060.7	565.5	187.1	180.3	178.6	1.1	1.0	1.0
Net Investment Income/(Loss)	1,953.2	2,475.8	(245.2)	76.8	95.5	(9.3)	1.1	1.0	4.8
TOTAL ADDITIONS	3,321.0	3,850.1	633.3	394.7	404.6	297.4	2.2	2.0	5.8
DEDUCTIONS									
Benefit Payments	2,004.6	1,918.6	1,833.2				5.5	5.2	4.6
Refunds	31.1	26.3	27.8						
Administrative Expense	11.4	10.3	8.6	1.7	1.5	1.7			
Insurance Expenses				161.1	178.5	188.9			
TOTAL DEDUCTIONS	2,047.1	1,955.2	1,869.6	162.8	180.0	190.6	5.5	5.2	4.6
Increase/(Decrease) in Net Position	$ 1,273.9	$ 1,894.9	$ (1,236.3)	231.9	$ 224.6	$ 106.8	$ (3.3)	$ (3.2)	$ 1.2

*TOTALS

	2018	2017	2016**
ADDITIONS			
Member Contributions	$ 449.9	$ 442.4	$ 441.1
Employer Contributions	1,236.9	1,242.0	745.1
Net Investment Income/(Loss)	2,031.1	2,572.3	(249.7)
Other Income			
TOTAL ADDITIONS	3,717.9	4,256.7	936.5
DEDUCTIONS			
Benefit Payments	2,010.1	1,923.8	1,837.8
Refunds	31.1	26.3	27.8
Administrative Expense	13.1	11.8	10.3
Insurance Expenses	161.1	178.5	188.9
TOTAL DEDUCTIONS	2,215.4	2,140.4	2,064.8
Increase/(Decrease) in Net Position	$ 1,502.5	$ 2,116.3	$ (1,128.3)

* *Other Funds consisting of the 403(b) Tax Shelter Plan, the Excess Benefit Fund and the Losey Scholarship fund had a combined change in fiduciary net position of $0.1 million for the year ended 2018 and $0 for years ended 2017 and 2016.*

** *Reflects revised amounts reported for 2016 as described in Note 2 in the 2017 report.*

DEFINED BENEFIT RETIREMENT ANNUITY PLAN ACTIVITIES

Retirement contributions are calculated by applying a percentage factor to salary and are paid monthly by each member. Members may also pay contributions to repurchase previously refunded service credit or to purchase various types of elective service credit.

Management's Discussion and Analysis (continued) . . .

In 2018, Employer contributions totaled $1,048.7 million, a net decrease of $12 million from the prior fiscal year. The decrease was due to employer contributions recommended by the actuary and paid by the state being less than the prior year. In 2017, Employer contributions recommended by the actuary and paid by the state increased $495.2 million compared 2016.

In 2018, the defined benefit plan experienced net investment income of $1,953.2 million compared to the previous year of $2,475.8 million. For 2016, net investment income totaled negative $245.2 million. The increases in net investment income are due to favorable market conditions for the years ended June 30, 2018 and 2017 compared to 2016. Total deductions in 2018 increased $91.9 million compared to 2017 and also increased $85.6 million in 2017 compared to 2016. The increases can be attributed to increases in the number of benefit recipients. There was an increase of 1,411 members and beneficiaries on the retired payroll as of June 30, 2018. Also, there was an increase of 1,403 members and beneficiaries on the retired payroll as of June 30, 2017.

OTHER POSTEMPLOYMENT BENEFIT ACTIVITIES

During the 2018 fiscal year, the medical insurance plan member contributions increased $2 million from 2017 and $0.7 million from 2016. Also during the 2018 fiscal year, employer contributions increased $6.8 million from 2017 and $1.7 million from 2016. The member, employer and state contributions increased primarily due to the implementation of the Shared Responsibility Plan beginning July 1, 2010 which includes increased contributions from active and retired members, employers and the state.

In 2018, the medical insurance plan experienced net investment income of $76.8 million compared to the previous year of $95.5 million. For 2016, net investment income totaled negative $9.3 million. The increases in net investment income are due to favorable market conditions for the years ended June 30, 2018 and 2017 compared to 2016.

The life insurance plan has an actuarial valuation conducted independently from the defined benefit plan. Total life insurance benefits paid for 2018, 2017 and 2016 were $5.5, $5.2 and $4.6 million respectively.

FUNDING

For the 2016-2018 biennium, the State budgeted $973 million of additional employer contributions for the unfunded liability of the System. The latest actuarial valuation was for the period ending June 30, 2018. This report reflects the System's actuarial value of assets totaling $19.5 billion and $18.5 billion at the end of fiscal year 2018 and 2017. The actuarial determined liabilities totalled $33.8 billion and $32.8 billion at June 30, 2018 and 2017. The funded ratio of actuarial assets to liabilities is 57.7% and 56.4% at fiscal year end 2018 and 2017. The additional funding provided in the budget resulted in 97% of the Actuarially Determined Employer Contribution being made for fiscal year 2018 and 99% for fiscal year 2017. Assuming that contributions to the System are made by the State from year to year in the future as recommended by the actuary, the System should have sufficient assets to provide the benefits defined by law.

The funding of the medical insurance and life insurance plans is presented in the Required Supplementary Information in accordance with Governmental Accounting Standards Board (GASB) Statement No. 74. Although the medical insurance plan continues to have a large net Other Post Employment Benefits (OPEB) liability, the current obligations are being met by current funding. Effective July 1, 2010, the Shared Responsibility Plan for funding retiree health benefits requires members, retirees, participating employers and the state to make contributions for pre-funding retiree medical benefits. The Actuarially Determined Employer Contribution of the medical and life insurance plans are provided in the Schedule of Employer Contributions presented in the Required Supplementary Information.

HISTORICAL TRENDS

Accounting standards require that the Statement of Fiduciary Net Position present asset values at fair value and include only benefits and refunds due to plan members and beneficiaries and accrued investment and administrative expenses as of the reporting date. Detailed information regarding the funded status, including the key actuarial assumptions, target allocations and the sensitivity of the discount rate can be found in Note 4 of the financial statements for the defined benefit plan, Note 8 for the medical health plan, and Note 9 for the life insurance plan. The Schedule of Employer Contributions is provided in the Required Supplementary Information.

Management's Discussion and Analysis (continued) . . .

The System's independent consulting actuaries are members of the American Academy of Actuaries and experienced in performing valuations for public retirement systems. As mandated by state law, the valuations of the retirement annuity and health care plans are prepared in accordance with principles of practice prescribed by the Actuarial Standards Board consistent with accepted actuarial procedures. Actuarial assumptions used in the valuations are internally consistent and reasonable based on the actual experience of the plans. An actuarial audit was completed in 2015, which confirmed the accuracy of actuarial procedures and the reasonableness of assumptions. A five-year experience study was completed in 2016, which also confirmed the reasonableness of assumptions based upon the actual experience of the plans. The actuarial assumptions reflected in the results may be reasonably relied upon. However, projections using other assumptions may produce significantly different results.

This financial report is designed to provide citizens, participating employers, plan members, and other users with an overview of the Kentucky Teachers' Retirement System's fiscal practices and responsibility. If you have questions or need additional information, please contact Mark Whelan, Chief Financial Officer, Teachers' Retirement System at 479 Versailles Road, Frankfort, Kentucky 40601.

STATEMENT OF FIDUCIARY NET POSITION
As of June 30, 2018

	Defined Benefit Plan	Medical Insurance Plan	Life Insurance Plan	Other Funds	TOTAL
ASSETS					
Cash	$ 104,214,766	$ 58,452,151	$ 432,786	$ 186,882	$ 163,286,585
Prepaid Expenses	105,795	19,600			125,395
Receivables					
Contributions	30,237,329	18,012,814	13,374		48,263,517
Due From Other Trust Funds	1,779,623				1,779,623
State of Kentucky	16,199,596	10,277,791	35,965		26,513,352
Investment Income	44,151,888	2,061,568	732,657	3,043	46,949,156
Investment Sales Receivable	18,104,128	424,710			18,528,838
Other Receivables	361,346	28,260,451			28,621,797
Total Receivables	110,833,910	59,037,334	781,996	3,043	170,656,283
Investments at Fair Value (See Note 5)					
Short-Term Investments	403,309,780	56,993,634	3,724,036	373,549	464,400,999
Fixed Income	2,983,975,575	89,681,931	47,825,436	247,914	3,121,730,856
Equities	12,544,141,125	605,705,867	29,895,479	312,013	13,180,054,484
Alternative Investments	1,282,830,325	81,232,638			1,364,062,963
Real Estate	1,150,694,282	62,962,565	541,107		1,214,197,954
Additional Categories	1,416,514,873	185,613,170	1,300,000		1,603,428,043
Total Investments	19,781,465,960	1,082,189,805	83,286,058	933,476	20,947,875,299
Capital Assets	26,513,139				26,513,139
Accumulated Depreciation	(10,188,492)				(10,188,492)
Net Capital Assets	16,324,647				16,324,647
Total Assets	20,012,945,078	1,199,698,890	84,500,840	1,123,401	21,298,268,209
LIABILITIES					
Accrued Expenses and Other Liabilities	2,280,864	5,177,013	7,605		7,465,482
Due To Other Trust Funds		1,747,561	30,979	1,083	1,779,623
Investment Purchases Payable	29,031,118	2,493,508			31,524,626
Total Liabilities	31,311,982	9,418,082	38,584	1,083	40,769,731
Net Position - Restricted for Pension and Other Postemployment Benefits	$ 19,981,633,096	$ 1,190,280,808	$ 84,462,256	$ 1,122,318	$ 21,257,498,478

The Combining Statement of Fiduciary Net Position - Other Funds is presented on page 26.
The accompanying notes are an integral part of these financial statements.

STATEMENT OF FIDUCIARY NET POSITION
As of June 30, 2017

	Defined Benefit Plan	Medical Insurance Plan	Life Insurance Plan	Other Funds	TOTAL
ASSETS					
Cash	$ 137,274,752	$ 87,841,753	$ 187,657	$ 23,852	$ 225,328,014
Prepaid Expenses	100,838				100,838
Receivables					
Contributions	28,779,827	18,456,779	105,264		47,341,870
Due From Other Trust Funds	1,567,472				1,567,472
State of Kentucky	13,640,427	5,580,025	32,617		19,253,069
Investment Income	40,623,372	1,685,597	1,036,228	2,693	43,347,890
Investment Sales Receivable	49,973,750	915,100			50,888,850
Other Receivables	438,303	17,996,752			18,435,055
Total Receivables	135,023,151	44,634,253	1,174,109	2,693	180,834,206
Investments at Fair Value (See Note 5)					
Short-Term Investments	521,348,977	46,008,715	4,150,029	398,093	571,905,814
Fixed Income	2,871,403,201	70,283,077	82,293,300	258,962	3,024,238,540
Equities	11,589,656,638	473,274,401		280,104	12,063,211,143
Alternative Investments	1,062,855,562	42,340,364			1,105,195,926
Real Estate	1,046,760,134	42,701,494			1,089,461,628
Additional Categories	1,419,607,158	160,170,175			1,579,777,333
Total Investments	18,511,631,670	834,778,226	86,443,329	937,159	19,433,790,384
Capital Assets	26,065,842				26,065,842
Accumulated Depreciation	(8,019,203)				(8,019,203)
Net Capital Assets	18,046,639				18,046,639
Total Assets	18,802,077,050	967,254,232	87,805,095	963,704	19,858,100,081
LIABILITIES					
Accrued Expenses and Other Liabilities	2,201,644	3,485,911			5,687,555
Due To Other Trust Funds		1,538,574	27,690	1,208	1,567,472
Investment Purchases Payable	92,176,381	3,840,074			96,016,455
Total Liabilities	94,378,025	8,864,559	27,690	1,208	103,271,482
Net Position - Restricted for Pension and Other Postemployment Benefits	$ 18,707,699,025	$ 958,389,673	$ 87,777,405	$ 962,496	$ 19,754,828,599

The Combining Statement of Fiduciary Net Position - Other Funds is presented on page 26.
The accompanying notes are an integral part of these financial statements.

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
For the Fiscal Year Ended June 30, 2018

	Defined Benefit Plan	Medical Insurance Plan	Life Insurance Plan	Other Funds	TOTAL
ADDITIONS					
Contributions					
State of Kentucky	$ 969,698,496	$ 80,959,003	$ 896,974	$	$ 1,051,554,473
Other Employers	78,972,705	106,143,410	161,355	325,950	185,603,420
Members	319,127,087	130,777,471			449,904,558
Total Contributions	1,367,798,288	317,879,884	1,058,329	325,950	1,687,062,451
Investment Income/(Loss)					
Net Appreciation/(Depreciation) in Fair Value of Investments	1,574,056,951	68,954,490	(1,270,937)	20,861	1,641,761,365
Interest	138,027,758	6,195,753	2,446,305	14,895	146,684,711
Dividends	262,669,598	5,633,011	40,895	5,898	268,349,402
Rental Income, Net	29,957,783				29,957,783
Securities Lending, Gross Earnings	16,275,779		42,020	1,246	16,319,045
Gross Investment Income/(Loss)	2,020,987,869	80,783,254	1,258,283	42,900	2,103,072,306
Less: Investment Expense	(55,500,376)	(3,942,742)	(113,453)	(16,346)	(59,572,917)
Less: Securities Lending Expense	(12,273,462)		(34,409)	(973)	(12,308,844)
Net Investment Income/(Loss)	1,953,214,031	76,840,512	1,110,421	25,581	2,031,190,545
Total Additions	3,321,012,319	394,720,396	2,168,750	351,531	3,718,252,996
DEDUCTIONS					
Benefits	2,004,617,334		5,452,920	190,626	2,010,260,880
Refunds of Contributions	31,072,421				31,072,421
Insurance Expenses		161,081,700			161,081,700
Administrative Expense	11,388,493	1,747,561	30,979	1,083	13,168,116
Total Deductions	2,047,078,248	162,829,261	5,483,899	191,709	2,215,583,117
Net Increase/(Decrease)	1,273,934,071	231,891,135	(3,315,149)	159,822	1,502,669,879
Net Position - Restricted for Pension and Other Postemployment Benefits					
Beginning of Year	18,707,699,025	958,389,673	87,777,405	962,496	19,754,828,599
End of Year	$ 19,981,633,096	$1,190,280,808	$ 84,462,256	$ 1,122,318	$ 21,257,498,478

The Combining Statement of Changes in Fiduciary Net Position - Other Funds is presented on page 27.
The accompanying notes are an integral part of these financial statements.

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
For the Fiscal Year Ended June 30, 2017

	Defined Benefit Plan	Medical Insurance Plan	Life Insurance Plan	Other Funds	TOTAL
ADDITIONS					
Contributions					
State of Kentucky	$ 981,417,089	$ 75,496,731	$ 881,703	$	$ 1,057,795,523
Other Employers	79,302,904	104,879,255	167,980	220,001	184,570,140
Members	313,625,434	128,819,243			442,444,677
Total Contributions	1,374,345,427	309,195,229	1,049,683	220,001	1,684,810,340
Investment Income/(Loss)					
Net Appreciation/(Depreciation) in Fair Value of Investments	2,167,046,581	89,058,380	(2,087,797)	6,584	2,254,023,748
Interest	153,207,310	5,777,776	3,011,187	10,920	162,007,193
Dividends	180,297,227	3,787,309		5,468	184,090,004
Rental Income, Net	30,477,797				30,477,797
Securities Lending, Gross Earnings	5,794,696		3,965	491	5,799,152
Gross Investment Income/(Loss)	2,536,823,611	98,623,465	927,355	23,463	2,636,397,894
Less: Investment Expense	(57,836,050)	(3,170,868)	(10,478)	(114)	(61,017,510)
Less: Securities Lending Expense	(3,234,763)		(1,380)	(329)	(3,236,472)
Net Investment Income/(Loss)	2,475,752,798	95,452,597	915,497	23,020	2,572,143,912
Total Additions	3,850,098,225	404,647,826	1,965,180	243,021	4,256,954,252
DEDUCTIONS					
Benefits	1,918,612,128		5,151,013	224,628	1,923,987,769
Refunds of Contributions	26,305,240				26,305,240
Insurance Expenses		178,500,546			178,500,546
Administrative Expense	10,313,715	1,538,574	27,690	1,208	11,881,187
Total Deductions	1,955,231,083	180,039,120	5,178,703	225,836	2,140,674,742
Net Increase/(Decrease)	1,894,867,142	224,608,706	(3,213,523)	17,185	2,116,279,510
Net Position - Restricted for Pension and Other Postemployment Benefits					
Beginning of Year	16,812,831,883	733,780,967	90,990,928	945,311	17,638,549,089
End of Year	$ 18,707,699,025	$ 958,389,673	$ 87,777,405	$ 962,496	$ 19,754,828,599

The Combining Statement of Changes in Fiduciary Net Position - Other Funds is presented on page 28.
The accompanying notes are an integral part of these financial statements.

Combining Statement of Fiduciary Net Position - Other Funds
As of June 30, 2018

	403(b) Tax Shelter	Supplemental Benefit Fund	Losey Scholarship	TOTAL
Assets				
Cash	$	$ 186,882	$	$ 186,882
Receivables				
Investment Income	481		2,562	3,043
Investments at Fair Value				
Short Term Investments	324,303		49,246	373,549
Fixed Income			247,914	247,914
Equities			312,013	312,013
Total Investments	324,303		609,173	933,476
Total Assets	324,784	186,882	611,735	1,123,401
Liabilities				
Due to Other Trust Funds	54	927	102	1,083
Total Liabilities	54	927	102	1,083
Net Position - Restricted for Pension and Other Postemployment Benefits	$ 324,730	$ 185,955	$ 611,633	$ 1,122,318

Combining Statement of Fiduciary Net Position - Other Funds
As of June 30, 2017

	403(b) Tax Shelter	Supplemental Benefit Fund	Losey Scholarship	TOTAL
Assets				
Cash	$	$ 23,852	$	$ 23,852
Receivables				
Investment Income	233		2,460	2,693
Investments at Fair Value				
Short Term Investments	343,750		54,343	398,093
Fixed Income			258,962	258,962
Equities			280,104	280,104
Total Investments	343,750		593,409	937,159
Total Assets	343,983	23,852	595,869	963,704
Liabilities				
Due to Other Trust Funds	56	1,055	97	1,208
Total Liabilities	56	1,055	97	1,208
Net Position - Restricted for Pension and Other Postemployment Benefits	$ 343,927	$ 22,797	$ 595,772	$ 962,496

The accompanying notes are an integral part of these financial statements.

Combining Statement of Changes in Fiduciary Net Position - Other Funds
For the Fiscal Year Ended June 30, 2018

	403(b) Tax Shelter	Supplemental Benefit Fund	Losey Scholarship	TOTAL
Additions				
Other Employers	$	$ 325,950	$	$ 325,950
Investment Income				
Net Appreciation in				
Fair Value of Investments			20,861	20,861
Interest	4,101	1,109	9,685	14,895
Dividends			5,898	5,898
Securities Lending, Gross			1,246	1,246
Gross Investment Income	4,101	1,109	37,690	42,900
Less Investment Expense	(13,592)		(2,754)	(16,346)
Less Securities Lending Expense			(973)	(973)
Net Investment Income	(9,491)	1,109	33,963	25,581
Total Additions	(9,491)	327,059	33,963	351,531
Deductions				
Benefits	9,651	162,975	18,000	190,626
Administrative Expense	55	926	102	1,083
Total Deductions	9,706	163,901	18,102	191,709
Net Increase/(Decrease)	(19,197)	163,158	15,861	159,822
Net Position - Restricted for Pension and Other Postemployment Benefits				
Beginning of Year	343,927	22,797	595,772	962,496
End of Year	$ 324,730	$ 185,955	$ 611,633	$ 1,122,318

The accompanying notes are an integral part of these financial statements.

Combining Statement of Changes in Fiduciary Net Position - Other Funds
For the Fiscal Year Ended June 30, 2017

	403(b) Tax Shelter	Supplemental Benefit Fund	Losey Scholarship	TOTAL
Additions				
Other Employers	$	$ 220,001	$	$ 220,001
Investment Income				
Net Appreciation in Fair Value of Investments			6,584	6,584
Interest	1,638		9,282	10,920
Dividends			5,468	5,468
Securities Lending, Gross			491	491
Gross Investment Income	1,638		21,825	23,463
Less Investment Expense	(42)		(72)	(114)
Less Securities Lending Expense			(329)	(329)
Net Investment Income	1,596		21,424	23,020
Total Additions	1,596	220,001	21,424	243,021
Deductions				
Benefits	10,387	196,241	18,000	224,628
Administrative Expense	56	1,055	97	1,208
Total Deductions	10,443	197,296	18,097	225,836
Net Increase/(Decrease)	(8,847)	22,705	3,327	17,185
Net Position - Restricted for Pension and Other Postemployment Benefits				
Beginning of Year	352,774	92	592,445	945,311
End of Year	$ 343,927	$ 22,797	$ 595,772	$ 962,496

The accompanying notes are an integral part of these financial statements.

NOTES TO FINANCIAL STATEMENTS

Note 1: Description of Retirement Annuity Plan

A. REPORTING ENTITY

The Teachers' Retirement System of the State of Kentucky (TRS or the System) was created by the 1938 General Assembly and is governed by Chapter 161 Section 220 through Chapter 161 Section 990 of the Kentucky Revised Statutes (KRS). TRS is a blended component unit of the Commonwealth of Kentucky (the Commonwealth or the State) and therefore is included in the Commonwealth's financial statements. TRS is a cost-sharing multiple-employer defined benefit plan with a special funding situation established to provide retirement annuity plan coverage for local school districts and other public educational agencies in the Commonwealth.

KRS 161.250 provides that the general administration and management of TRS, and the responsibility for its proper operation, is vested in a board of trustees. The Board of Trustees consists of the chief state school officer, the state treasurer, two trustees appointed by the governor and seven elected trustees. Four of the elected trustees are active teachers, two are not members of the teaching profession, and one is an annuitant of the System.

B. PARTICIPANTS

As of June 30, 2018, a total of 207 employers participated in the plan. Employers are comprised of local school districts, Department of Education Agencies, universities, the Kentucky Community and Technical College System, and other educational organizations. The State under the Governmental Accounting Standards Board (GASB) No. 67 and No. 74 is recognized as a non-employer contributing entity providing the employer matching contributions for members employed by the local school districts and regional educational cooperatives.

According to KRS 161.220 " . . . any regular or special teacher, or professional occupying a position requiring certification or graduation from a four (4) year college or university . . . " is eligible to participate in the System. The following illustrates the classifications of members:

	2018	2017
Active contributing members:		
Vested	47,375	48,211
Non-vested	24,830	23,919
Inactive members, vested	8,814	8,624
Retirees and beneficiaries currently receiving benefits	54,377	52,966
Total members, retirees, and beneficiaries	**135,396**	**133,720**

C. BENEFIT PROVISIONS

For Members Before July 1, 2008:

Members become vested when they complete five (5) years of credited service. To qualify for monthly retirement benefits, payable for life, members must either:

1.) Attain age fifty-five (55) and complete five (5) years of Kentucky service, or

2.) Complete twenty-seven (27) years of Kentucky service.

Non-university members receive monthly payments equal to two percent (2%) (service prior to July 1, 1983) and two and one-half percent (2.5%) (service after July 1, 1983) of their final average salaries for each year of credited service. Non-university members who became members on or after July 1, 2002 will receive monthly benefits equal to two percent (2%) of their final average salary for each year of service if, upon retirement, their total service is less than ten (10) years. New members after July 1, 2002 who retire with ten (10) or more years of total service will receive monthly benefits equal to two and one-half percent (2.5%) of their final average salary for each year of service, including the first ten (10) years. In addition, non-university members who retire July 1, 2004 and later with more than thirty (30) years of service will have their multiplier increased for all years over thirty (30) from two and one-half

Note 1: Description of Retirement Annuity Plan continued . . .

percent (2.5%) to three percent (3%) to be used in their benefit calculation.

University employees receive monthly benefits equal to two percent (2%) of their final average salary for each year of credited service.

The final average salary is the member's five (5) highest annual salaries except members at least age fifty-five (55) with twenty-seven (27) or more years of service may use their three (3) highest annual salaries. For all members, the annual allowance is reduced by 5% per year from the earlier of age 60 or the date the member would have completed 27 years of service. The minimum annual service allowance for all members is $440 multiplied by credited service.

For Members On or After July 1, 2008:

Members become vested when they complete five (5) years of credited service. To qualify for monthly retirement benefits, payable for life, members must either:

1.) Attain age sixty (60) and complete five (5) years of Kentucky service, or

2.) Complete twenty-seven (27) years of Kentucky service, or

3.) Attain age fifty-five (55) and complete ten (10) years of Kentucky service.

The annual retirement allowance for non-university members is equal to: (a) one and seven tenths percent (1.7%) of final average salary for each year of credited service if their service is 10 years or less; (b) two percent (2.0%) of final average salary for each year of credited service if their service is greater than 10 years but no more than 20 years; (c) two and three tenths percent (2.3%) of final average salary for each year of credited service if their service is greater than 20 years but no more than 26 years; (d) two and one half percent (2.5%) of final average salary for each year of credited service if their service is greater than 26 years but no more than 30 years; (e) three percent (3.0%) of final average salary for years of credited service greater than 30 years.

The annual retirement allowance for university members is equal to: (a) one and one-half percent (1.5%) of final average salary for each year of credited service if their service is 10 years or less; (b) one and seven tenths percent (1.7%) of final average salary for each year of credited service if their service is greater than 10 years but no more than 20 years; (c) one and eighty five hundredths percent (1.85%) of final average salary for each year of credited service if their service is greater than 20 years but less than 27years; (d) two percent (2.0%) of final average salary for each year of credited service if their service is greater than or equal to 27 years.

The final average salary is the member's five (5) highest annual salaries except members at least age fifty-five (55) with twenty-seven (27) or more years of service may use their three (3) highest annual salaries. For all members, the annual allowance is reduced by 6% per year from the earlier of age 60 or the date the member would have completed 27 years of service.

Other Benefits:

TRS provides postemployment medical benefits to retirees as fully described in Note 8. The Retirement System also provides disability benefits for vested members at the rate of sixty percent (60%) of the final average salary. A life insurance benefit, payable upon the death of a member, is $2,000 for active contributing members and $5,000 for retired or disabled members.

Cost of living increases are one and one-half percent (1.5%) annually. Additional ad hoc increases and any other benefit amendments must be authorized by the General Assembly.

Note 2: Summary of Significant Accounting Policies

A. BASIS OF ACCOUNTING

The financial statements are prepared on the accrual basis of accounting. Member contributions and employer matching contributions are recognized in the fiscal year due. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

B. CASH

TRS has seven cash accounts. At June 30, 2018, the retirement annuity cash account totaled $54,859,888, the control cash account totaled $49,354,878 for a total of $104,214,766 as carrying value of cash in the defined benefit plan. The medical insurance trust cash account totaled $41,705,664, the medical insurance 401(h) cash account totaled $16,632,595 and the medical insurance claims cash account totaled $113,892 for a total of $58,452,151 as carrying value of cash in the medical insurance plan. The life insurance plan cash account totaled $432,786. The supplemental benefit fund cash account contained $186,882. Therefore, the carrying value of cash was $163,286,585 and the bank balance was $161,372,064. The variance is primarily due to outstanding checks and items not processed by the bank as of June 30, 2018.

At June 30, 2017, the retirement annuity cash account totaled $105,013,741, the control cash account totaled $32,163,714 and the administrative expense fund cash account was $97,297 for a total of $137,274,752 as carrying value of cash in the defined benefit plan. The medical insurance trust cash account totaled $80,806,325, the medical insurance 401(h) cash account totaled $6,921,861 and the medical insurance claims cash account totaled $113,567 for a total of $87,841,753 as carrying value of cash in the medical insurance plan. The life insurance plan cash account totaled $187,657. The supplemental benefit fund cash account contained $23,852. Therefore, the carrying value of cash was $225,328,014 and the bank balance was $222,173,747. The variance is primarily due to outstanding checks and items not processed by the bank as of June 30, 2017.

C. CAPITAL ASSETS

Property and equipment are carried at cost, less accumulated depreciation. All costs of property and equipment $5,000 (actual dollars) or greater are capitalized. Expenditures for maintenance and repairs are charged to operations as incurred. Depreciation is calculated using the straight-line method, with estimated lives ranging from five to forty years in the following major classes: office furniture and equipment, five years; other equipment, five years; computer software, ten years; TRS office buildings, forty years. The Pathway System replaced TRS's legacy computer system and is TRS's primary line of business information technology system. The Pathway System was capitalized and is being amortized or depreciated over ten years.

D. INVESTMENTS

Plan investments are reported at fair value. Fair value is the amount that a plan can reasonably expect to receive for an investment in a current sale between a willing buyer and a willing seller. Short-term securities are carried at cost, which approximates fair value. Fixed income and common and preferred stocks are generally valued based on published market prices and quotations from national security exchanges and securities pricing services. Real estate is primarily valued based on appraisals performed by independent appraisers. Other investments such as private equity, timberland, real estate funds and other additional categories, such as opportunistic credit, high yield bonds, and direct lending are valued using the most recent general partner statement at net asset value.

Purchase and sales of debt securities, equity securities, and short-term investments are recorded on the trade date. Real estate equity transactions are recorded on the settlement date. Upon sale of investments, the difference between sales proceeds and cost is reflected in the statement of changes in fiduciary net position. Investment expenses consist of investment manager and consultant fees along with fees for custodial services.

E. COMPENSATED ABSENCES

Expenses for accumulated vacation days and compensatory time earned by TRS's employees are recorded when earned. Upon termination or retirement, employees of TRS are paid for accumulated vacation time limited to sixty (60) days and accumulated compensatory time limited to two hundred-forty (240) hours. As of June 30, 2018 and 2017, accrued compensated absences were included in accrued expenses and other liabilities on the statements of fiduciary net position amounting to $1,189,181 and $1,272,405, respectively.

Note 2: Summary of Significant Accounting Policies continued . . .

F. RISK MANAGEMENT

Destruction of assets, theft, employee injuries and court challenges to administrative policy are among the various risks to which TRS is exposed. In order to cover such risks, TRS carries appropriate insurance policies such as fire and tornado, employee bonds, fiduciary liability, worker's compensation and equipment insurance.

G. OTHER RECEIVABLES

TRS allows qualified purchases of service credit to be made by installment payments not to exceed a five-year period. Revenue is recognized in the initial year of the installment contract agreement. The June 30, 2018 and 2017 installment contract receivables were $361,346 and $438,303, respectively.

H. USE OF ESTIMATES

The preparation of financial statements in accordance with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates. The most significant estimates impacting the financial statements relate to the actuarial assumptions.

I. INCOME TAXES

The defined benefit plan is organized as a tax-exempt retirement plan under the Internal Revenue Code. The 403(b) Tax Sheltered Annuity Plan is no longer continued and will be fully terminated when all lifetime annuities have expired. The System's management believes that it has operated the plans within the constraints imposed by federal tax law.

J. RECENT PRONOUNCEMENTS

TRS implemented the provisions of GASB Statement No. 85, "Omnibus 2017," for the year ended June 30, 2018. GASB 85 addresses several issues identified during the implementation and application of certain GASB pronouncements. OPEB related issues applicable to TRS's medical and life insurance funds addressed in this new standard include the presentation of payroll-related measures in the schedules of Required Supplementary Information by other postemployement benefits (OPEB) plans.

In January 2017, GASB issued Statement No. 84, "Fiduciary Activities," that establishes criteria for identifying fiduciary activities and guidance on reporting those activities. This Statement provides guidance on four fiduciary funds that should be reported if applicable: pension (and other employee benefit) trust funds, investment trust funds, private purpose trust funds, and custodial funds. GASB 84 will be effective for periods beginning after December 15, 2018. TRS has not adopted GASB 84 and has not yet determined the impact of this standard on its financial statements and disclosures.

K. RECLASSIFICATIONS

In accordance with GASB Statement No. 28, additions and deductions related to securities lending transactions should be reported at their gross amounts. Previously, amounts related to gross borrower rebate expenses were reported net of securities lending gross earnings and have been reclassified to be reported as securities lending expense on the Statement of Changes in Fiduciary Net Position. The reclassification had no effect on total net position and change in net position.

Note 3: Contributions and Funds of the Plan

A. CONTRIBUTIONS

Contribution rates are established by Kentucky Revised Statutes. Non-university members are required to contribute 12.855 percent of their salaries to the System effective July 1, 2015; university members are required to contribute 10.40 percent of their salaries effective July 1, 2015. KRS 161.565 allows each university to reduce the contribution of its members by 2.215 percent; therefore, university members contribute 8.185 percent of their salary to TRS. For members employed by local school districts, the State, as a non-employer contributing entity, contributes 13.105 percent of salary for those who joined before July 1, 2008 and 14.105 percent for those who joined thereafter.

Other participating employers are required to contribute the percentage contributed by members plus an additional 3.25 percent of members' gross salaries.

The member and employer contributions consist of retirement annuity contributions and other postemployment benefit contributions to the medical and life insurance plans. The member postemployment medical contribution is 3.75 percent of salary. The employer postemployment medical contribution is .75 percent of member salaries. Also, employers (other than the state) contribute 3.0 percent of members' salaries and the state contributes the net cost of health insurance premiums for new retirees after June 30, 2010 in the non-Medicare eligible group. If a member leaves covered employment before accumulating five (5) years of credited service, accumulated member contributions to the retirement annuity plan plus interest are refunded upon the member's request.

B. FUNDS OF THE PLAN

Teacher Savings Fund

This fund was established by KRS 161.420(2) as the Teacher Savings Fund and consists of contributions paid by university and non-university members. The fund also includes interest authorized by the Board of Trustees from the Guarantee Fund. The accumulated contributions of members that are returned upon withdrawal or paid to the estate or designated beneficiary in the event of death are paid from this fund. Upon retirement, the member's contributions and the matching state contributions are transferred from this fund to Allowance Reserve Fund, the fund from which retirement benefits are paid.

State Accumulation Fund

This fund was established by KRS 161.420(3) as the State Accumulation Fund and receives state appropriations to the System. The state matches an amount equal to members' contributions. State appropriations during the year are based on estimates of members' salaries. At year-end when actual salaries are known, the required state matching is also realized by producing either a receivable from or a payable to the State of Kentucky.

Allowance Reserve Fund

This fund was established by KRS 161.420(4) as the Allowance Reserve Fund, the source for retirement, disability, and survivor benefits paid to members of TRS. These benefits are paid from the retired members' contributions until they are exhausted, at which time state matching contributions are used to pay the benefits. After an individual member's contributions and the state matching contributions have been exhausted, retirement benefits are paid from monies transferred from the Guarantee Fund.

Guarantee Fund

This fund was established by KRS 161.420(6) as the Guarantee Fund, to collect income from investments, state matching contributions of members withdrawn from the System, and state matching contributions for cost of living adjustments (COLAs). In addition, it receives money for which disposition is not otherwise provided. This fund provides interest to the other funds, benefits in excess of both members' and state matching contributions, monies for administrative expenses of TRS, and deficiencies not covered by the other funds.

Administrative Expense

This fund was established by KRS 161.420(1) as the Expense Fund. Investment income transferred to this fund from the Guarantee Fund is used to pay the administrative expenses of TRS. Administrative expenses are allocated among the funds based on benefits paid.

Note 4: Net Pension Liability of Employers

A. NET PENSION LIABILITY OF EMPLOYERS

The net pension liability (i.e., the System's liability determined in accordance with GASB No. 67 less the fiduciary net position) as of June 30, 2018 and 2017 is shown below.

Net Pension Liability of Employers
(In thousands of dollars)

Fiscal Year Ending June 30	Total Pension Liability A	Plan Fiduciary Net Position B	Employers Net Pension Liability (A-B)	Plan Fiduciary Net Position as a % of Total Pension Liability (B/A)	Covered Payroll C	Net Pension Liability as a % of Covered Payroll [A-B/C]
2018	$ 33,708,555	$ 19,981,633	$ 13,726,922	59.3%	$ 3,455,660	397.23%
2017	46,966,822	18,707,699	28,259,123	39.8	3,415,432	827.40

B. SUMMARY OF ACTUARIAL ASSUMPTIONS

A summary of the actuarial assumptions as of the latest actuarial valuation is shown below.

Valuation Date	6/30/2017
Actuarial cost method	Entry Age
Actuarial Assumptions:	
Investment rate of return	7.50%, net of pension plan investment expense, including inflation.
Projected salary increases	3.50 - 7.30%, including inflation
Inflation rate	3.00%
Municipal Bond Index Rate	3.89%
Single Equivalent Interest Rate	7.50%

Mortality rates were based on the RP-2000 Combined Mortality Table for Males or Females, as appropriate, with adjustments for mortality improvements based on a projection of Scale BB to 2025, set forward two years for males and one year for females. The actuarial assumptions used in the June 30, 2017 valuation were based on the results of an actuarial experience study for the period July 1, 2010 - June 30, 2015 adopted by the Board on September 19, 2016.

C. TARGET ALLOCATIONS

The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected 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 allocation and best estimates of arithmetic real rates of return for each major asset class, as provided by TRS's investment consultant, are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
U.S. Equity	40.0%	4.2%
International Equity	22.0	5.2
Fixed Income	15.0	1.2
Additional Categories	8.0	3.3
Real Estate	6.0	3.8
Private Equity	7.0	6.3
Cash	2.0	0.9
Total	100.0%	

Note 4: Net Pension Liability of Employers continued ...

D. DISCOUNT RATE

For 2018, the discount rate used to measure the total pension liability was 7.50%. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rates and the employer contributions will be made at the Actuarially Determined Contribution rates, adjusted by 95%, for all fiscal years in the future. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

The following table presents the net pension liability of the System for 2018. The 2018 net pension liability of the System is calculated using the discount rate of 7.50%, as well as what the System's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.50%) or 1-percentage-point higher (8.50%) than the current rate:

2018

(in thousands)	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
System's net pension liability	$ 17,595,452	$ 13,726,922	$ 10,472,071

For 2017, the discount rate used to measure the total pension liability was 4.49%. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rates and the employer contributions will be made at statutorily required rates, and the additional amount appropriated for fiscal year 2018. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members until the 2038 plan year. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments through 2037 and a municipal bond index rate of 3.56% was applied to all periods of projected benefit payments after 2037. The Single Equivalent Interest Rate (SEIR) that discounts the entire projected benefit stream to the same amount as the sum of the present values of the two separate benefit payments streams was used to determine the total pension liability.

The following table presents the net pension liability of the System for 2017. The 2017 net pension liability of the System is calculated using the discount rate of 4.49%, as well as what the System's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (3.49%) or 1-percentage-point higher (5.49%) than the current rate:

2017

(in thousands)	1% Decrease (3.49%)	Current Discount Rate (4.49%)	1% Increase (5.49%)
System's net pension liability	$ 35,029,551	$ 28,259,123	$ 22,702,413

For 2018, June 30, 2017 is the actuarial valuation date upon which the total pension liability (TPL) is based. An expected TPL is determined as of June 30, 2018 using standard roll forward techniques for the TPL using a discount rate of 7.50%. An expected TPL was also determined using the prior year discount rate of 4.49%, which was based on a municipal bond index rate of 3.56%. The roll forward calculation adds the annual normal cost (also called the service cost), subtracts the actual benefit payments and refunds for the plan year and then applies the assumed interest rate (SEIR) for the year. The difference between the two roll-forward amounts as of June 30, 2018 is the gain or loss due to changes in assumptions and other inputs.

In addition, we have determined an expected TPL as of June 30, 2018 based on the TPL roll-forward in the June 30, 2017 GASB 67 report. The difference between this amount and the roll-forward of the actual TPL using last year's assumptions is reflected as an experience gain or loss for the year. These procedures are shown in the following table:

Note 4: Net Pension Liability of Employers continued ...

TPL Roll-Forward 2018 *(In thousands of dollars)*	**Expected**	**Actual Before Assumption Change**	**Actual After Assumption Change**
(a) Interest Rate	4.49%	4.49%	7.50%
(b) TPL as of June 30, 2017	$ 46,966,822	$ 46,753,909	$ 32,819,887
(c) Entry Age Normal Cost for the Year July 1, 2017 - June 30, 2018	1,104,102	1,104,102	539,205
(d) Actual Benefit Payments (including refunds) For the year July 1, 2017 - June 30, 2018	2,035,690	2,035,690	2,035,690
(e) TPL as of June 30, 2018 (b) x (1 + (a)) + (c) - (d) x (1 + 0.5 x (a))	48,098,343	47,875,870	33,708,555
(f) Difference between Expected and Actual Experience (Gain)/Loss		(222,473)	
(g) Difference due to change in Assumptions and Other Inputs (Gain)/Loss			(14,167,315)

For 2017, June 30, 2016 is the actuarial valuation date upon which the TPL is based. An expected TPL is determined as of June 30, 2017 using standard roll forward techniques for the TPL based on the assumptions from the June 30, 2015 experience study using a discount rate of 4.49%, which was based on a municipal bond index rate as of that date equal to 3.56%. An expected TPL was also determined based on the assumptions prior to the June 30, 2015 experience study using the prior year discount rate of 4.20%, which was based on a municipal bond index rate of 3.01%. The roll forward calculation adds the annual normal cost (also called the service cost), subtracts the actual benefit payments and refunds for the plan year and then applies the assumed interest rate (SEIR) for the year. The difference between the two roll-forward amounts as of June 30, 2017 is the gain or loss due to changes in assumptions and other inputs.

In addition, we have determined an expected TPL as of June 30, 2017 based on the TPL roll-forward in the June 30, 2016 GASB 67 report. The difference between this amount and the roll-forward of the actual TPL using last year's assumptions is reflected as an experience gain or loss for the year. These procedures are shown in the following table:

TPL Roll-Forward 2017 *(In thousands of dollars)*	**Expected**	**Actual Before Assumption Change**	**Actual After Assumption Change**
(a) Interest Rate	4.20%	4.20%	4.49%
(b) TPL as of June 30, 2016	$ 47,736,901	$ 47,928,332	$ 45,781,405
(c) Entry Age Normal Cost for the Year July 1, 2016 - June 30, 2017	1,332,587	1,332,587	1,118,412
(d) Actual Benefit Payments (including refunds) For the year July 1, 2016 - June 30, 2017	1,944,917	1,944,917	1,944,917
(e) TPL as of June 30, 2017 (b) x (1 + (a)) + (c) - (d) x (1 + 0.5 x (a))	49,088,678	49,288,149	46,966,822
(f) Difference between Expected and Actual Experience (Gain)/Loss		199,471	
(g) Difference due to change in Assumptions and Other Inputs (Gain)/Loss			(2,321,327)

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements)

A. LEGAL PROVISIONS FOR INVESTMENTS

The following disclosures are meant to help the users of TRS' financial statements assess the risks TRS takes in investing member funds. The Board of Trustees and the Investment Committee are guided by asset allocation parameters that the Board approves through its powers as defined in KRS 161.430.

TRS administers a retirement annuity trust fund and a health insurance trust fund in accordance with state and federal law. TRS provides service and disability retirement benefits, death and survivor benefits, health insurance benefits, and life insurance benefits for Kentucky public education employees and their beneficiaries. The trust funds managed by TRS shall be referred to collectively as the "System" unless the context requires a specific reference to a particular fund.

The asset allocation parameters for the retirement annuity trust fund are set forth in Title 102, Chapter 1:175, Section 2 and Section 3 of the Kentucky Administrative Regulations as follows:

- There shall be no limit on the amount of investments owned by the retirement annuity trust fund if the investments are guaranteed by the United States government.
- Not more than 35 percent of the assets of the retirement annuity trust fund at fair value shall be invested in corporate debt obligations.
- Not more than 10 percent of the assets of the retirement annuity trust fund at fair value shall be invested in foreign debt.
- Not more than 65 percent of the assets of the retirement annuity trust fund at fair value shall be invested in common stocks or preferred stocks.
- Not more than 25 percent of the assets of the retirement annuity trust fund at fair value shall be invested in a stock portfolio designed to replicate a general stock index.
- Not more than 30 percent of the assets of the retirement annuity trust fund at fair value shall be invested in the stocks of companies domiciled outside of the United States; any amounts so invested shall be included in the 65 percent limitation for total stocks.
- Not more than 10 percent of the assets of the retirement annuity trust fund at fair value shall be invested in real estate. This would include real estate equity, real estate lease agreements, and shares in real estate investment trusts.
- Not more than 10 percent of the assets of the retirement annuity trust fund at fair value shall be invested in alternative investments. This category may include private equity, venture capital, timberland, and infrastructure investments.
- Not more than 15 percent of the assets of the retirement annuity trust fund at fair value shall be invested in any additional category or categories of investments. The Board of Trustees shall approve by resolution such additional category or categories of investments.

The asset allocation parameters for the health insurance trust fund are set forth in Title 102, Chapter 1:178, Section 2 of the Kentucky Administrative Regulations as follows:

- In order to preserve the assets of the health insurance trust fund and produce the required rate of return while minimizing risk, assets shall be prudently diversified among various classes of investments.
- In determining asset allocation policy, the investment committee and the board shall be mindful of the health insurance trust fund’s liquidity and its capability of meeting both short and long-term obligations.

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

B. CASH AND CASH EQUIVALENTS

For cash deposits and cash equivalents, custodial credit risk is the risk that, in the event of a bank failure, the System's deposits may not be returned to the System. The System's total cash balance held at J.P. Morgan Chase Bank on June 30, 2018 was $161,372,064. The System's total cash balance held at J.P. Morgan Chase Bank in noninterest-bearing accounts on June 30, 2017 was $222,173,747.

Deposits are exposed to custodial credit risk if they are not covered by depository insurance and the deposits are:

a. uncollateralized,
b. collateralized with securities held by the pledging financial institution, or
c. collateralized with securities held by the pledging financial institution's trust department or agent but not in the depositor-government's name.

As of June 30, 2018, the System's cash balance in the amount of $161,372,064 was not exposed to custodial credit risk because this amount was fully insured by the FDIC limit of $250,000 and collateralized with a Letter of Credit in the amount of $200,000,000 as well as securities held by the Federal Reserve Bank of New York in the name of the Commonwealth of Kentucky-Teachers' Retirement valued at $52,303,290.

As of June 30, 2017, the System's cash balance in the amount of $222,173,747 was not exposed to custodial credit risk because this amount was fully insured by the FDIC limit of $250,000 and collateralized with a Letter of Credit in the amount of $189,000,000 as well as securities held by the Federal Reserve Bank of New York in the name of the Commonwealth of Kentucky-Teachers' Retirement valued at $32,955,776.

C. INVESTMENTS

All of the System's assets are invested in short-term and long-term debt (bonds and mortgages) securities, equity (stock) securities, real estate, alternative investments, and additional categories as permitted by regulation. These assets are reported at fair value.

Investments are governed by the Board of Trustees' policies while the Board of Trustees and the Investment Committee shall execute their fiduciary responsibilities in accordance with the prudent person rule, as identified in KRS 161.430 (2)(b). The prudent person rule establishes a standard for all fiduciaries, to act as a prudent person would be expected to act, with the "care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims".

The following charts represents the fair values of the investments of the Teachers' Retirement System of the State of Kentucky for June 30, 2018 and 2017.

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

Schedule of Investments
Retirement Annuity Trust

	Fair Value June 30, 2018	Fair Value June 30, 2017
Money Market Fund	$ 403,683,329	$ 521,747,070
Total Cash Equivalents	**403,683,329**	**521,747,070**
U.S. Government	1,145,850,222	992,857,941
Agency Bonds	47,262,531	48,416,092
Mortgage Backed Securities	90,483,215	77,624,095
Asset Backed Securities	34,611,394	52,576,134
Commercial Mtg Backed Securities	40,736,773	40,167,581
Collateralized Mtg Obligations	17,929,295	27,820,939
Municipal Bonds	335,376,929	359,500,198
Corporate Bonds	1,271,973,130	1,272,699,183
Total Fixed Income	**2,984,223,489**	**2,871,662,163**
International Equity	4,891,933,955	4,460,064,917
U.S. Equity	7,652,519,183	7,129,871,825
Total Equities	**12,544,453,138**	**11,589,936,742**
Real Estate Equity	1,150,694,282	1,046,760,134
Total Real Estate Equity	**1,150,694,282**	**1,046,760,134**
Private Equity	1,095,289,506	854,635,619
Timberland	187,540,819	208,219,943
Total Alternative Investments	**1,282,830,325**	**1,062,855,562**
Opportunistic Credit	553,448,443	539,082,990
Corporate Securities	158,697,881	
Corporate Bonds	327,919,948	491,088,604
Corporate Loans	376,448,601	389,435,564
Total Additional Categories	**1,416,514,873**	**1,419,607,158**
TOTAL INVESTMENTS*	**$ 19,782,399,436**	**$ 18,512,568,829**

**This schedule includes the 403(b) Tax Shelter fund, and Losey Scholarship fund.*

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

Schedule of Investments
Health Insurance Trust

	Fair Value June 30, 2018	Fair Value June 30, 2017
Money Market Fund	$ 56,993,634	$ 46,008,715
Total Cash Equivalents	**56,993,634**	**46,008,715**
Municipal Bonds	3,013,547	
U.S. Government	28,274,922	20,457,755
Corporate Bonds	58,393,462	49,825,322
Total Fixed Income	**89,681,931**	**70,283,077**
Global Equities	571,646,533	442,726,237
U.S. Equity	34,059,334	30,548,164
Total Equities	**605,705,867**	**473,274,401**
Real Estate Equity	62,962,565	42,701,494
Total Real Estate Equity	**62,962,565**	**42,701,494**
Private Equity	81,232,638	42,340,364
Total Alternative Investments	**81,232,638**	**42,340,364**
Opportunistic Credit	58,388,152	49,620,098
Corporate Securities	42,477,060	
Corporate Bonds	46,908,752	81,742,713
Corporate Loans	37,839,206	28,807,364
Total Additional Categories	**185,613,170**	**160,170,175**
TOTAL INVESTMENTS	**$1,082,189,805**	**$ 834,778,226**

Schedule of Investments
Life Insurance Fund

	Fair Value June 30, 2018	Fair Value June 30, 2017
Money Market Fund	$ 3,724,036	$ 4,150,029
Total Short Term Investments	**3,724,036**	**4,150,029**
U. S. Government	17,296,920	8,825,290
Mortgage Backed Securities	752,789	1,123,884
Municipal Bonds	8,720,060	25,088,970
Corporate Bonds	21,055,667	47,255,156
Total Fixed Income	**47,825,436**	**82,293,300**
International Equity	7,884,256	
U.S. Equity	22,011,223	
Total Equities	**29,895,479**	
Real Estate Equity	541,107	
Total Real Estate Equity	**541,107**	
Opportunistic Credit	1,300,000	
Total Additional Categories	**1,300,000**	
TOTAL INVESTMENTS	**$ 83,286,058**	**$ 86,443,329**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

Custodial Credit Risk

Custodial Credit Risk for an investment is the risk that, in the event of the failure of counterparty, the System will not be able to recover the value of its investment or collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the System, and are held by either:

a. the counterparty or
b. the counterparty's trust department or agent, but not in the System's name.

The cash reserve of the System is primarily maintained in high quality short term investments through the Dreyfus Institutional Cash Advantage Fund. This fund invests in a diversified portfolio of high quality, short-term debt securities and the Fund is rated AAA by S&P, Moody's, and Fitch, Inc. The Fund's portfolio is structured within the confines of Rule 2a-7 under the Investment Company Act of 1940, as amended. Commercial paper, U.S. Treasury and agency obligations, certificates of deposit, bankers' acceptances, repurchase agreements, time deposits, etc. are all permissible investments within this Fund.

Whenever repurchase agreements are ordered by TRS under the terms of Master Repurchase Agreements with various brokers, the terms are dictated by TRS. The repurchase agreements and their supporting collateral are held by the custodial agent's correspondent bank in an account identified by the custodian's name and TRS' nominee name. This account is unique to TRS. The Master Repurchase Agreements require that the supporting collateral have a fair value of at least 102 percent of the value of the repurchase agreements.

As of June 30, 2018, cash collateral reinvestment securities acquired through securities lending for the retirement annuity trust fund by TRS's custodian, who is also the lending agent/counterparty, amounted to $1,297,943,833 related to $1,268,089,422 securities lent consistent with the lending agreement with the custodian. (Please refer to a following section entitled Securities Lending.)

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

Interest Rate Risk

Interest rate risk on investments is the possibility that changes in interest rates will reduce the fair value of the System's investments. In general, the longer the period until an investment matures, the greater the risk of a negative impact on fair value resulting from changes in interest rates.

As of June 30, 2018 and 2017, the retirement annuity trust and health insurance trusts had the following investment fair values and weighted average maturities. Life Insurance Fund was broken out into a separate entity in February 2018:

2018 Retirement Annuity Trust

Investment Type	Fixed Income	Additional Categories	Average Maturity (years)
U.S. Government	$ 1,145,850,222	$	8.79
Agency	47,262,531		6.89
MBS	90,483,214		16.95
CMO	17,929,295		9.26
ABS	34,611,394		15.20
CMBS	40,736,773		21.54
Muni	335,376,929		12.21
Corporate Bonds and Securities	1,271,973,131	486,617,830	7.85
Corporate Loans*		369,365,652	4.60
TOTAL	**$ 2,984,223,489**	**$ 855,983,482**	**8.60**

* *Does not include $7,082,948 in cash held directly at Barings European Loan Fund*

2017 Retirement Annuity Trust

Investment Type	Fixed Income	Additional Categories	Average Maturity (years)
U.S. Government	$ 992,857,941	$	10.81
Agency	48,416,092		8.06
MBS	77,624,096		11.67
CMO	27,820,939		13.05
ABS	52,576,134		11.99
CMBS	40,167,581		20.92
Muni	359,500,198		11.93
Corporate Bonds	1,272,699,183	491,088,604	8.13
Corporate Loans*		381,101,026	4.76
TOTAL	**$ 2,871,662,164**	**$ 872,189,630**	**7.72**

** Does not include $8,335,538 in cash held directly at Barings European Loan Fund*

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

Health Insurance Trust

Investment Type	2018 Fixed Income	2018 Additional Categories	2018 Average Maturity (years)	2017 Fixed Income	2017 Additional Categories	2017 Average Maturity (years)
U.S. Government	$ 28,274,923	$	9.32	$ 20,457,755	$	8.44
Muni	3,013,547		8.35			
Corporate Bonds and Securities	58,393,462	89,385,812	6.30	49,825,322	81,742,713	5.99
Corporate Loans		37,839,206	5.27		28,807,364	5.37
TOTAL	**$ 89,681,932**	**$ 127,225,018**	**6.54**	**$ 70,283,077**	**$ 110,550,077**	**6.17**

Life Insurance Trust

Investment Type	2018 Fixed Income	2018 Additional Categories	2018 Average Maturity (years)	2017 Fixed Income	2017 Additional Categories	2017 Average Maturity (years)
U.S. Government	$ 17,296,920		8.86	$ 8,825,290		9.62
Muni	8,720,060		14.64	25,088,970		12.74
MBS	752,789		13.50	1,123,884		11.28
Corporate Bonds	21,055,667		5.29	47,255,156		5.42
TOTAL	**$ 47,825,436**		**8.42**	**$ 82,293,300**		**8.25**

In addition to the above securities, the System held short-term cash investments in the Dreyfus Institutional Cash Advantage Fund and STIF, held at the Bank of New York Mellon, with a total fair value of $464,400,624 and had a weighted average maturity of seventeen (17) days. Average maturity is used as a measure of a security's exposure to interest rate risk due to fluctuations in market interest rates. Mortgage-backed securities and collateralized mortgage obligations are typically amortizing investments with an average life and interest rate risk significantly less than suggested by the legal maturity. Mortgage-backed securities, which are generally pre-payable, and other callable bonds are subject to adverse changes in average life in response to market interest rate changes. The schedule above reflects only the legal maturity of all such bonds.

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. This risk is managed by using the effective duration or option adjusted methodology to quantify the risk of interest rate changes. This methodology takes into account optionality on bonds and scales the risk of price changes on bonds depending upon the degree of changes in rates and the slope of the yield curve. The control of interest rate risk is not set forth in a particular policy; however, the System manages interest rate risk in practice by establishing appropriate benchmarks for its various portfolios.

Mortgage-backed securities are securities representing pass-through interests in the cash flows from pools of mortgage loans on single-family or multi-family residential properties. All of the mortgage-backed securities owned by the System were securitized and are guaranteed by Fannie Mae, Freddie Mac, or GNMA. The average life of a mortgage-backed security depends upon the level of prepayments experienced in the underlying pool of loans. Market interest rates are a primary determinant of prepayment levels. Lower than anticipated market rates generally lead to higher than anticipated prepayments and a shorter average life; higher than anticipated market rates generally lead to lower than anticipated prepayments and a longer average life. The retirement annuity trust held $90.4 million in mortgage-backed securities as of June 30, 2018, compared to $77.6 million as of June 30, 2017.

Collateralized mortgage obligations are bonds that are collateralized by whole loan mortgages, mortgage pass-through securities or stripped mortgage-backed securities. Income is derived from payments and prepayments of principal and interest generated from collateral mortgages. Cash flows are distributed to different investment classes in accordance with a collateralized mortgage obligations established payment order. The retirement annuity trust held $17.9 million in collateralized mortgage obligations as of June 30, 2018, compared to $27.8 million as of June 30, 2017.

Asset-backed securities are bonds or notes backed by loan paper or accounts receivables originated by banks, credit card companies, or other credit providers, and are considered to be moderately sensitive to changes in interest rates. The originator of the loan or accounts receivable paper sells it to a specially created trust, which repackages it as securities. Asset-backed securities have been structured as pass-throughs and as structures with multiple bond classes.

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

The retirement annuity trust held $34.6 million as of June 30, 2018, compared to $52.6 million as of June 30, 2017.

Commercial mortgage-backed securities are securities representing interests in the cash flows from pools of mortgage loans on commercial properties. The interests in a securitized pool of loans are generally divided into various tranches based upon planned payment order and level of seniority. The System's commercial mortgage-backed securities investments consist of highly rated relatively senior tranches. The average maturity of the System's commercial mortgage-backed securities holdings in the schedule above reflects the legal maturity of those holdings. Most of the tranches held are earlier in the planned payment order than the legal maturity suggests. The retirement annuity trust held $40.7 million in commercial mortgage-backed securities investments as of June 30, 2018, compared to $40.2 million as of June 30, 2017.

Credit Risk

Credit risk is the risk that an issuer or counterparty to an investment will not fulfill its obligations. The following schedules list the System's fixed income investment fair values (net of cash equivalents) according to credit ratings as of June 30, 2018 and 2017:

2018 Retirement Annuity Trust

Rating	Fixed Income	Additional Categories	Total	%
U.S. Government	$ 1,145,850,222	$	$ 1,145,850,222	29.84%
AAA	253,972,006	(91,711)	253,880,295	6.60%
AA	474,173,415		474,173,415	12.35%
A	569,839,193		569,839,193	14.84%
BBB	522,885,079	38,886,604	561,771,683	14.63%
BB	6,899,630	302,177,281	309,076,911	8.05%
B		381,391,910	381,391,910	9.93%
CCC		25,168,121	25,168,121	0.66%
CC		2,032,593	2,032,593	0.05%
D		63,853	63,853	0.00%
Not Rated	10,603,944	106,354,831	116,958,775	3.05%
TOTAL	**$ 2,984,223,489**	**$ 855,983,482**	**$ 3,840,206,971**	**100.00%**

2017 Retirement Annuity Trust

Rating	Fixed Income	Additional Categories	Total	%
U.S. Government	$ 992,857,941	$	$ 992,857,941	26.52%
AAA	208,371,963		208,371,963	5.56%
AA	574,902,212		574,902,212	15.36%
A	530,984,214	1,131,449	532,115,663	14.21%
BBB	523,726,097	37,033,244	560,759,341	14.98%
BB	22,804,994	329,217,429	352,022,423	9.40%
B	4,048,200	329,149,508	333,197,708	8.90%
CCC		22,858,417	22,858,417	0.61%
CC				0.00%
D	1,045,762	46,000	1,091,762	0.03%
Not Rated	12,920,781	152,753,583	165,674,364	4.43%
TOTAL	**$ 2,871,662,164**	**$ 872,189,630**	**$ 3,743,851,794**	**100.00%**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

2018 Health Insurance Trust

Investment Type	Fixed Income	Additional Categories	Total	%
U.S. Government	$ 28,274,923	$	$ 28,274,923	13.04%
AAA	5,287,825	(25,195)	5,262,630	2.43%
AA	18,339,237		18,339,237	8.45%
A	25,897,007		25,897,007	11.94%
BBB	11,434,235	6,338,732	17,772,967	8.19%
BB	448,705	56,379,687	56,828,392	26.20%
B		59,084,935	59,084,935	27.24%
CCC		3,725,529	3,725,529	1.72%
CC		93,982	93,982	0.04%
D		4,115	4,115	0.00%
Not Rated		1,623,233	1,623,233	0.75%
TOTAL	**$ 89,681,932**	**$ 127,225,018**	**$ 216,906,950**	**100.00%**

2017 Health Insurance Trust

Investment Type	Fixed Income	Additional Categories	Total	%
U.S. Government	$ 20,457,755	$	$ 20,457,755	11.31%
AAA	6,427,010		6,427,010	3.55%
AA	11,828,663		11,828,663	6.55%
A	21,162,730		21,162,730	11.70%
BBB	9,938,419	5,546,635	15,485,054	8.56%
BB	468,500	52,006,671	52,475,171	29.02%
B		47,612,272	47,612,272	26.33%
CCC		3,693,471	3,693,471	2.04%
Not Rated		1,691,028	1,691,028	0.94%
TOTAL	**$ 70,283,077**	**$ 110,550,077**	**$ 180,833,154**	**100.00%**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

2018 Life Insurance Fund

Investment Type	Fixed Income	Additional Categories	Total	%
U.S. Government	$ 17,296,920		$ 17,296,920	36.17%
AAA	6,594,675		6,594,675	13.79%
AA	12,120,689		12,120,689	25.34%
A	3,932,440		3,932,440	8.22%
BBB	5,548,537		5,548,537	11.60%
BB	1,346,115		1,346,115	2.82%
Not Rated	986,060		986,060	2.06%
TOTAL	**$ 47,825,436**		**$ 47,825,436**	**100.00%**

2017 Life Insurance Fund

Investment Type	Fixed Income	Additional Categories	Total	%
U.S. Government	$ 8,825,290		$ 8,825,290	10.72%
AAA	11,472,920		11,472,920	13.94%
AA	28,916,597		28,916,597	35.14%
A	8,651,610		8,651,610	10.51%
BBB	21,986,273		21,986,273	26.72%
BB	1,405,500		1,405,500	1.71%
Not Rated	1,035,110		1,035,110	1.26%
TOTAL	**$ 82,293,300**		**$ 82,293,300**	**100.00%**

Total fair value of the retirement annuity trust's fixed income portfolio was $3,840,206,971 on June 30, 2018. The health insurance trust's fixed income portfolio was valued at $216,906,950 on June 30, 2018. The life insurance trust was broken into a separate entity as of February 2018. Total fair value of the life insurance trust's fixed income portfolio was $47,825,436 on June 30, 2018. The rating system used in the above charts is the Standard and Poor's rating system. For securities where a Standard and Poor's rating is not provided, another nationally recognized system is used and translated to the Standard and Poor's rating system.

In addition to the above categories, the retirement annuity trust held $403,682,956 in short term investments through the Dreyfus Institutional Cash Advantage Fund. The health insurance trust held $56,993,634 in the Dreyfus Institutional Cash Advantage Fund. The life insurance fund held $3,724,034 in the Dreyfus Institutional Cash Advantage Fund. The credit risk associated with this Fund is minimal as the securities held are required to maintain the highest possible short-term credit ratings by Moody's and Standard & Poor's. In addition, investments in US Government and Agency securities are also highly rated securities since they are backed by the US Government. Notation is made that the ratings of securities is subject to change due to circumstances and thereby may have a lower rating than when first purchased.

The retirement annuity trust fund's policy on credit rating is set forth in 102 KAR 1:175 and reads as follows: "A fixed income investment shall be rated at the time of purchase as investment grade by at least one (1) of the major rating services. A private placement debt investment shall be subject to the same credit qualifications as each fixed income investment. The fixed income investment portfolio as a whole shall maintain an average rating of investment grade by at least one (1) of the major rating services."

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of a government's investment in a single issuer. Losses from credit risk are heightened if a significant portion of resources are invested with a single issuer. Per Administrative Regulation 102 KAR 1:175, the retirement annuity trust fund is subject to the following policies regarding single issuers of fixed income and equity securities:

"Unless the issuer is the United States Government or a government sponsored enterprise (GSE), the amount invested in the securities of a single issuer shall not equal more than five (5) percent of the assets of the System."

"The System's position in a single stock shall not exceed two and one-half (2.5) percent of the System's assets. The System's position in a single stock shall not exceed five (5) percent of the outstanding stock for that company unless the investment is part of a venture capital program."

TRS has not invested greater than five percent (5%) of the retirement annuity trust fund's assets at fair value in any single issuer and is in compliance with investment policy.

Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. As of June 30, 2018, the System's exposure to foreign currency risk consisted of $5,069,506,319 in the retirement annuity trust, $330,759,576 in the health insurance trust and $10,751,475 in the life insurance fund.

The following tables represent the fair values of investments that are subject to foreign currency as a result of cash contributions to each portfolio manager as of June 30, 2018 and 2017:

Retirement Annuity Trust

	2018	2017
Commingled Funds		
Babson Capital European Loan Fd	$ 83,937,661	$ 83,529,164
Baillie Gifford Intrntl EAFE	985,849,831	826,304,923
Baring All Country World ex US	590,455,660	576,106,295
BlackRock ACWI EX-US IMI	787,140,750	712,902,870
UBS All Country World ex US	819,861,910	704,979,730
Alternative Funds		
Carlyle Europe Partners IV, L.P.	39,101,810	19,731,527
KKR & Co European Fund III	24,592,112	33,809,458
KKR & Co European Fund IV	38,790,070	26,265,452
Oaktree European Principal III	21,295,962	22,839,529
ADRs (Equities)	783,159,050	658,341,208
Cross-Listed Equities	539,646,891	688,122,140
Bonds (Fixed Income)	143,961,909	206,555,302
Additional Categories (Fixed Income)	83,826,303	83,459,203
Additional Categories (Opportunistic)	127,886,400	109,262,717
Total	**$ 5,069,506,319**	**$ 4,752,209,518**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

Health Insurance Trust

	2018	2017
CCommingled Funds		
Black Rock Fund B	$ 275,988,587	$ 206,320,676
Alternative Funds		
Carlyle Europe IV	7,820,364	3,946,307
KKR European IV	7,758,012	5,253,090
Bonds (Fixed Income)	5,363,945	4,503,370
ADRs (Equities)	3,562,059	3,658,163
Additional Categories (Fixed Income)	15,875,004	15,306,108
Additional Categories (Opportunistic)	14,391,605	9,963,117
Total	**$ 330,759,576**	**$ 248,950,831**

Life Insurance Trust

	2018	2017
Commingled Funds		
BlackRock Fund B	$ 7,812,225	$
Bonds (Fixed Income)	2,939,250	9,003,670
Total	**$ 10,751,475**	**$ 9,003,670**

The following tables reflect the fair values of the various foreign currencies associated with the System's investments in the categories outlined above:

Retirement Annuity Trust

Currency	2018	2017
Australian Dollar	$ 80,056,199	$ 116,620,840
Bermudian Dollar	82,563,565	66,974,641
Brazilian Real	30,670,609	36,631,654
British Pound Sterling	542,534,671	651,726,435
Canadian Dollar	235,825,292	297,523,837
Cayman Islands Dollar	43,991,379	54,684,123
Chilean Peso	17,492,964	14,187,093
Chinese Yuan	139,954,752	72,872,379
Columbian Peso	16,129,857	6,717,571
Czech Koruna	326,311	266,000
Danish Krone	70,488,935	77,878,375
Egyptian Pound	447,034	320,624
Euro	1,840,824,814	1,665,892,188
Guernsey Pound	13,630,804	
Hong Kong Dollar	264,619,956	231,547,001
Hungarian Forint	524,979	483,670
Indian Rupee	79,415,592	71,413,664
Indonesian Rupiah	9,063,489	8,323,019
Israeli New Shekel	7,585,527	18,361,613
Japanese Yen	713,224,851	627,530,830
Jersey Pound	73,558,462	
Korean Won	72,938,027	77,277,317
Liberian Dollar	1,968,400	2,086,293
Macanese Pataca	662,798	
Malaysian Ringgit	15,668,077	14,649,584
Mexican Peso	78,431,730	70,822,257
Netherlands Antillean Guilder	26,993,189	24,156,367
New Zealand Dollar	1,706,541	1,600,934
Norwegian Krone	40,615,351	26,977,335
Omani Rial		1,045,762
Pakastani Rupee	294,114	426,623
Panamanian Balboa	27,813,694	35,045,435
Papua New Guinean Kina	288,958	
Peruvian Nuevo Sol		19,274
Philippine Peso	3,301,664	3,568,672
Polish Zloty	3,614,767	3,811,229
Qatari Rial	1,473,771	1,127,736
Russian Ruble	34,420,677	4,174,638
Singapore Dollar	29,249,156	29,311,066
Sol	101,565	
South African Rand	48,035,919	33,764,272
Swedish Krona	137,087,835	147,404,707
Swiss Franc	201,063,978	165,092,155
Taiwan New Dollar	49,926,329	62,467,815
Thai Baht	9,857,556	4,953,021
Trinidadian Dollar	580,613	
Turkish Lira	10,651,999	4,346,512
UAE Dirham	1,152,862	10,010,413
Uruguayan Peso	1,627,660	
Various	7,049,047	8,114,544
Total	**$ 5,069,506,319**	**$ 4,752,209,518**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

Health InsuranceTrust

Currency	2018	2017
Argentine Peso	$ 135,555	$
Australian Dollar	14,952,558	12,204,361
Bermudian Dollar	2,086,554	1,006,412
Brazilian Real	3,688,755	3,139,989
British Pound Sterling	33,230,738	28,771,704
Canadian Dollar	24,439,457	20,587,815
Cayman Islands Dollar	994,258	117,062
Chilean Peso	745,806	526,286
Chinese Yuan	18,830,555	497,440
Columbian Peso	296,733	209,996
Czech Koruna	106,784	82,136
Danish Krone	3,168,754	2,465,213
Egyptian Pound	146,934	107,526
Euro	104,404,801	74,200,106
Guernsey Pound	62,516	
Hong Kong Dollar	8,146,300	14,669,785
Hungarian Forint	168,560	149,091
Indian Rupee	6,048,862	4,713,176
Indonesian Rupiah	1,266,203	1,222,441
Israeli New Shekel	1,364,123	564,024
Japanese Yen	45,957,033	36,155,429
Jersey Pound	253,049	
Korean Won	9,730,528	7,793,916
Liberian Dollar	192,830	
Macanese Pataca	223,455	
Malaysian Ringgit	$ 1,577,332	$ 1,235,840
Mexican Peso	1,929,849	1,800,372
Netherlands Antillean Guilder	589,060	
New Zealand Dollar	579,374	486,228
Norwegian Krone	1,598,858	453,325
Pakastani Rupee	94,341	1,168,560
Panamanian Balboa	597,706	121,971
Papua New Guinean Kina	97,332	
Peruvian Nuevo Sol		592,818
Philippine Peso	617,753	5,171
Polish Zloty	696,247	584,439
Qatari Rial	508,713	647,019
Russian Ruble	2,079,235	331,098
Singapore Dollar	2,549,367	885,415
Sol	33,943	
South African Rand	4,046,539	2,024,219
Swedish Krona	5,504,183	3,339,571
Swiss Franc	16,421,811	4,739,818
Taiwan New Dollar	8,036,220	12,797,324
Thai Baht	1,514,111	6,542,493
Trinidadian Dollar	119,100	
Turkish Lira	533,627	1,173,463
UAE Dirham	393,174	517,208
Various		320,571
Total	**$ 330,759,576**	**$ 248,950,831**

Life Insurance Fund

Currency	2018	2017
Australian Dollar	$ 2,328,511	$ 2,003,620
Bermudian Dollar	11,322	
Brazilian Real	109,096	
British Pound Sterling	1,808,287	1,000,790
Canadian Dollar	524,742	4,000,040
Cayman Islands Dollar	1,159	
Chilean Peso	21,887	
Chinese Yuan	514,591	
Columbian Peso	8,629	
Czech Koruna	3,238	
Danish Krone	91,546	
Egyptian Pound	4,437	
Euro	1,811,311	
Guernsey Pound	1,862	
Hong Kong Dollar	239,681	
Hungarian Forint	5,210	
Indian Rupee	178,964	
Indonesian Rupiah	37,499	
Israeli New Shekel	38,914	
Japanese Yen	1,353,133	
Jersey Pound	4,038	
Korean Won	287,376	
Macanese Pataca	6,578	
Malaysian Ringgit	$ 46,475	
Mexican Peso	57,007	
New Zealand Dollar	16,936	
Norwegian Krone	44,961	
Pakastani Rupee	2,919	
Panamanian Balboa	96	
Papua New Guinean Kina	2,868	
Philippine Peso	17,896	
Polish Zloty	20,423	
Qatari Rial	14,626	
Russian Ruble	61,397	
Singapore Dollar	72,064	
Sol	1,008	
South African Rand	119,374	
Swedish Krona	158,408	1,999,220
Swiss Franc	414,458	
Taiwan New Dollar	237,004	
Thai Baht	44,335	
Turkish Lira	15,313	
UAE Dirham	11,441	
Various	455	
Total	**$ 10,751,475**	**$ 9,003,670**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

The majority of foreign investments are held in commingled funds managed by Babson Capital Management, UBS Global Asset Management, Baillie Gifford, Baring Asset Management, and Black Rock. In addition to the commingled funds investing in foreign securities, the retirement annuity trust fund held $783,159,050 associated with foreign interests in American Depositary Receipt investments. These American Depositary Receipts are securities that are issued by a U.S. bank in place of the foreign stock shares held in trust by that bank, thereby facilitating the trading of foreign shares in U.S. markets. American Depositary Receipts are denominated in U.S. currency. Also, the cross listed equities, in the amount of $539,646,891, represent securities domiciled in foreign countries, but are listed and traded on U.S. exchanges. Other foreign securities and investments consisted of debt securities and alternative investment opportunities. Foreign holdings, including investment receivables/payables, that were not readably identifiable to a specific country were listed in the "various" category pertaining to currency type.

The retirement annuity trust fund's policy regarding foreign equities is that not more than thirty percent (30%) of the assets of the retirement annuity trust fund at fair value shall be invested in the stocks of companies domiciled outside of the United States. Any amounts so invested shall be included in the sixty-five percent (65%) limitation for total stocks per 102 KAR 1:175 Section 2(e).

Fair Value Measurement

A retiree pension defined benefit plan holds significant amounts of investments that are measured at fair value on a recurring basis. TRS categorizes its fair value measurements within the fair value hierarchy established by accounting principles generally accepted in the United States of America (GAAP). The hierarchy is based on the valuation inputs used to measure the fair value of the asset and is not necessarily indicative of risk.

Level 1 inputs are quoted prices (unadjusted) for identical assets or liabilities in active markets that a government can access at the measurement date. Level 2 inputs - inputs other than quoted prices included within Level 1 - that are observable for an asset or liability. Level 2 inputs may include quoted prices for similar assets or liabilities in active markets; quoted prices for identical or similar assets of liabilities in non-active markets; and inputs other than quoted prices that are observable for the assets or liabilities, either directly or indirectly. Level 3 inputs are unobservable inputs for an asset or liability such as property appraisals, third party valuations, and public market comparables of similar assets where applicable. Investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy. The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs.

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

The following tables depict the following recurring fair value measurements as of June 30, 2018:

2018 Retirement Annuity Trust

Investments	Level 1 Inputs	Level 2 Inputs	Level 3 Inputs	Fair Value
Cash Equivalents	$ 403,683,329	$	$	$ 403,683,329
Fixed Income				
Asset Backed Securities		34,611,394		34,611,394
Agency Bonds		47,262,531		47,262,531
Commercial Mtg Backed Securities		40,736,773		40,736,773
Collateralized Mtg Obligations		17,929,295		17,929,295
Corporate Bonds	2,404,473	1,269,568,657		1,271,973,130
Mortgage Backed Securities		89,105,435	1,377,780	90,483,215
Municipal Bonds		335,376,929		335,376,929
US Government	1,139,006,569	6,843,653		1,145,850,222
Total Fixed Income	1,141,411,042	1,841,434,667	1,377,780	2,984,223,489
Equities				
International	1,306,678,614	1,999,811,083		3,306,489,697
US Equity	7,387,805,408	33,688		7,387,839,096
Total Equity	8,694,484,022	1,999,844,771		10,694,328,793
Real Estate			420,940,001	420,940,001
Timberland			153,111,010	153,111,010
Additional Categories				
Corporate Bonds and Securities	(91,711)	486,709,541		486,617,830
Corporate Loans			186,153,181	186,153,181
Total Additional Categories	(91,711)	486,709,541	186,153,181	672,771,011
Total Investments by Fair Value Level	**$ 10,239,486,682**	**$ 4,327,988,979**	**$ 761,581,972**	**$ 15,329,057,633**
Investments Measured at the NAV				
Commingled European Loan Fund				$ 102,070,000
Commingled International Equity Funds				1,585,444,258
Commingled Domestic Equity Funds				264,680,086
Private Equity Funds				1,095,289,506
Private Loan Fund				88,225,420
Private Real Estate Funds				729,754,281
Private Timber Funds				34,429,809
Private Opportunistic Credit Funds				553,448,443
Total Investments Measured at the NAV				**$ 4,453,341,803**
Total Investments at Fair Value				**$ 19,782,399,436**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

2017 Retirement Annuity Trust

Investments	Level 1 Inputs	Level 2 Inputs	Level 3 Inputs	Fair Value
Cash Equivalents	$ 521,747,070	$	$	$ 521,747,070
Fixed Income				
Asset Backed Securities		47,346,318	5,229,816	52,576,134
Agency Bonds		48,416,092		48,416,092
Commercial Mtg Backed Securities		40,167,581		40,167,581
Collateralized Mtg Obligations		27,820,939		27,820,939
Corporate Bonds	4,109,212	1,267,511,651	1,078,320	1,272,699,183
Mortgage Backed Securities		75,772,409	1,851,686	77,624,095
Municipal Bonds		354,276,082	5,224,116	359,500,198
US Government	983,646,901	9,211,040		992,857,941
Total Fixed Income	987,756,113	1,870,522,112	13,383,938	2,871,662,163
Equities				
International	1,326,738,184	1,712,181,097		3,038,919,281
US Equity	6,888,437,450		164	6,888,437,614
Total Equity	8,215,175,634	1,712,181,097	164	9,927,356,895
Real Estate			392,640,022	392,640,022
Timberland			174,936,255	174,936,255
Additional Categories				
Corporate Bonds and Securities	19,262	491,069,342		491,088,604
Corporate Loans		388,090	162,816,233	163,204,323
Total Additional Categories	19,262	491,457,432	162,816,233	654,292,927
Total Investments by Fair Value Level	**$ 9,724,698,079**	**$ 4,074,160,641**	**$ 743,776,612**	**$ 14,542,635,332**

Investments Measured at the NAV	
Commingled European Loan Fund	$ 103,170,000
Commingled International Equity Funds	1,421,145,636
Commingled Domestic Equity Funds	241,434,211
Private Equity Funds	854,635,619
Private Loan Fund	123,061,241
Private Real Estate Funds	654,120,112
Private Timber Funds	33,283,688
Private Opportunistic Credit Funds	539,082,990
Total Investments Measured at the NAV	**$ 3,969,933,497**
Total Investments at Fair Value	**$ 18,512,568,829**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

Investments Measured at the Net Asset Value (NAV)
Retirement Annuity Trust

Investments	6/30/2018	Unfunded Commitments	Redemption Frequency	Redemption Notice
Commingled European Loan Fund	$ 102,070,000		Daily	30 days
Commingled International Equity Fund	1,585,444,258		Daily	1-30 days
Commingled Domestic Equity Fund	264,680,086		Daily	1-30 days
Private Equity Funds:				
Open Ended Funds	209,885,810	71,168,561	Quarterly, Annually	90 days
Closed Ended Funds	885,403,696	553,049,047	N/A	N/A
Private Loan Fund	88,225,420		Quarterly	30 days
Private Real Estate Funds:				
Open Ended*	417,556,034	22,944,664	Quarterly	45-90 days
Closed Ended Funds	312,198,247	239,906,810	N/A	N/A
Private Timber Funds	34,429,809		Biennial	90 days
Private Opportunistic Credit Funds:				
Open Ended Funds	336,849,775		Semi-Annual	75 Days
Closed Ended Funds	216,598,668	203,145,926	N/A	N/A
Total Investments Measured at the NAV	$ 4,453,341,803			

* *Regarding the Open Ended Private Real Estate Funds, there are a few restrictions remaining that would prevent redemption at this time. One fund currently valued at $53,988,311 in the Retirement Annuity Trust and $10,797,661 in the Health Insurance Trust has a 2-year lock-up period that expires January 2019. Another fund currently valued at $27,055,336 in the Retirement Annuity Trust, $5,411,067 in the Health Insurance Trust, and $541,107 in the Life Insurance Fund has a 180 day lock-up period that expires October of 2018.*

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

2018 Health Insurance Trust

Investments at Fair Value Level	Level 1 Inputs	Level 2 Inputs	Level 3 Inputs	Fair Value
Cash Equivalents	$ 56,993,634	$	$	$ 56,993,634
Fixed Income				
Corporate Bonds		58,393,462		58,393,462
Municipal Bonds		3,013,547		3,013,547
US Government	27,301,552	973,370		28,274,922
Total Fixed Income	27,301,552	62,380,379		89,681,931
Equities				
Global Equity		571,646,533		571,646,533
US Equity	34,059,334			34,059,334
Total Equity	34,059,334	571,646,533		605,705,867
Additional Categories				
Corporate Bonds and Securities	(25,195)	89,411,007		89,385,812
Corporate Loans		252,711	37,586,495	37,839,206
Total Additional Categories	(25,195)	89,663,718	37,586,495	127,225,018
Total Investments by Fair Value Level	**$ 118,329,325**	**$ 723,690,630**	**$ 37,586,495**	**$ 879,606,450**
Investments Measured at the NAV				
Private Equity Funds				$ 81,232,638
Private Real Estate Funds				62,962,565
Private Opportunistic Credit Funds				58,388,152
Total Investments Measured at the NAV				**$ 202,583,355**
Total Investments Measured at Fair Value				**$ 1,082,189,805**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

2017 Health Insurance Trust

Investments at Fair Value Level	Level 1	Level 2	Level 3	Fair Value
Cash Equivalents	$ 46,008,715	$	$	$ 46,008,715
Fixed Income				
Corporate Bonds		49,825,322		49,825,322
US Government	19,464,425	993,330		20,457,755
Total Fixed Income	19,464,425	50,818,652		70,283,077
Equities				
Global Equity		442,726,237		442,726,237
US Equity	30,548,164			30,548,164
Total Equity	30,548,164	442,726,237		473,274,401
Additional Categories				
Corporate Bonds	5,253	81,586,060	151,400	81,742,713
Corporate Loans		182,662	28,624,702	28,807,364
Total Additional Categories	5,253	81,768,722	28,776,102	110,550,077
Total Investments by Fair Value Level	**$ 96,026,557**	**$ 575,313,611**	**$ 28,776,102**	**$ 700,116,270**
Investments Measured at the NAV				
Private Equity Funds				$ 42,340,364
Private Real Estate Funds				42,701,494
Private Opportunistic Credit Funds				49,620,098
Total Investments Measured at the NAV				**$ 134,661,956**
Total Investments Measured at Fair Value				**$ 834,778,226**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

Investments Measured at the Net Asset Value (NAV)
Health Insurance Trust

	6/30/2018	Unfunded Commitments	Redemption Frequency	Redemption Notice
Private Real Estate Funds:	$ 28,142,915	$ 4,588,933	Quarterly	45-90 days
Open Ended	34,819,650	30,271,003	N/A	N/A
Closed Ended Funds				
Private Equity Funds:				
Closed Ended Funds	81,232,638	76,482,322	N/A	N/A
Private Opportunistic Credit Funds:				
Open Ended Funds	41,599,592		Semi-Annual	75 days
Closed Ended Funds	16,788,560	11,778,187	N/A	N/A
Total Investments Measured at the NAV	**$ 202,583,355**			

2018 Life Insurance Trust

Investments at Fair Value Level	Level 1	Level 2	Level 3	Fair Value
Cash Equivalents	$ 3,724,036	$		$ 3,724,036
Fixed Income:				
Corporate Bonds		21,055,667		21,055,667
Mortgage Backed Securities		752,789		752,789
Municipal Bonds		8,720,060		8,720,060
US Government	17,296,920			17,296,920
Total Fixed Income	17,296,920	30,528,516		47,825,436
Equities:				
International Equity		7,884,256		7,884,256
US Equity	22,011,223			22,011,223
Total Equity	22,011,223	7,884,256		29,895,479
Total Investments by Fair Value Level	**$ 43,032,179**	**$ 38,412,772**		**$ 81,444,951**
Investments Measured at the NAV				
Private Real Estate Funds				$ 541,107
Private Opportunistic Credit Funds				1,300,000
Total Investments Measured at the NAV				**$ 1,841,107**
Total Investments Measured at Fair Value				**$ 83,286,058**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

2017 Life Insurance Fund

Investments at Fair Value Level	Level 1 Inputs	Level 2 Inputs	Level 3 Inputs	Fair Value
Cash Equivalents	$ 4,150,028	$	$	$ 4,150,028
Fixed Income				
Corporate Bonds		47,255,156		47,255,156
Mortgage Backed Securities		1,123,884		1,123,884
Municipal Bonds		25,088,970		25,088,970
US Government	8,825,290			8,825,290
Total Fixed Income	8,825,290	73,468,010		82,293,300
Total Investments by Fair Value Level	**$ 12,975,318**	**$ 73,468,010**	$	**$ 86,443,328**
Investments Measured at the NAV				N/A
Total Investments Measured at Fair Value				**$ 86,443,328**

Investments Measured at the Net Asset Value (NAV)
Life Insurance Fund

	6/30/2018	Unfunded Commitments	Redemption Frequency	Redemption Notice
Private Real Estate Funds:				
Open Ended	$ 541,107	$ 458,893	Quarterly	45 days
Private Opportunistic Credit Funds:				
Open Ended	1,300,000		Semi-Annual	75 days
Total Investments Measured at the NAV	**$ 1,841,107**			

Cash Equivalents

Cash equivalents are short-term, highly liquid investments that are readily convertible to known amounts of cash and so near their maturity that they present insignificant risk of changes in value because of changes in interest rates. Cash equivalents can be valued with inputs from quoted prices (unadjusted) for identical assets or liabilities in active markets that a government can access at the measurement date and therefore are classified as Level 1 assets.

Equity and Fixed Income Securities

Debt and equity securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets issued by pricing vendors for these securities. Debt and equity securities classified in Level 2 of the fair value hierarchy may use inputs such as market quotations, yields, maturities, call features and ratings or may be valued using a matrix pricing technique that values securities based on their relationship to benchmark quoted prices. Debt securities classified in Level 3 are securities whose stated market price is unobservable by the market place and are instead priced by the issuers or industry groups for these securities.

Real Estate

Real Estate falls into the Level 3 classification of the fair value hierarchy. Much of our real estate is comprised of owned properties leased to various commercial enterprises. The fair value measurement for real estate is determined by professional appraisals recurring every five years.

Timberland

Timberland investments are managed investments regarding the acquiring, growing and disposing of timber on timberlands owned by the System. Fair value determinations for Level 3 measurements of investments are the responsibility of the Advisor, The Molpus Woodlands Group, LLC. The Advisor contracts with outside appraisers to generate fair value estimates on an annual basis. The outside appraisers utilized the cost, sales comparison and income

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

capitalization approaches to estimate the fair value of the timber and timberlands. The Advisor challenges the reasonableness of the assumptions used and reviews the methodology to ensure the estimated fair value complies with accounting standards generally accepted in the United States of America. These funds are not available for redemption. Rather, these funds make distributions to TRS as the underlying assets are sold.

Additional Categories

Investments in this category do not fit the regular parameters for the retirement annuity trust fund set forth in Title 102, Chapter 1:175 of the Kentucky Administrative Regulations. Rather, they fall into the allowable 15% of assets of the retirement annuity trust fund invested in any additional category or categories of investments approved by the Board of Trustees. Corporate Bonds falling within Level 1 classification are valued using prices quoted in active markets issued by pricing vendors for these securities. Corporate Bonds listed in Level 2 of the fair value hierarchy may use inputs such as market quotations, yields, maturities, call features and rating or may be valued using a matrix pricing technique that values securities based on their relationship to benchmark quoted prices. Corporate Loans at level 3 of the fair value hierarchy are valued by third-party pricing vendors such as Markit or Reuters.

Commingled Funds

These funds hold European loans, international equities, and domestic equities. Commingled funds are valued at the net asset value held at the end of the period based upon the fair value of the underlying investments.

Private Equity Funds

Private equity funds invest in equity and debt securities issued by private and publicly-held companies in connection with leveraged buyouts, recapitalizations and expansion opportunities. Two of these funds are redeemable, but the majority of these investments do not allow redemptions. Alternatively, TRS receives distributions as the underlying assets of the funds liquidate, usually over a 5-10 year liquidation period. These are investments for which exchange quotations are not readily available. The fair value for most of these funds is determined using net asset value.

Private Loan Fund

TRS is the sole investor in a private loan fund. The majority of these loans are valued using a multiple analysis technique in which loans are first reviewed to determine which loans might be credit impaired. Credit impaired loans are valued using the enterprise value analysis or liquidation basis analysis to determine fair value. For debt investments that are not determined to be credit impaired, management uses a market interest rate yield analysis to determine fair value. Debt investments without readily available market quotations are subject to review by an independent valuation party, with each portfolio investment reviewed at least once during a rolling twelve-month period. This fund is valued at the net asset value held at the end of the period based upon the fair value of the underlying investments.

Private Real Estate Funds

There are three open-ended private real estate investments. The remaining private real estate investments are not redeemable. Rather, TRS receives distributions as the underlying assets of the fund liquidate, usually over a 5-10 year liquidation period. These are investments for which exchange quotations are not readily available. The fair value for most of these funds is determined using net assets valued one quarter in arrears plus current quarter cash flows.

Private Timber Funds

TRS has one Private Timberland fund that is valued using the net asset value practical expedient method. Like most Private Funds, the fair value for this fund is determined using net assets valued one quarter in arrears plus current quarter cash flows.

Private Opportunistic Credit Funds

There is one private opportunistic credit fund that is redeemable. The remainder of the private opportunistic credit funds are closed funds that issue distributions as the underlying assets of the fund liquidate, usually over a 5-10 year liquidation period. Like most of the other Private Funds, the fair value for these funds is determined using net assets valued one month to one quarter in arrears plus current period cash flows.

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

D. SECURITIES LENDING

Section 161.430 of the Kentucky Revised Statutes empowers the Board of Trustees with complete fiduciary responsibility for the funds of the System. The System operates a securities lending program in which it temporarily lends securities to qualified agents in exchange for a net fee and high quality collateral. U.S. Government and agency securities, selected domestic bonds, and domestic and international stocks are the types of securities that are lent. The System's custodian, The Bank of New York Mellon, acts as lending agent in exchanging securities for collateral. The collateral has a value of not less than 102% of the fair value of the lent securities plus any accrued, unpaid distributions. The collateral may consist of cash, marketable U.S. Government securities, and select marketable U.S. Government agency securities approved by the System.

Securities lending transactions are accounted for in accordance with GASB Statement No. 28 Accounting and Financial Reporting for Securities Lending Transactions, which established standards of accounting and financial reporting for securities lending transactions. During the fiscal year ended June 30, 2018, only the retirement annuity trust fund had securities lending transactions. The following section details the net income earned in the retirement annuity trust fund from securities lending for the fiscal year ended June 30, 2018 and 2017:

Item	2018 Earnings	2017 Earnings
Gross Earnings (Interest and Fees)	$ 16,319,045	$ 5,799,152
Gross Borrower Rebates	(10,590,816)	(2,138,664)
Bank Fees	(1,718,028)	(1,097,808)
Net Earnings	$ 4,010,201	$ 2,562,680

Cash collateral is invested in short-term obligations fully guaranteed by the United States Government or select Government agencies and Government Repurchase Agreements with qualified agents. The System cannot pledge or sell collateral securities received unless the borrower defaults. The lending agent (Bank of New York Mellon) also indemnifies the System from any financial loss associated with a borrower's default and collateral inadequacy. As per GASB 28, securities lending transaction collateralized by letters of credit or by securities that the governmental entity does not have the ability to pledge or sell unless the borrower defaults are not reported as assets and liabilities on the Statement of Fiduciary Net Position.

As of June 30, 2018, the loan average days to maturity in the retirement annuity trust fund was one (1) day and the weighted average investment maturity of cash collateral investments was two (2) day. At fiscal year end, the retirement annuity trust fund had no credit risk exposure to borrowers, since the amounts the retirement annuity trust fund owes the borrowers exceeds the amounts the borrowers owe the retirement annuity trust fund and there were no losses resulting during the period.

Security lending programs can entail interest rate risk and credit risk. The System minimizes interest rate risk by limiting the term of cash collateral investments to several days.

The credit risk is controlled by investing cash collateral in securities with qualities similar to the credit worthiness of lent securities.

The following table presents the fair values of the underlying securities, and the value of the collateral pledged at June 30, 2018 and 2017:

2018

Type of Securities Lent	Fair Value	Cash Collateral Received	Non-Cash Collateral Value Received	Total Collateral Received
Fixed Income	$ 121,361,471	$ 35,699,643	$ 88,466,188	$ 124,165,831
Equities	1,146,727,951	846,169,120	327,608,882	1,173,778,002
TOTAL	**$ 1,268,089,422**	**$ 881,868,763**	**$ 416,075,070**	**$ 1,297,943,833**

Note 5: Deposits With Financial Institutions and Investments (Including Repurchase Agreements) continued . . .

2017

Type of Securities Lent	Fair Value	Cash Collateral Received	Non-Cash Collateral Value Received	Total Collateral Received
Fixed Income	$ 309,194,938	$ 37,740,812	$ 282,265,094	$ 320,005,906
Equities	1,061,977,571	926,925,925	158,036,460	1,084,962,385
TOTAL	**$ 1,371,172,509**	**$ 964,666,737**	**$ 440,301,554**	**$ 1,404,968,291**

E. ANNUAL MONEY-WEIGHTED RATE OF RETURN

A money-weighted rate of return is an expression of investment performance that is net of the plan's investment expenses (net the plan's administrative expenses). The following tables reflect the money-weighted rate of return for both the retirement annuity trust fund and the health insurance trust fund:

Annual Rate of Return Net of Investment Expense

	2018	2017
Retirement Annuity Trust	10.50 %	15.00 %
Health Insurance Trust	8.44 %	14.37 %

Note 6: Retirement Plan for Employees of the Retirement System

Full-time employees of TRS participate in either TRS or Kentucky Employees Retirement System (KERS). Both plans are multiple-employer cost sharing defined benefit retirement annuity and other postemployment benefits plans. All TRS employees in positions requiring a four-year degree are covered under TRS. The contribution rates and required employer matching are the same as state agency employers in the System. These rates, the plan description and funding policy are fully disclosed in the notes to the financial statements.

The System's annual required contributions for TRS employee members for the fiscal years 2018, 2017 and 2016 were $961,413, $893,635 and $820,077, respectively. TRS contributed 100 percent of the required contribution each year.

All other TRS employees are covered under KERS in the Non-Hazardous Employees' Pension Plan. The plan provides for retirement, disability, and death benefits to plan members. Retirement benefits may be extended to beneficiaries of plan members under certain circumstances. Per KRS 61.565(3), contribution rates shall be determined by the Board on the basis of an annual actuarial valuation. Rates may be amended by the KRS board as needed. TRS's administrative budget and employer contribution rates are subject to the approval of the Kentucky General Assembly. Employee contribution rates are set by the statute and may be changed only by the Kentucky General Assembly.

Members of KERS who joined prior to July 1, 2008, are required to contribute five percent of their annual creditable compensation and members who joined on or after July 1, 2008 contribute an additional one percent. As the employer, TRS is required to contribute the annual actuarially determined rate of the creditable compensation (or the rate approved by legislators). The approved rate for the fiscal years 2018, 2017 and 2016 were 49.47 percent, 48.59 percent and 38.77 percent and TRS's annual required contributions to KERS were $673,457, $675,300 and $547,105, respectively. TRS contributed 100 percent of the required contributions for each year.

KERS issues a publicly available financial report that may be obtained by writing Kentucky Retirement System, 1260 Louisville Road, Frankfort, Kentucky 40601-6124.

Note 7: Other Funds

A. 403(B) TAX SHELTERED ANNUITY PLAN

Plan Description

TRS has, in prior years, administered a salary deferral program as permitted by section 403(b) of the Internal Revenue Code. Under this program members were able to voluntarily defer a portion of their compensation within the limits established by the applicable laws and regulations. However, the System's Board of Trustees determined that the cost of providing the necessary services to assure the System of continuing compliance with these laws and regulations was not economically feasible due to the limited participation in the program by TRS's members. The Board decided, therefore, to discontinue offering the program as of April 30, 1997. Members who were not receiving annuities from their account as of April 30, 1997, were able to transfer their respective accounts directly into other tax-sheltered plans on a tax-free basis. As of June 30, 2018, the six members who are receiving annuities will continue to receive distributions according to the terms of their respective elections.

Basis of Accounting

The Tax Sheltered Annuity Plan financial statements are prepared using an accrual basis of accounting. Contributions are no longer being accepted into the plan; therefore, there are no receivables to be recognized.

Method Used to Value Investments

The short-term investments are reported at cost, which approximates fair value.

B. SUPPLEMENTAL BENEFIT FUND

The Supplemental Retirement Benefit Fund is a qualified governmental excess benefit arrangement as described in Section 415 of the Internal Revenue Code. In accordance with KRS 161.611 and KRS 161.420(8), TRS is authorized to provide a supplemental retirement benefit fund for the sole purpose of enabling the employer to apply the same formula for determining benefits payable to all members of the System employed by the employer, whose benefits under the System are limited by Section 415 of the Internal Revenue Code of 1986, as amended from time to time. Funding of benefits payable under this fund are provided by the state, as employer, and are segregated from funds that are maintained by TRS for payment of the regular benefits provided by the System.

C. JUNITA LOSEY SCHOLARSHIP BEQUEST

Junita Losey, a retired teacher, designated TRS as a residuary beneficiary of her estate and expressed a desire that TRS establish a scholarship program for Kentucky students studying to be teachers. Ms. Losey died in 1997 and thereafter her estate provided a scholarship bequest to TRS. The scholarship bequest has at all times been segregated from funds that are maintained by TRS for payment of the regular benefits provided by the System. The Scholarship Committee of the System's Board of Trustees meets each December to consider scholarship standards and administration of the scholarship bequest.

Note 8: Other Postemployment Benefits - Medical Insurance Plan

A. PLAN DESCRIPTION

In addition to the retirement annuity plan described in Note 1, Kentucky Revised Statute 161.675 requires TRS to provide access to postemployment healthcare benefits for eligible members and dependents. The TRS medical plan (MIF) is funded by employer and member contributions. Changes made to the medical plan may be made by the TRS Board of Trustees, the Kentucky Department of Employee Insurance and the General Assembly.

The TRS medical plan is funded by employee contributions to an account established pursuant to 26 U.S.C. sec. 401(h). Additional funding is derived from the Kentucky Teachers' Retirement System insurance trust fund that went into effect on July 1, 2010. The insurance trust fund provides a trust separate from the account established pursuant to 26 U.S.C. sec. 401(h). The insurance trust fund includes employer and retired member contributions required under KRS 161.550 and KRS 161.675(4)(b).

To be eligible for medical benefits, the member must have retired either for service or disability. The TRS medical plan offers coverage to members under the age of 65 through the Kentucky Employees Health Plan (KEHP) administered by the Kentucky Department of Employee Insurance. TRS retired members are given a supplement to be

Note 8: Other Postemployment Benefits - Medical Insurance Plan continued . . .

used for payment of their health insurance premium. The amount of the member's supplement is based on a contribution supplement table approved by the TRS Board of Trustees. The retired member pays premiums in excess of the monthly supplement. The amount of insurance premiums paid by retirees for fiscal years 2018 and 2017 were $57,683,452 and $57,941,968, respectively. The Commonwealth of Kentucky bears risk for excess claims expenses that exceed the premium equivalents charged for the Kentucky Employees Health Plan. Once retired members and eligible spouses attain age 65 and are Medicare eligible, coverage is obtained through the TRS Medicare Eligible Health Plan.

At June 30, 2018, TRS insurance covered 40,230 retirees and 7,595 dependents and at June 30, 2017, TRS insurance covered 39,497 retirees and 7,189 dependents. There are 207 participating employers with 72,205 and 72,130 active members contributing to the medical plan at June 30, 2018 and 2017, respectively.

Retiree health care premiums received reduce the amount of benefit payments reported in the deductions section in the Statement of Changes in Fiduciary Net Position for the Medical Insurance Plan. The Medical Insurance Expenditures are summarized in the following table:

	2018	2017
65 and Over Group Expenditures	$ 186,856,718	$ 167,013,299
Under 65 Group Expenditures	120,519,991	124,079,802
Subtotal	307,376,709	291,093,101
Less: Amounts Paid by Retirees	(57,683,452)	(57,941,968)
Less: Medicare Subsidies and Formulary Rebates	(88,611,557)	(54,650,587)
Total Insurance Expenditures	**$ 161,081,700**	**$ 178,500,546**

B. NET OPEB LIABILITY OF EMPLOYERS

The net OPEB liability (i.e., the System's liability determined in accordance with GASB No. 74 less the fiduciary net position) for the medical insurance plan as of June 30, 2018 and 2017 is shown in the following table.

Net OPEB Liability of Employers
(In thousands of dollars)

Fiscal Year Ending June 30	Total OPEB Liability (TOL)* A	Plan Fiduciary Net Position B	Employers Net OPEB Liability (NOL) (A-B)	Plan Fiduciary Net Position (FNP) as a % of Total OPEB Liability (B/A)	Covered Payroll C	Net OPEB Liability as a % of Covered Payroll [A-B/C]
2018	$ 4,659,996	$ 1,190,281	$ 3,469,715	25.5 %	$ 3,455,660	100.41%
2017	4,524,172	958,390	3,565,782	21.2	3,415,432	104.40

** The TOL includes the additional consideration for the current treatment of KEHP implicit subsidies that may be needed in the future. This is an additional liability from our funding MIF accrued liabilities.*

Note 8: Other Postemployment Benefits - Medical Insurance Plan continued . . .

C. SUMMARY OF ACTUARIAL ASSUMPTIONS

A summary of the actuarial assumptions as of the latest actuarial valuation is shown below.

Valuation Date	6/30/2017
Actuarial Assumptions:	
Actuarial Cost Method	Entry Age
Amortization Method	Level Percent of Payroll
Amortization Period	23 years, closed
Asset Valuation Method	Five-year smoothed value
Investment Rate of Return	8.00%, net of OPEB plan investment expense, including inflation.
Projected Salary Increases	3.50 - 7.20%, including wage inflation
Inflation Rate	3.00%
Real Wage Growth	0.50%
Wage Inflation	3.50%
Municipal Bond Index Rate	3.89%
Discount Rate	8.00%
Single Equivalent Interest Rate	8.00%, net of OPEB plan investment expense, including price inflation
Health Care Cost Trends	
Under Age 65	7.75% for fiscal year 2018 decreasing to an ultimate rate of 5.00% by fiscal year 2024
Ages 65 and Older	5.75% fiscal year 2018 decreasing to an ultimate rate of 5.00% by fiscal year 2021
Medicare Part B Premiums	0.00% for fiscal year 2018 with an ultimate rate of 5.00% by 2030

Mortality rates were based on the RP-2000 Combined Mortality Table projected to 2025 with projection scale BB, and set forward two years for males and one year for females is used for the period after service retirement and for dependent beneficiaries. The RP-2000 Disabled Mortality Table set forward two years for males and seven years for females is used for the period after disability retirement. The demographic actuarial assumptions for retirement, disability incidence, withdrawal, rates of plan participation, and rates of plan election used in the June 30, 2017 valuation were based on the results of the most recent actuarial experience studies for the System, which covered the five-year period ending June 30, 2015. The remaining actuarial assumptions used in the June 30, 2017 valuation of the MIF were based on a review of recent plan experience done concurrently with the June 30, 2017 valuation. The health care cost trend rate assumption was updated for the June 30, 2017 valuation and was shown as an assumption change in the TOL roll forward while the change in initial per capita claims costs were included with experience in the TOL roll forward.

D. TARGET ALLOCATIONS

The long-term expected rate of return on OPEB investments was determined using a log-normal distribution analysis 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 allocation and best estimates of arithmetic real rates of return for each major asset class, as provided by TRS's investment consultant, are summarized in the following table:

Asset Class	Target Allocation	30-Year Expected Geometric Real Rate of Return
Global Equity	58.0 %	4.6%
Fixed Income	9.0	1.2
Real Estate	5.5	3.8
Private Equity	6.5	6.3
Additional Categories	20.0	3.3
Cash	1.0	0.9
Total	**100.0** %	

Note 8: Other Postemployment Benefits - Medical Insurance Plan continued . . .

E. DISCOUNT RATE

The discount rate used to measure the TOL as of the Measurement Date was 8.00%. The projection of cash flows used to determine the discount rate was performed in accordance with GASB 74. The projection's basis was an actuarial valuation performed as of June 30, 2017. In addition to the actuarial methods and assumptions of the June 30, 2017 actuarial valuation, the following actuarial methods and assumptions were used in the projection of cash flows:

- Total payroll for the initial projection year consists of the payroll of the active membership present on the Valuation Date. In subsequent projection years, total payroll was assumed to increase annually at a rate of 3.50%.
- The retiree health care costs of members under age 65 who retired on or after July 1, 2010 were assumed to be paid by either the state or the retirees themselves in all years except in fiscal year 2020. If these costs are not paid by the state or the retirees themselves and are instead paid by the TRS Medical Fund for all future years, we have calculated that the FNP would be projected to be depleted in 2040 and the SEIR of 4.88% would need to be used in the determination of the TOL as of the measurement date.
- As administrative expenses were assumed to be paid in all years by the employer as they come due, they were not considered.
- Cash flows occur mid-year.
- Future contributions to the MIF were based upon the contribution rates defined in statute and the projected payroll of active employees. Per KRS 161.540(1)(c).3 and 161.550(5), when the MIF achieves a sufficient prefunded status, as determined by the retirement system's actuary, the following MIF statutory contributions are to be decreased, suspended, or eliminated:
    - Employee contributions
    - School District/University Contributions
    - State Contributions for KEHP premium subsidies payable to retirees who retire after June 30, 2010

  To reflect these adjustments, open group projections were used and assumed an equal, pro rata reduction to the current statutory amounts in the years if/when the MIF is projected to achieve a Funded Ratio of 100% or more. Here, the current statutory amounts are adjusted to achieve total contributions equal to the Actuarially Determined Contribution (ADC), as determined by the prior year's valuation and in accordance with the MIF's funding policy (Schedule E). As the specific methodology to be used for the adjustments has yet to be determined, there may be differences between the projected results and future experience. This may also include any changes to retiree contributions for KEHP coverage pursuant to KRS 161.675(4)(b).
- In developing the adjustments to the statutory contributions in future years, the following was assumed:
    - Liabilities and cash flows are net of expected retiree contributions and any implicit subsidies attributable to coverage while participating in KEHP.
    - A 0% active member growth rate was assumed for the purposes of developing estimates for new entrants (membership dates beyond June 30, 2017).

Based on these assumptions, the MIF's FNP was <u>not</u> projected to be depleted.

The FNP projections are based upon the MIF's financial status on the valuation date, the indicated set of methods and assumptions, and the requirements of GASB 74. As such, the FNP projections are not reflective of the cash flows and asset accumulations that would occur on an ongoing basis, reflecting the impact of future members. Therefore, the results of these tests do not necessarily indicate whether or not the MIF will actually run out of money, the financial condition of the MIF, or the MIF's ability to make benefit payments in future years.

These paragraphs require disclosure of the sensitivity of the NOL to changes in the health care cost trend rates for the MIF and the discount rate for the MIF. The following exhibits present the NOL of the MIF, calculated using the health care cost trend rates, as well as what the MIF's NOL would be if it were calculated using a health care cost trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate. Similarly, the exhibits present the NOL of the MIF, calculated using the Single Equivalent Interest Rate, as well as what the MIF's NOL would be if it were calculated using a Discount Rate that is 1-percentage-point lower or 1-percentage-point higher than the current Single Equivalent Interest Rate:

Note 8: Other Postemployment Benefits - Medical Insurance Plan continued . . .

System's Net OPEB Liability 2018
(In thousands of dollars)

	Health Care Cost Trend Rates		
Discount Rate	**1% Decrease**	**Current**	**1% Increase**
1% Increase (9.00%)	$	$ 2,970,711	$
Current (8.00%)	2,877,113	3,469,715	4,200,835
1% Decrease (7.00%)		4,068,745	

System's Net OPEB Liability 2017
(In thousands of dollars)

	Health Care Cost Trend Rates		
Discount Rate	**1% Decrease**	**Current**	**1% Increase**
1% Increase (9.00%)	$	$ 3,077,710	$
Current (8.00%)	2,986,442	3,565,782	4,281,487
1% Decrease (7.0%)		4,152,539	

The TOL of the MIF for 2018 is based upon an actuarial valuation performed as of the Valuation Date, June 30, 2017. An expected TOL is determined as of June 30, 2018 using standard roll-forward techniques. The roll-forward calculation begins with the TOL, as of June 30, 2017, subtracts the actual benefit payments (net of retiree contributions, if applicable) for the year, applies interest at the discount rate for the year, and then adds the annual normal cost (also called the Service Cost). If applicable, actuarial gains and losses arising from the difference between estimates and actual experience (excluding amounts related to benefit changes and changes in assumptions or other inputs) are reconciled to the TOL as of the Measurement Date. Last, any changes of assumptions or other inputs are reflected. The procedure used to determine the TOL of the MIF, as of June 30, 2018, is shown in the following table:

TOL Roll-Forward 2018
(In thousands of dollars)

		Actual	Expected
(a)	TOL as of June 30, 2017*	$ 4,524,172	$ 4,329,311
(b)	Actual Benefit Payments and Refunds for the Year July 1, 2017 - June 30, 2018	(161,082)	(161,082)
(c)	Interest on TOL = [(a) x (0.080)] + [(b) x (0.0400]	355,491	339,902
(d)	Service Cost for the Year July 1, 2017 - June 30, 2018 at the End of the Year	95,382	95,382
(e)	Changes of Benefit Terms		
(f)	Changes of Assumptions (updated health care trend)	56,483	56,483
(g)	TOL Rolled Forward to June 30, 2018 = (a) + (b) + (c) + (d) + (e) + (f) + (g)	$ 4,870,446	$ 4,659,996
(h)	Difference between Expected and Actual Experience		**$ (210,450)**

* *The TOL used in the roll-forward as of June 30, 2017 is calculated using the discount rate as of the Prior Measurement Date.*

Note 8: Other Postemployment Benefits - Medical Insurance Plan continued . . .

The TOL of the MIF for 2017 is based upon an actuarial valuation performed as of the Valuation Date, June 30, 2016. An expected TOL is determined as of June 30, 2017 using standard roll-forward techniques. The roll-forward calculation begins with the TOL, as of June 30, 2016, subtracts the actual benefit payments (net of retiree contributions, if applicable) for the year, applies interest at the discount rate for the year, and then adds the annual normal cost (also called the Service Cost). If applicable, actuarial gains and losses arising from the difference between estimates and actual experience (excluding amounts related to benefit changes and changes in assumptions or other inputs) are reconciled to the TOL as of the Measurement Date. Last, any changes of assumptions or other inputs are reflected. The procedure used to determine the TOL of the MIF, as of June 30, 2017, is shown in the following table:

TOL Roll-Forward 2017
(In thousands of dollars)

(a)	TOL as of June 30, 2016*	$ 4,264,131
(b)	Actual Benefit Payments and Refunds for the Year July 1, 2016 - June 30, 2017	(178,500)
(c)	Interest on TOL = [(a) x (0.080)] + [(b) x (0.0400]	333,990
(d)	Service Cost for the Year July 1, 2016 - June 30, 2017 at the End of the Year	95,625
(e)	Changes of Benefit Terms	8,926
(f)	Difference between Expected and Actual Experience at the End of the Year	
(g)	Changes of Assumptions or Other Inputs	
(h)	TOL Rolled Forward to June 30, 2017 = (a) + (b) + (c) + (d) + (e) + (f) + (g)	**$ 4,524,172**

* *The TOL used in the roll-forward as of June 30, 2016 is calculated using the discount rate as of the Prior Measurement Date.*

Note 9: Other Postemployment Benefits - Life Insurance Plan

A. PLAN DESCRIPTON

TRS administers the Life Insurance Plan (LIF) as provided by KRS 161.655 to provide life insurance benefits to retired and active members. This benefit is financed by actuarially determined contributions from the 207 participating employers. The benefit is $5,000 for members who are retired for service or disability, and $2,000 for active contributing members.

B. NET OPEB LIABILITY OF EMPLOYERS

The net OPEB liability (i.e., the System's liability determined in accordance with GASB No. 74 less the fiduciary net position) for the life insurance fund as of June 30, 2018 and 2017 is shown below.

Net OPEB Liability of Employers
(In thousands of dollars)

Fiscal Year Ending June 30	Total OPEB Liability (TOL) A	Plan Fiduciary Net Position B	Employers Net OPEB Liability (NOL) (A-B)	Plan Fiduciary Net Position (FNP) as a % of Total OPEB Liability (B/A)	Covered Payroll C	Net OPEB Liability as a % of Covered Payroll [A-B/C]
2018	$ 112,660	$ 84,462	$ 28,198	75.0%	$ 3,455,660	0.82%
2017	109,736	87,777	21,959	80.0	3,415,432	0.64

Note 9: Other Postemployment Benefits - Life Insurance Plan continued . . .

C. SUMMARY OF ACTUARIAL ASSUMPTIONS

A summary of the actuarial assumptions as of the latest actuarial valuation is shown below.

Valuation Date	6/30/2017
Actuarial Assumptions:	
Actuarial Cost Method	Entry Age
Amortization Method	Level Percent of Payroll
Amortization Period	30 years, closed
Asset Valuation Method	Market Value
Investment Rate of Return	7.50%, net of OPEB plan investment expense, including inflation.
Projected Salary Increases	4.00 - 8.10%, including wage inflation
Inflation Rate	3.50%
Real Wage Growth	0.50%
Wage Inflation	4.00%
Municipal Bond Index Rate	3.89%
Discount Rate	7.50%
Single Equivalent Interest Rate	7.50%, net of OPEB plan investment expense, including price inflation

Mortality rates were based on the RP-2000 Combined Mortality Table projected to 2025 with projection scale BB, and set forward two years for males and one year for females is used for the period after service retirement and for dependent beneficiaries. The RP-2000 Disabled Mortality Table set forward two years for males and seven years for females is used for the period after disability retirement. The demographic actuarial assumptions for retirement, disability incidence, withdrawal, rates of plan participation, and rates of plan election used in the June 30, 2017 valuation were based on the results of the most recent actuarial experience studies for the System, which covered the five-year period ending June 30, 2015.

D. TARGET ALLOCATIONS

The long-term expected rate of return on OPEB investments was determined using a log-normal distribution analysis 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 allocation and best estimates of arithmetic real rates of return for each major asset class, as provided by TRS's investment consultant, are summarized in the following table:

Asset Class	Target Allocation	Expected Geometric Real Rate of Return
U.S. Equity	40.0%	4.2%
International Equity	23.0	5.2
Fixed Income	18.0	1.2
Real Estate	6.0	3.8
Private Equity	5.0	6.3
Additional Categories	6.0	3.3
Cash	2.0	0.9
Total	**100.0%**	

Note 9: Other Postemployment Benefits - Life Insurance Plan continued . . .

E. DISCOUNT RATE

The discount rate used to measure the TOL as of the Measurement Date was 7.50%. The projection of cash flows used to determine the discount rate was performed in accordance with GASB 74. The projection's basis was an actuarial valuation performed as of June 30, 2017. In addition to the actuarial methods and assumptions of the June 30, 2017 actuarial valuation, the following actuarial methods and assumptions were used in the projection of the LIF's cash flows:

- Total payroll for the initial projection year consists of the payroll of the active membership present on the Valuation Date. In subsequent projection years, total payroll was assumed to increase annually at a rate of 3.50%.
- The employer will contribute the Actuarially Determined Contribution (ADC) in accordance with the LIF's funding policy (Schedule E) determined by a valuation performed on a date two years prior to the beginning of the fiscal year in which the ADC applies.
- As administrative expenses were assumed to be paid in all years by the employer as they come due, they were not considered.
- Active employees do not explicitly contribute to the plan.
- Cash flows occur mid-year.

Based on these assumptions, the LIF's FNP was not projected to be depleted.

The FNP projections are based upon the LIF's financial status on the Valuation Date, the indicated set of methods and assumptions, and the requirements of GASB 74. As such, the FNP projections are not reflective of the cash flows and asset accumulations that would occur on an ongoing basis, reflecting the impact of future members. Therefore, the results of these tests do not necessarily indicate whether or not the LIF will actually run out of money, the financial condition of the LIF, or the LIF's ability to make benefit payments in future years.

These paragraphs require disclosure of the sensitivity of the NOL to changes the discount rate for the LIF. The schedules below presents the NOL of the LIF, calculated using the Single Equivalent Interest Rate, as well as what the LIF's NOL would be if it were calculated using a Discount Rate that is 1-percentage-point lower or 1-percentage-point higher than the current Single Equivalent Interest Rate:

System's Net OPEB Liability 2018
(In thousands of dollars)

1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
$ 42,929	$ 28,198	$ 16,114

System's Net OPEB Liability 2017
(In thousands of dollars)

1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
$ 36,497	$ 21,959	$ 10,055

The TOL of the LIF for 2018 is based upon an actuarial valuation performed as of the Valuation Date, June 30, 2017. An expected TOL is determined as of June 30, 2018 using standard roll-forward techniques. The roll-forward calculation begins with the TOL, as of June 30, 2017, subtracts the actual benefit payments (net of retiree contributions, if applicable) for the year, applies interest at the discount rate for the year, and then adds the annual normal cost (also called the Service Cost). If applicable, actuarial gains and losses arising from the difference between estimates and actual experience (excluding amounts related to benefit changes and changes in assumptions or other inputs) are reconciled to the TOL as of the Measurement Date. Last, any changes of assumptions or other inputs are reflected. The procedure used to determine the TOL of the LIF, as of June 30, 2018, is shown in the following table:

Note 9: Other Postemployment Benefits - Life Insurance Plan continued . . .

TOL Roll-Forward 2018
(In thousands of dollars)

		Expected	Actual
(a)	TOL as of June 30, 2017*	$ 109,736	$ 109,069
(b)	Actual Benefit Payments and Refunds for the Year July 1, 2017 - June 30, 2018	(5,453)	(5,453)
(c)	Interest on TOL = [(a) x (0.080)] + [(b) x (0.0400]	8,026	7,976
(d)	Service Cost for the Year July 1, 2017 - June 30, 2018 at the End of the Year	1,068	1,068
(e)	Changes of Benefit Terms		
(f)	Changes of Assumptions (updated health care trend)		
(g)	TOL Rolled Forward to June 30, 2018 = (a) + (b) + (c) + (d) + (e) + (f) + (g)	$ 113,377	$ 112,660
(h)	Difference between Expected and Actual Experience		$ (717)

* *The TOL used in the roll-forward as of June 30, 2017 is calculated using the discount rate as of the Prior Measurement Date.*

The TOL of the LIF for 2017 is based upon an actuarial valuation performed as of the Valuation Date, June 30, 2016. An expected TOL is determined as of June 30, 2017 using standard roll-forward techniques. The roll-forward calculation begins with the TOL, as of June 30, 2016, subtracts the actual benefit payments (net of retiree contributions, if applicable) for the year, applies interest at the discount rate for the year, and then adds the annual normal cost (also called the Service Cost). If applicable, actuarial gains and losses arising from the difference between estimates and actual experience (excluding amounts related to benefit changes and changes in assumptions or other inputs) are reconciled to the TOL as of the Measurement Date. Last, any changes of assumptions or other inputs are reflected. The procedure used to determine the TOL of the LIF, as of June 30, 2017, is shown in the following table:

TOL Roll-Forward 2017
(In thousands of dollars)

(a)	TOL as of June 30, 2016*	$ 106,059
(b)	Actual Benefit Payments and Refunds for the Year July 1, 2016 - June 30, 2017	(5,151)
(c)	Interest on TOL = [(a) x (0.075)] + [(b) x (0.0375)	7,761
(d)	Service Cost for the Year July 1, 2016 - June 30, 2017 at the End of the Year	1,067
(e)	Changes of Benefit Terms	
(f)	Difference between Expected and Actual Experience at the End of the Year	
(g)	Changes of Assumptions or Other Inputs	
(h)	TOL Rolled Forward to June 30, 2017 = (a) + (b) + (c) + (d) + (e) + (f) + (g)	**$ 109,736**

* *The TOL used in the roll-forward as of June 30, 2016 is calculated using the discount rate as of the Prior Measurement Date.*

Note 10: Commitments and Contingencies

During the 2018 legislative session, the Kentucky General Assembly passed significant pension changes with SB 151 and was signed into law by the Governor on April 10, 2018. TRS has been enjoined from implementing SB 151 by the Franklin Circuit Court in a ruling dated June 20, 2018. The case is pending before the Kentucky Supreme Court.

REQUIRED SUPPLEMENTARY INFORMATION

Schedule of Changes in Net Pension Liability

(In thousands of dollars)

Change in the total pension liability	2018	2017	2016	2015	2014
Total pension liability					
Service Cost	$ 1,104,102	$ 1,332,587	$ 1,120,893	$ 1,015,080	$ 1,002,338
Interest	2,063,109	1,964,107	2,027,457	2,029,372	1,956,610
Difference between expected and actual experience	(222,473)	199,471	(58,035)		
Changes of assumptions	(14,167,315)	(2,321,327)	4,030,834	1,511,960	(353,043)
Benefit payments	(2,004,617)	(1,918,612)	(1,833,199)	(1,741,456)	(1,654,376)
Refunds of contributions	(31,073)	(26,305)	(27,748)	(23,033)	(25,462)
Net change in total pension liability	(13,258,267)	(770,079)	5,260,202	2,791,923	926,067
Total pension liability - beginning	46,966,822	47,736,901	42,476,699	39,684,776	38,758,709
Total pension liability - ending (a)	$ 33,708,555	$ 46,966,822	$ 47,736,901	$ 42,476,699	$ 39,684,776
Plan Net Position					
Contributions - State of Kentucky	$ 969,698	$ 981,417	$ 484,987	$ 480,073	$ 483,330
Contributions - Other Employers	78,973	79,303	80,468	79,506	79,996
Contributions - Members	319,127	313,625	313,044	308,160	304,982
Net investment income	1,953,214	2,475,753	(245,215)	862,179	2,803,249
Benefit payments	(2,004,617)	(1,918,612)	(1,833,199)	(1,741,456)	(1,654,376)
Administrative expense	(11,388)	(10,314)	(8,636)	(8,869)	(7,956)
Refunds of contributions	(31,073)	(26,305)	(27,748)	(23,033)	(25,462)
Net change in plan net position	1,273,934	1,894,867	(1,236,299)	(43,440)	1,983,763
Plan net position - beginning	18,707,699	16,812,832	18,049,131	18,092,571	16,108,808
Plan net position - ending (b)	19,981,633	18,707,699	16,812,832	18,049,131	18,092,571
Net pension liability - ending (a) - (b)	$ 13,726,922	$ 28,259,123	$ 30,924,069	$ 24,427,568	$ 21,592,205

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

See accompanying independent auditor's report.

Required Supplementary Information continued . . .

Note 1
Schedule of Changes in the Net Pension Liability

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

Changes of Benefit Terms. None.

Changes of assumptions. In the 2016 valuation, rates of withdrawal, retirement, disability, mortality and rates of salary increase were adjusted to more closely reflect actual experience. In the 2016 valuation and later, the expectation of retired life mortality was changed to the RP-2000 Mortality Tables projected to 2025 with projection scale BB, set forward two year for males and one year for females rather than the RP-2000 Mortality Tables projected to 2020 with projection scale AA, which was used prior to 2016.

In the 2011 valuation, rates of withdrawal, retirement, disability and mortality were adjusted to more closely reflect actual experience. In the 2011 valuation and later, the expectation of retired life mortality was changed to the RP-2000 Mortality Tables projected to 2020 with projection scale AA, set back one year for females rather than the 1994 Group Annuity Mortality Tables which was used prior to 2016. For the 2011 valuation through the 2013 valuation, an interest smoothing methodology was used to calculate liabilities for purposes of determining the actuarially determined contributions.

Schedule of Net Pension Liability
(In thousands of dollars)

	2018	2017	2016	2015	2014
Total pension liability	$ 33,708,555	$ 46,966,822	$ 47,736,901	$ 42,476,699	$ 39,684,776
Plan net position	19,981,633	18,707,699	16,812,832	18,049,131	18,092,571
Net pension liability	$ 13,726,922	$ 28,259,123	$ 30,924,069	$ 24,427,568	$ 21,592,205
Ratio of plan net position to total pension liability	59.28 %	39.83 %	35.22 %	42.49 %	45.59 %
Covered payroll	$ 3,455,660	$ 3,415,432	$ 3,390,539	$ 3,455,008	$ 3,317,422
Net pension liability as a percentage of covered payroll	397.23 %	827.40 %	912.07 %	707.02 %	650.87 %

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

Schedule of Employer Contributions
(In thousands of dollars)

Fiscal Year Ended June 30	Covered Payroll	Actual Employer Contributions	Actuarially Determined Employer Contributions	Annual Contribution Excess (Deficiency)	Actual Contributions as a Percentage of Covered Payroll
2018	$ 3,455,660	$ 1,048,671	$ 1,083,466	$ (34,795)	30.35 %
2017	3,415,432	1,060,720	1,076,617	(15,897)	31.06
2016	3,390,539	565,455	999,270	(433,815)	16.68
2015	3,455,008	559,579	913,654	(354,075)	16.20
2014*	3,317,422	563,326	823,446	(260,120)	16.98
2013	3,310,710	568,233	802,985	(234,752)	17.16
2012	3,310,176	557,340	757,822	(200,482)	16.84
2011	3,283,749	1,037,936	678,741	359,195	31.61
2010	3,321,614	479,805	633,938	(154,133)	14.44
2009	3,253,077	442,550	600,283	(157,733)	13.60

** Revised from previous year to reflect actual covered-employee payroll.*

See accompanying independent auditor's report.

Required Supplementary Information continued . . .

Note 2
Schedule of Employer Contributions

The required employer contributions and percent of those contributions actually made are presented in the schedule on the preceeding page.

Note 3
Actuarial Methods and Assumptions

The actuarially determined contribution rates in the schedule of employer contributions are calculated as of June 30, three years prior to the end of the fiscal year in which contributions are reported. The following actuarial methods and assumptions were used to determine contribution rates reported in the most recent year of the schedule:

Actuarial cost method	Entry age
Amortization period	Level percentage of payroll, open
Remaining amortization period	30 years
Asset valuation method	5-year smoothed market
Inflation	3.50 percent
Salary increase	4.00 to 8.20 percent, including inflation
Ultimate Investment rate of return	7.50 percent, net of pension plan investment expense, including inflation

Schedule of Investment Returns
Retirement Annuity Trust

	2018	2017	2016	2015	2014
Annual money weighted rate of return, net of investment expense	10.50%	15.00%	-1.32%	4.96%	17.95%

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

See accompanying independent auditor's report.

Required Supplementary Information continued . . .

Medical Insurance Plan
Schedule of Changes in the Net OPEB Liability
(In thousands of dollars)

	2018	2017
Total OPEB liability		
Service Cost	$ 95,382	$ 95,625
Interest	355,491	333,990
Changes of benefit terms		8,926
Difference between expected and actual experience	(210,450)	
Changes of assumptions	56,483	
Benefit payments	(161,082)	(178,500)
Net change in OPEB liability	135,824	260,041
Total OPEB liability - beginning	4,524,172	4,264,131
Total OPEB liability - ending (a)	$ 4,659,996	$ 4,524,172
Plan Net Position		
Contributions - State of Kentucky	$ 80,959	$ 75,497
Contributions - Other Employers	106,143	104,879
Contributions - Active Members	130,778	128,819
Net investment income	76,841	95,453
Benefit payments	(161,082)	(178,500)
Administrative expense	(1,748)	(1,539)
Other		
Net change in plan net position	231,891	224,609
Plan net position - beginning	958,390	733,781
Plan net position - ending (b)	1,190,281	958,390
Net OPEB liability - ending (a) - (b)	**$ 3,469,715**	**$ 3,565,782**

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

See accompanying independent auditor's report.

Required Supplementary Information continued . . .

Note 1
Schedule of Changes in the Net OPEB Liability

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

Changes of Benefit Terms. With the passage of House Bill 471 (RS 2017), the eligibility for non-single subsidies (NSS) for the KEHP-participating members who retired prior to July 1, 2010 is restored, but the State will only finance, via its KEHP "shared responsibility" contributions, the costs of the NSS related to those KEHP-participating members who retired on or after July 1, 2010.

Changes of assumptions. None

Medical Insurance Plan
Schedule of Net OPEB Liability
(In thousands of dollars)

Valuation Year June 30	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability	Plan Fiduciary Net Position as a % of Total OPEB Liability	Covered Payroll	Net OPEB Liability as a % of Covered Payroll
2018	$ 4,659,996	$ 1,190,281	$ 3,469,715	25.54%	$ 3,455,660	100.41%
2017	4,524,172	958,390	3,565,782	21.18	3,415,432	104.40

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

Medical Insurance Plan – Schedule of Employer Contributions

Valuation Year June 30	Actuarially Determined Employer Contribution	Contributions in Relation to the Actuarially Determined Contribution	Annual Contribution Deficiency/ (Excess)	Covered Payroll	Actual Contributions as a Percentage of Covered Payroll
2018	$ 118,837	$ 187,102	$ (68,265)	$ 3,455,660	5.41%
2017	102,854	180,376	(77,522)	3,415,432	5.28
2016	97,983	221,967	(123,984)	3,390,539	6.55
2015	106,606	168,084	(61,478)	3,455,008	4.86
2014	159,583	162,568	(2,985)	3,317,422	4.90
2013	186,726	166,611	20,115	3,310,710	5.03
2012	470,217	177,748	292,469	3,310,176	5.37
2011	477,723	188,735	288,988	3,283,749	5.75
2010	457,054	173,380	283,674	3,321,614	5.22
2009	467,313	178,092	289,221	3,253,077	5.47

See accompanying independent auditor's report.

Required Supplementary Information continued . . .

Note 2
Schedule of Employer Contributions

The required employer contributions and percent of those contributions actually made are presented in the schedule on the preceeding page.

Note 3
Actuarial Methods and Assumptions

The actuarially determined contribution rates in the schedule of employer contributions are calculated as of June 30, three years prior to the end of the fiscal year in which contributions are reported. The following actuarial methods and assumptions were used to determine contribution rates reported in the most recent year of the schedule:

Actuarial cost method	Entry age normal
Amortization method	Level percentage of payroll
Amortization period	23 years, closed
Asset valuation method	5-year smoothed value
Inflation	3.00 percent
Real wage growth	0.50 percent
Wage inflation	3.50 percent
Salary increase	3.50 to 7.20 percent, including wage inflation
Discount rate	8.00 percent
MIF health care cost trends	
Under age 65	7.75 percent FYE 2017, decreasing to an ultimate rate of 5.00 percent by FYE 2023
Ages 65 and older	5.75 percent FYE 2017, decreasing to an ultimate rate of 5.00 percent by FYE 2020
Medicare part B premiums	1.02 percent FYE 2017 with an ultimate rate of 5.00 percent by FYE 2029
MIF under age 65 claims	The current premium charged by KEHP is used as the base cost and is projected forward using only the health care trend assumption (no implicit rate subsidy is recognized).

Schedule of Investment Returns
Health Insurance Trust

	2018	2017	2016	2015	2014
Annual money weighted rate of return, net of investment expense	8.44 %	14.37 %	-2.20 %	1.38 %	15.38 %

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

See accompanying independent auditor's report.

Required Supplementary Information continued . . .

Life Insurance Plan
Schedule of Changes in the Net OPEB Liability
(In thousands of dollars)

	2018	2017
Total OPEB liability		
Service Cost	$ 1,068	$ 1,067
Interest	8,026	7,761
Changes of benefit terms		
Difference between expected and actual experience	(717)	
Changes of assumptions		
Benefit payments	(5,453)	(5,151)
Net change in OPEB liability	2,924	3,677
Total OPEB liability - beginning	109,736	106,059
Total OPEB liability - ending (a)	$ 112,660	$ 109,736
Plan Net Position		
Contributions - State of Kentucky	$ 897	$ 882
Contributions - Other Employers	161	168
Contributions - Active Members		
Net investment income	1,111	915
Benefit payments	(5,453)	(5,151)
Administrative expense	(31)	(28)
Other		
Net change in plan net position	(3,315)	(3,214)
Plan net position - beginning	87,777	90,991
Plan net position - ending (b)	84,462	87,777
Net OPEB liability - ending (a) - (b)	**$ 28,198**	**$ 21,959**

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

Note 1
Schedule of Changes in the Net OPEB Liability

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

Changes of Benefit Terms. None

Changes of assumptions. None

Life Insurance Plan
Schedule of Net OPEB Liability
(In thousands of dollars)

Valuation Year June 30	Total OPEB Liability	Plan Fiduciary Net Position	Net OPEB Liability	Plan Fiduciary Net Position as a % of Total OPEB Liability	Covered Payroll	Net OPEB Liability as a % of Covered Payroll
2018	$ 112,660	$ 84,462	$ 28,198	74.97%	$ 3,455,660	0.82%
2017	109,736	87,777	21,959	79.99	3,415,432	0.64

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

See accompanying independent auditor's report.

Required Supplementary Information continued . . .

Life Insurance Plan – Schedule of Employer Contributions

Valuation Year June 30	Actuarially Determined Employer Contribution	Contributions in Relation to the Actuarially Determined Contribution	Annual Contribution Deficiency/(Excess)	Covered Payroll	Actual Contributions as a % of Covered Payroll
2018	$ 1,075	$ 1,058	$ 17	$ 3,455,660	0.03 %
2017	1,065	1,050	15	3,415,432	0.03
2016	1,058	1,038	20	3,390,539	0.03
2015	1,050	1,020	30	3,455,008	0.03
2014	1,045	1,006	39	3,317,422	0.03
2013	1,740	1,680	60	3,310,710	0.05
2012	1,733	1,685	48	3,310,176	0.05
2011	1,726	1,669	57	3,283,749	0.05
2010	1,993	1,967	26	3,321,614	0.06
2009	1,498	5,455	(3,957)	3,253,077	0.17

Note 2
Schedule of Employer Contributions

The required employer contributions and percent of those contributions actually made are presented in the schedule above.

Note 3
Actuarial Methods and Assumptions

The actuarially determined contribution rates in the schedule of employer contributions are calculated as of June 30, three years prior to the end of the fiscal year in which contributions are reported. The following actuarial methods and assumptions were used to determine contribution rates reported in the most recent year of the schedule:

Actuarial cost method	Entry age normal
Amortization method	Level percentage of payroll
Amortization period	30 years, open
Asset valuation method	Market value
Inflation	3.50 percent
Real wage growth	0.50 percent
Wage inflation	4.00 percent
Salary increase	4.00 to 8.10 percent, including wage inflation
Discount rate	7.50 percent

Schedule of investment returns – TRS began separate reporting of its life insurance fund effective February 1, 2018 as it was previously reported as part of the pension fund's gross and net performance. Gross and net of fees returns for the life insurance fund are being constructed for publication in the June 30, 2019 financial reports.

See accompanying independent auditor's report.

ADDITIONAL SUPPORTING SCHEDULES

Schedule of Administrative Expenses
For the Year Ended June 30, 2018 and 2017

Expense	2018	2017
Salaries	$ 7,362,335	$ 7,185,686
Other Personnel Costs	669,764	735,748
Professional Services and Contracts	796,286	395,216
Utilities	106,115	100,641
Rentals	25,175	23,607
Maintenance	66,229	56,520
Postage & Related Services	321,972	300,813
Printing	211,541	188,135
Insurance	190,420	175,768
Miscellaneous Services	162,597	159,272
Telecommunications	21,002	20,958
Computer Services	171,465	145,252
Supplies	40,962	63,097
Depreciation	2,168,364	1,996,821
Travel	45,427	40,734
Dues & Subscriptions	82,987	65,361
Miscellaneous Commodities	11,914	11,095
Office Systems and Equipment	796,885	110,821
Compensated Absences	(83,324)	105,642
Total Administrative Expenses	**$ 13,168,116**	**$ 11,881,187**

See accompanying independent auditor's report.

Additional Supporting Schedules continued . . .

Schedule of Professional Services and Contracts
For the Year Ended June 30, 2018 and 2017

Professional	Nature of Service	2018	2017
Cavanaugh Macdonald Consulting	Actuarial	$ 292,886	$ 157,089
Mountjoy Chilton Medley	Auditing	69,704	89,214
International Claim Specialist	Investigative		1,512
Ice Miller	Attorney	111,020	24,233
Attorney General	Attorney	313	
Stoll, Keenon, and Ogden	Attorney	9,063	3,168
Aon Hewitt	Consulting	193,300	
Peritus	Communications	120,000	120,000
Total Professional Services and Contracts		**$ 796,286**	**$ 395,216**

Additional Supporting Schedules continued . . .

Schedule of Contracted Investment Management Expenses
Year Ended June 30, 2018

	Defined Benefit Plan*	Medical	Life	Total
Equity Managers				
Baillie Gifford	$ 4,160,155	$	$	$ 4,160,155
Baring Asset Management, Inc.	2,852,707			2,852,707
Black Rock	402,156	194,711		596,867
Fort Washington Focused Equity	881,923	120,165		1,002,088
GE Asset Management				
State Street	799,463			799,463
Todd-Veredus Asset Management LLC	1,394,388			1,394,388
UBS Global Asset Management	805,403			805,403
Wellington Management Company	3,397,200			3,397,200
Total Equity Managers	14,693,395	314,876		15,008,271
Fixed Income Managers				
Fort Washington Investment Advisors	184,885			184,885
Galliard Capital Management	258,151			258,151
Total Fixed Income Managers	443,036			443,036
Real Estate	10,106,962	997,685	1,027	11,105,674
Additional Categories	9,256,358	977,406	2,167	10,235,931
Alternative Investments	17,051,168	1,313,059		18,364,227
Custodian				
The Bank of New York Mellon	517,884	84,018	4,412	606,314
Consultant				
Hewitt Ennis Knupp, Inc.	419,789			419,789
Bevis Longstreth	52,905			52,905
George Philip	33,399			33,399
Total Consultants	506,093			506,093
Legal & Research				
Reinhart, Boerner Van Deuren				
Ice Miller	59,131			59,131
Total Legal & Research	59,131			59,131
Other				
Administrative and Operational (includes Personnel)	2,882,695	255,698	105,847	3,244,240
Total Contracted Investment Management Expenses	**$ 55,516,722**	**$ 3,942,742**	**$ 113,453**	**$ 59,572,917**

* *Includes expenses for the 403(b) Tax Sheltered and Losey Scholarship funds.*

See accompanying independent auditor's report.

Additional Supporting Schedules continued . . .

Schedule of Contracted Investment Management Expenses
Year Ended June 30, 2017

	Defined Benefit Plan*	Medical	Life	Total
Equity Managers				
Baillie Gifford	$ 3,114,384	$	$	$ 3,114,384
Baring Asset Management, Inc.	2,473,839			2,473,839
Black Rock	336,647	217,848		554,495
Fort Washington Focused Equity	425,662	57,734		483,396
GE Asset Management	786,682			786,682
Todd Asset Management LLC	1,325,541			1,325,541
UBS Global Asset Management	5,980,296			5,980,296
Wellington Management Company	3,168,837			3,168,837
Total Equity Managers	17,611,888	275,582		17,887,470
Fixed Income Managers				
Fort Washington Investment Broad Market	160,777			160,777
Galliard Capital Management	222,920			222,920
Total Fixed Income Managers	383,697			383,697
Real Estate	8,812,597	731,349		9,543,946
Additional Categories	9,454,366	849,061		10,303,427
Alternative Investments	17,428,907	1,162,667		18,591,574
Custodian				
The Bank of New York Mellon	481,653	53,386		535,039
Consultant				
Hewitt Ennis Knupp, Inc.	413,850			413,850
Bevis Longstreth	51,660			51,660
George Philip	33,965			33,965
Total Consultants	499,475			499,475
Legal & Research				
Reinhart, Boerner Van Deuren	5,936			5,936
Ice Miller	51,266			51,266
Total Legal & Research	57,202			57,202
Other				
Administrative and Operational (includes Personnel)	3,106,379	98,823	10,478	3,215,680
Total Contracted Investment Management Expenses	**$ 57,836,164**	**$ 3,170,868**	**$ 10,478**	**$ 61,017,510**

* *Includes expenses for the 403(b) Tax Sheltered and Losey Scholarship funds.*

See accompanying independent auditor's report.

CPAs / ADVISORS

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REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS*

Independent Auditor's Report

To the Board of Trustees
Teachers' Retirement System of the State of Kentucky
Frankfort, KY

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in Government Auditing Standards issued by the Comptroller General of the United States, the financial statements of the Kentucky Teachers Retirement System, which comprise the statement of fiduciary net position as of June 30, 2018, and the related statement of changes in fiduciary net position for the year then ended, and the related notes to the financial statements, which collectively comprise the Kentucky Teachers Retirement System's basic financial statements, and have issued our report thereon dated November 15, 2018.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Kentucky Teachers Retirement System's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Kentucky Teachers Retirement System's internal control. Accordingly, we do not express an opinion on the effectiveness of the Kentucky Teachers Retirement System's internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A material weakness is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over financial reporting was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Kentucky Teachers Retirement System's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards.*

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Kentucky Teachers Retirement System's internal control or on compliance. This report is an integral part of an audit performed in accordance with Government Auditing Standards in considering the Kentucky Teachers Retirement System's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Blue & Co., LLC

Blue & Co., LLC

Lexington, Kentucky
November 15, 2018

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Teachers' Retirement System
of the State of Kentucky

2018

Investment Section

REPORT ON INVESTMENT ACTIVITY

This report is prepared by the investment staff of the Teachers' Retirement System of the State of Kentucky.

INVESTMENT COMMITTEE

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Director of Investment Accounting

CONSULTANT'S LETTER

October1, 2018

To the members of the Board of Trustees and participants of the Teachers' Retirement System of Kentucky:

The Teachers' Retirement System of Kentucky (TRS) investment program produced a total return of 10.8% for the twelve-month period ended June 30, 2018, exceeding the return of the Policy Benchmark by a meaningful margin of 1.7 percentage points. This return also far exceeded the actuarial assumed rate of return of 7.5% which is the discount rate the TRS actuary uses to calculate the liabilities of the pension fund. Impressively, the fiscal year return ranked near the top of a universe of public pension funds with assets in excess of $1 billion (4th percentile ranking). Each of the TRS asset classes contributed to relative performance during the fiscal year. On an absolute basis, the public equity portfolio fueled results with a return slightly above 14%, while the fixed income allocation was a slight drag on performance as this was one of the lowest returning asset classes during the fiscal year.

Over the past fiscal year, equity markets performed strongly driven by strong economic and corporate fundamentals. The top performing regions in the equity market were United States and Japan. From a style perspective, growth stocks performed better than their value counterparts, led by the information technology sector. Notable TRS equity manager contributions were the Wellington Mid Cap U.S. equity (+20.2%) and Baillie Gifford International equity (+23.4%) portfolios, both of which outperformed their respective benchmarks by wide margins and produced impressive absolute returns in excess of 20%.

In the bond market, the 10-year U.S. Treasury yield ended the fiscal year at 2.85%, 54 basis points higher than the beginning of the fiscal year. TRS's efforts to diversify away from traditional fixed income proved particularly beneficial during FY 2018 as rising interest rates led to a negative return for the U.S. Government/Credit Index whereas the additional categories asset class, which is generally comprised of alternative fixed income, private credit and below investment grade bonds, produced an absolute return in excess of 4% for the fiscal year. The active management efforts within the fixed income asset class also proved fruitful as the in-house managed portfolios added value overall as did each of the externally managed portfolios. Overall, the fixed income portfolio outperformed the benchmark by approximately 70 basis points for the fiscal year.

TRS's initiatives to diversify the real estate allocation also benefitted performance as the value added and opportunistic portfolios produced double digit gains as the returns on core and triple net lease real estate continued to moderate during the fiscal year. In addition to real estate, TRS has diversified its alternatives portfolio across different private equity and infrastructure strategies over the past 10 years, resulting in a fiscal year return of 15.8% on a time-weighted basis.

We would like to thank the Board of Trustees, Investment Committee, and Investment Staff for their confidence. We appreciate the opportunity to assist the retirement system in meeting its investment goals.

Respectfully,

Patrick J. Kelly

Patrick J. Kelly, CFA, CAIA
Partner

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RETIREMENT ANNUITY TRUST FUND

INVESTMENT POLICY SUMMARY

The TRS Board of Trustees has a statutory obligation to invest the members' assets in a manner consistent with the fiduciary standards set forth in the "prudent person rule." Consistent with these fiduciary standards, the board has recognized certain principles that guide investment-related decisions. First, the board will preserve the long-term corpus of the fund. Second, the board will seek to maximize total investment return within prudent risk parameters. Third, the board will act in the exclusive interest of the members and beneficiaries of the System. This broad summary is a reference point for management of retirement assets and outlines the investment philosophy and practice of TRS.

INVESTMENT OBJECTIVES

TRS invests the members' funds in several diverse classes of assets, including equities, bonds and real estate. This diversification helps us earn the highest possible long-term rate of return within appropriate risk levels. In turn this enables us to pay guaranteed benefits to members and their beneficiaries at the lowest possible cost to participating employers and the taxpayers that fund them. Generally, the retirement system's liabilities will not be paid for as many as 30-40 years. Therefore, as a long-term investor, TRS holdings can withstand some short-term volatility. The retirement annuity trust fund's long-term investment objective is to achieve an annualized rate of return of 7.5%.

RISK CONTROLS

The TRS investment program faces various risks; however, the primary risk to TRS is that the assets will not support liabilities over long periods of time. In order to control this risk and any other risks, the board has taken the following steps on an ongoing basis:

- Actuarial valuations are performed each year to evaluate the funding objectives of the retirement system. In addition, every ten years an external audit of the actuary is conducted to ensure that the assumptions made and calculation methods used are resulting in properly computed liabilities of the System.
- Asset/liability studies are conducted approximately every five years. These studies ensure that the portfolio design is structured to meet the liabilities of the retirement system.
- The TRS Investment Committee adopts, and regularly reviews, detailed investment strategies for implementation of the investment policy.

ASSET ALLOCATION

Operating within relevant regulatory limitations, the System's investment consultant, on an annual basis, presents to the Investment Committee for approval target percentages and ranges for the System's various asset classes. These regulatory limitations include both the retirement annuity trust fund and the life insurance fund. Annually approved asset allocation parameters serve to balance the retirement system's liquidity requirements, volatility tolerance, and return requirements to meet both short-term and long-term obligations. The System's assets are diversified across a variety of asset classes, investment management styles, and individual securities in order to reduce volatility and enhance the potential of the investment portfolio to achieve the retirement system's long-term goals.

Asset allocation decisions for pension plans are highly dependent on the unique characteristics of a particular plan. Factors such as liability requirements, the level of funding, and statutory investment restrictions are important considerations within the context of the asset allocation decision making process. Consequently, asset allocations may differ markedly between various pension plans due to their unique circumstances.

The information below shows the System's asset allocation by fair value for the retirement annuity trust fund and the life insurance fund as of June 30, 2018, and June 30, 2017, as well as the target and strategic range for each asset class for fiscal year 2018.

Retirement Annuity Trust

		June 30, 2018*	%		June 30, 2017**	%
Cash Equivalents***	$	236,645,496	1.2	$	366,129,983	2.0
Fixed Income		3,036,033,540	15.3		2,934,013,945	15.9
Domestic Equities		8,164,946,090	41.3		7,682,590,280	41.5
International Equities		4,502,791,612	22.7		4,003,953,513	21.6
Real Estate		1,150,694,282	5.8		1,046,760,134	5.6
Private Equity		1,095,289,506	5.5		854,635,619	4.6
Timberland		187,540,820	1.0		208,219,943	1.1
Additional Categories		1,428,742,753	7.2		1,435,143,550	7.7
TOTALS	**$**	**19,802,684,099**	**100.0**	**$**	**18,531,446,967**	**100.0**

* *Includes Tax Shelter Annuity value of $337,897 and 401(h) value of $20,896,588.*
** *Includes Tax Shelter Annuity value of $343,792 and 401(h) value of $19,471,617.*
*** *Reflects only cash balances not allocated to other asset classes. Any uninvested manager cash balances are represented in the asset class of the respective managers.*

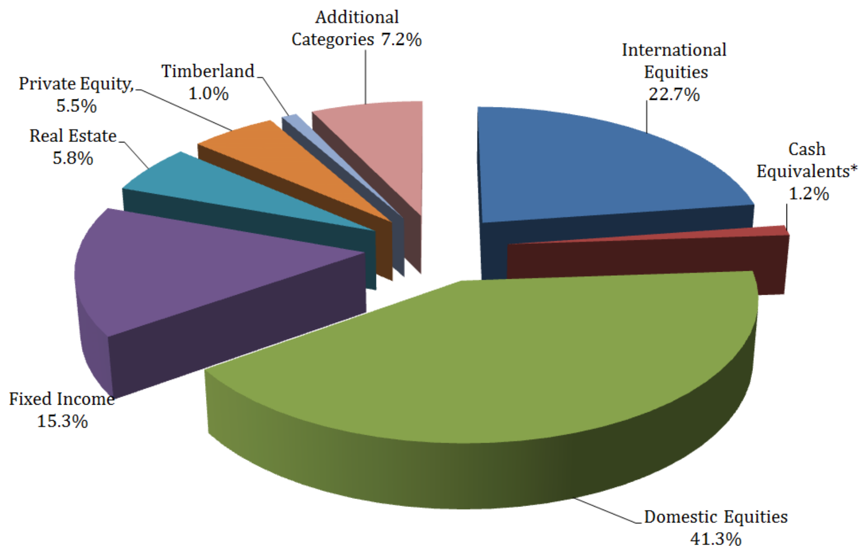
Life Insurance Fund

		June 30, 2018	%		June 30, 2017	%
Cash Equivalents*	$	3,110,722	3.7	$		
Fixed Income		48,373,370	58.1		86,443,328	100.00
Equities		29,960,859	36.0			
Real Estate		541,107	0.6			
Additional Categories		1,300,000	1.6			
TOTALS	**$**	**83,286,058**	**100.0**	**$**	**86,443,328**	**100.0**

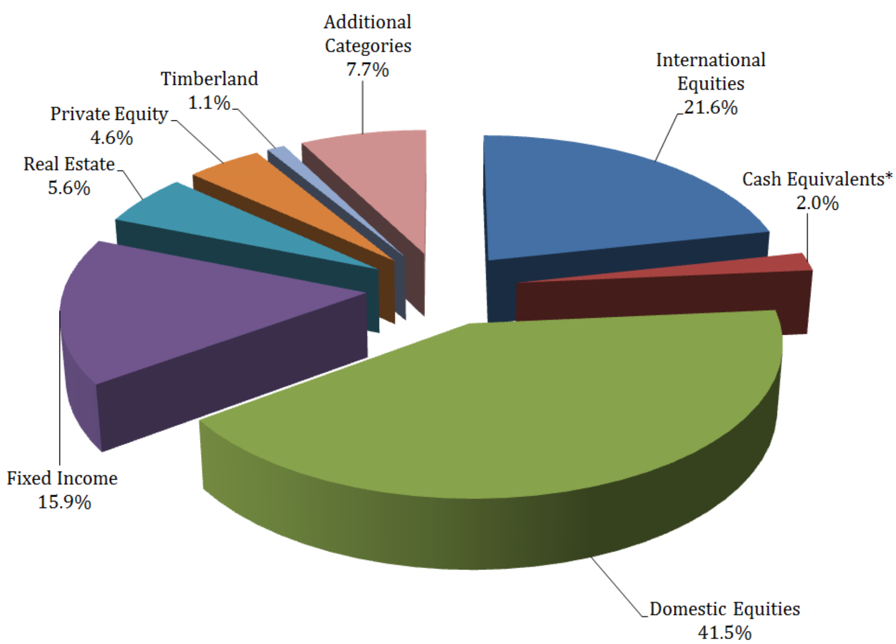
* *Reflects only cash balances not allocated to other asset classes. Any uninvested manager cash balances are represented in the asset class of the respective managers.*

Distribution of Investments
Retirement Annuity Trust
Fair Values

June 30, 2018



June 30, 2017



* *Reflects only cash balances not allocated to other asset classes. Any uninvested manager cash balances are represented in the asset class of the respective managers.*

Strategic Weightings by Asset Class

Asset Class	Regulatory Limits (Market Value)	Strategic Range (Market)	Target (Market)	June 30, 2018 (Market)**
Cash		1 - 3%	2.0%	1.2%
Fixed Income		12 - 19	15.0	15.3
Government/Agency/Other	Unlimited			8.9
Corporate	35%			6.4
Equity	65%	57 - 65	62.0	64.0
Domestic Large Cap		32 - 40	35.0	35.2
Domestic Mid Cap		1 - 5	3.0	3.7
Domestic Small Cap		1 - 3	2.0	2.4
International* **	30%	18 - 25	22.0	22.7
Real Estate	10%	4 - 8	6.0	5.8
Alternative Investments*	10%	4 - 10	7.0	6.5
Additional Categories	15%	5 - 11	8.0	7.2
TOTAL			**100.0%**	**100.0%**

* *Includes private equity, venture capital, timberland, and infrastructure investments.*
** *Beginning in July 2008, manager cash balances included with the asset type of the investment manager.*
*** *As of June 30, 2018, 21.7% of total international equities were invested in emerging markets.*

PORTFOLIO RETURNS

For the fiscal year, the retirement annuity trust fund's portfolio generated a total return of 10.81%, surpassing the policy benchmark return of 9.30%. Domestic equities returned 14.74% versus 14.50% for the Standard & Poor's 1500 Index, while international equities returned 13.07% versus 7.79% for the MSCI All Country World (Ex-US) Index. Fixed income investments outperformed, returning 0.08% versus -0.63% for the Barclays Government/Credit Index. Less traditional asset classes such as real estate, private equity, timberland and alternative credit are beginning to contribute meaningfully to total return as those programs are expanded.

The table below details historical performance for the retirement annuity trust fund and its component asset classes for the period ended June 30, 2018. The retirement annuity trust fund's returns were generated by the Segal Marco Advisors performance reporting system using a time-weighted rate of return calculation based upon market values. TRS began separate reporting of its Life Insurance Fund effective Feb. 1, 2018. Previously, it was reported as part of the pension fund's gross and net performance. Gross and net of fee performance reports for the Life Insurance Fund are being constructed for publication for the next comprehensive annual financial report.

Portfolio Returns continued

Schedule of Investment Returns
Retirement Annuity Trust Gross

	Market Value	1-year	3-year*	5-year*	10-year*	20-year*
TOTAL PLAN	$ 19,802,684,099	10.81	8.16	9.44	8.02	6.27
Policy Benchmark**		9.30	*8.15*	*8.98*	*7.48*	
Total Equity	$ 12,667,737,702	14.08	9.87	11.90	8.98	6.35
Domestic Equity	$ 8,164,946,090	14.74	10.92	13.44	10.40	7.00
S&P 1500 Index		*14.50*	*11.90*	*13.40*	*10.29*	
All-Cap Equities	$ 260,570,118	11.76				
Russell 3000		14.78				
Large-Cap Equities	$ 6,714,678,931	14.45	10.75	13.34	10.24	
S&P 500 Index		*14.37*	*11.93*	*13.42*	*10.17*	*6.45*
Mid-Cap Equities	$ 718,936,929	16.74	12.35	14.22	10.56	
S&P 400 Index		*13.50*	*10.89*	*12.69*	*10.78*	
Small-Cap Equities	$ 470,760,112	17.77	12.75	14.37	12.39	
S&P 600 Index		*20.50*	*13.84*	*14.60*	*12.25*	
International Equity***	$ 4,502,791,612	13.07	7.52	8.44	4.95	
MSCI AC World Ex US		*7.79*	*5.56*	*6.48*	*3.01*	
Fixed Income	$ 3,036,033,540	0.08	2.32	2.78	4.73	5.28
Barclay's Govt./Credit Index		*-0.63*	*1.83*	*2.29*	*3.78*	*4.74*
Real Estate						
TRS Real Estate Equity	$ 420,940,001	15.30	11.18	9.59	9.01	9.05
CPI plus 2%		*4.85*	*3.86*	*3.57*	*3.47*	*4.18*
Core Real Estate:	$ 417,556,035	8.08	10.04	11.60	4.27	
NCREIF ODCE (VW)		*8.44*	*9.37*	*11.04*	*5.29*	
Non-Core Real Estate:	$ 312,198,246	14.71	14.95	16.40		
NCREIF Property Index		*7.19*	*8.25*	*9.77*		
Alternative Investments						
Private Equity	$ 1,095,289,506	20.74	12.29	13.39	10.91	
Mature Private Equity	$ 428,356,408	*18.56*	*9.11*	*11.25*		
S&P 500 plus 3%		17.81	15.29	16.82		
Private Equity < 5 Years	$ 666,933,098	23.15	15.08	14.72	11.95	
Timberland:	$ 187,540,819	-5.39	0.76	3.21	3.27	
NCREIF Timberland Index		*3.57*	*3.43*	*6.00*	*4.01*	
Additional Categories	$ 1,428,742,753	4.28	4.25	4.83		
B of A Merrill Lynch High Yield Master II		*2.53*	*5.55*	*5.51*		
Cash (Unallocated)	$ 236,645,496	1.44	0.75	0.48	0.40	2.15
90 Day T-Bill		*1.36*	*0.64*	*0.40*	*0.33*	*1.86*

Total Plan Gross Return for 30-year period* **8.39**

* *Returns are annualized for periods longer than one year.*

** *Prior to July 1, 2008, TRS did not benchmark overall fund performance. Effective July 1, 2008, the Board of Trustees approved a policy index that represents the returns of appropriate benchmarks for the various asset classes weighted by the midpoint of the strategic range for the current fiscal year.*

*** *As of June 30, 2018, 21.7% of total international equities were invested in emerging markets.*

Schedule of Investment Returns
Retirement Annuity Trust—Net Investment of Expense

2018	10.50%
2017	15.00
2016	-1.32
2015	4.96
2014	17.95

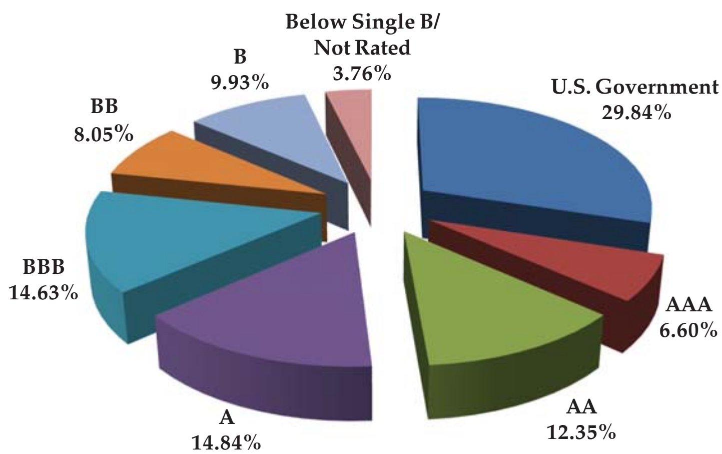
FIXED INCOME INVESTMENTS

As of June 30, 2018, the Retirement Annuity Trust Fund had approximately $3.03 billion, 15.3% of total assets, in the fixed income category of investments. The Retirement Annuity Trust Fund's fixed income investments as of June 30, 2018, maintained the average investment grade rating required by administrative regulation.

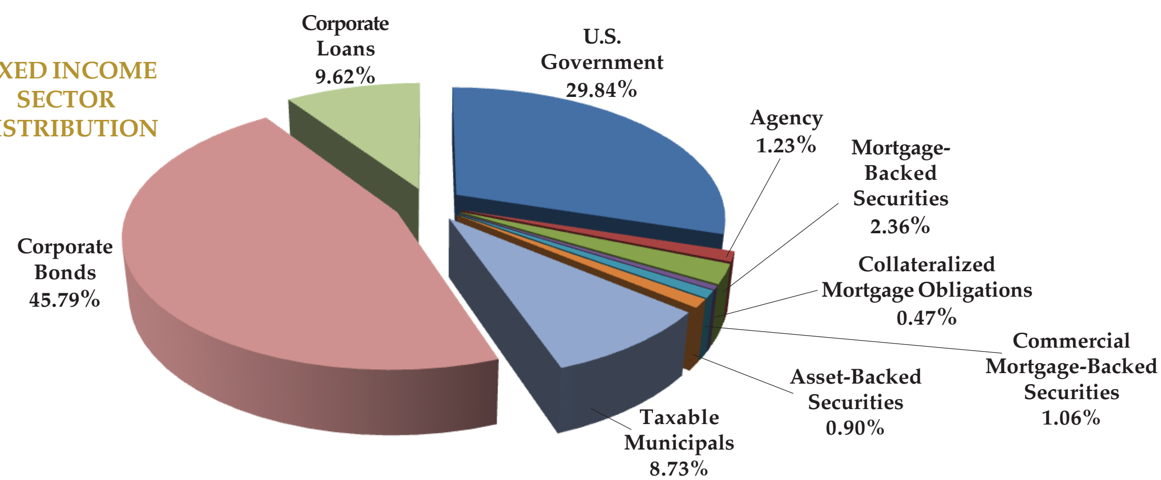
In addition, the Retirement Annuity Trust Fund had $1.43 billion, 7.2% of total assets, in other debt-related investments under a regulatory provision that allows for up to 15% of assets in additional categories of investments approved by the Board of Trustees. Investments under this authorization included two high-yield bond portfolios and two syndicated bank loan portfolios. Also under this provision are several alternative credit portfolios, including a multi-strategy opportunistic credit portfolio as well as distressed debt and specialty lending funds.

The credit quality distribution for the retirement annuity trust fund is illustrated below. This chart includes the fixed income category of investments as well as the high-yield bonds, international fixed income and the syndicated bank loan portfolios included in additional categories of investments. Also illustrated below is the distribution of fixed income assets by sector, again including the high yield bonds, international fixed income, and the syndicated bank loan portfolios held under additional categories of investments.

FIXED INCOME QUALITY DISTRIBUTION BY RATING



FIXED INCOME SECTOR DISTRIBUTION



FIXED INCOME MARKET OVERVIEW

The retirement annuity trust fund's investment-grade fixed income portfolios returned 0.08% for the year ended June 30, 2018. This compares favorably to the trust fund's fixed income benchmark, the Bloomberg Barclays U.S. Government/Credit index, which returned -0.63%. The outperformance was driven by TRS's overweighting in corporate bonds that provided a higher coupon than government bonds of similar duration.

The Federal Reserve targets an overall annual inflation rate of 2%, a pace it views as appropriate for economic growth and price stability. Current inflation, as measured by the year-over-year Consumer Price Index (CPI) and Produce Price Index (PPI), was higher during the last quarter of fiscal year 2018. The CPI was up 2.8% year over year. The PPI has increased 3.1% over the last year. The increase in CPI was driven higher due to strong economic expansion in the United States, fueled by an increase in consumer spending due to new tax cuts, strong labor markets and slightly higher wages. Oil prices also increased $10 a barrel to $74.50 during the last quarter of the fiscal year. The Fed's preferred measure of inflation is the price index for Personal Consumption Expenditures (PCE). This measure has moved higher and hit the Federal Funds target, with a year-over-year increase of 2.3%. The Fed hiked the Funds Rate 25 basis points in June, of this year bringing the rate up to 1.75% to 2.00%. In summary, inflation has moved higher and is now at the Fed's target. It is important to monitor this and see if the rate continues to move higher for future Federal Funds rate increases.

Coming out of 2017, expectations were widespread that a synchronized global expansion lay ahead in 2018. This was due to 3% growth the last nine months of 2017; however, growth in the first quarter of 2018 was 2.0%. The second quarter of 2018 bounced back, nearly doubling the first quarter's growth, with 4.1% GDP growth. Retail sales and consumer spending data ended the quarter strong, after a weak start, fueled by the new tax cuts, high consumer confidence and a strong labor market. Housing data was mixed with weaker existing home sales and stronger new home sales. Housing prices were up 6.4% as measured by the S&P/Case-Shiller Home Price index. The combination of high home prices and higher mortgages due to rising rates could soften the housing market over the next year. Measures of manufacturing were mixed, as the potential for a trade war had companies being cautious in the short term.

Global risk assets (non-U.S. Treasurys) spreads continued to widen from very tight levels at the beginning of the year. Gains across most risk assets occurred despite higher volatility, weaker economic growth in Europe and Japan, higher U.S. interest rates, concerns over a possible trade-war and country specific-problems, such as Argentina and Turkey.

Investment-grade corporate spreads widened by 13 basis points during the last quarter of the fiscal year 2018 to +126 basis points over U.S. Treasurys of same duration and are trading tighter than long-term averages. Spreads for investment-grade corporates ended fiscal year 2017 +111. Investment-grade corporate bonds were the biggest laggards in the second quarter of 2018, as anticipation of higher rates put downward pressure on prices within the segment, returning -0.98% as measured by the Bloomberg Barclays U.S. Investment Grade Corporate index. Financials performed better than industrials and utilities, while longer duration corporates had much weaker returns than shorter duration corporates. In mortgages, most sectors had similar returns with asset-backed securities posting the highest return.

With U.S. Treasury rates and risk premiums on corporate bonds both still relatively near the low end of their historical range, investment-grade fixed income is an asset class with moderately unfavorable risk/reward characteristics and below-average upside potential. TRS continues to adjust the structure of its fixed income portfolio to control risk and maintain required liquidity. Specifically, TRS continues to increase exposure to nontraditional debt-related investments and limit its interest rate risk by being slightly short in benchmark durations.

EQUITY INVESTMENTS

As of June 30, 2018, the retirement annuity trust fund's public equity investments had a market value of $12.66 billion, representing 64% of total assets. The pension plan's U.S. equity portfolio returned 14.74% for the fiscal year and outperformed its policy benchmark by 24 basis points. Positive equity returns over the fiscal year explain the year over year increase in market value. The retirement annuity trust fund divides its public equity into two broad categories: domestic and international.

The domestic portfolio had a market value of $8.16 billion as of June 30, 2018, representing 41.3% of total assets. The benchmark for the domestic portfolio is the S&P 1500. The S&P 1500 is made up of three well known component indices based upon market capitalization: the S&P 500 large cap, S&P 400 mid cap, and the S&P 600 small cap. The retirement annuity trust fund's domestic equity holdings are comprised of twelve portfolios. Three of the portfolios are internal passively managed index portfolios benchmarked to the S&P 400, 500, and 600. The other nine portfolios are managed externally by five different asset managers, with each portfolio representing a specific strategy and measured against an appropriate benchmark. The collective array of portfolios provides diversification by market capitalization, manager, style and strategy.

The market value of the international equity holdings as of June 30, 2018, was $4.50 billion, representing 22.7% of total assets. The pension plan's international equity portfolio returned 13.07% for the fiscal year and outperformed its policy benchmark, the Morgan Stanley Capital International (MSCI) All Country World ex U.S. index (MSCI ACWI ex U.S.), by 5.28%. This benchmark for international equities represents the markets of 22 developed countries and 24 emerging market countries. Six external asset managers manage the retirement annuity trust fund's international equities, one of which is a passively managed international index fund.

EQUITY INVESTMENTS OVERVIEW

Expectations for continued global growth, as well as U.S. fiscal policy stimulus, again were cited as the primary factors driving equity markets to record levels. The first quarter was a period of synchronized global expansion amid low inflation and low volatility. In the first fiscal quarter, the S&P 500 index returned nearly 4.5% while the MSCI ACW Ex US index rose approximately 6.2%. Oil markets also traded higher during the period, with West Texas Intermediate (WTI) crude reaching $52 per barrel. U.S. small-cap stocks outperformed large-cap stocks, with the Russell 2000 index returning 5.7% versus the Russell 1000 index return of 4.5% and, across all market capitalizations, growth stocks continuing to outperform value. Within the large-cap growth segment, information technology, health care and financial stocks outperformed other sectors over the period.

U.S. equity markets delivered strong broad-based performance during the second fiscal quarter with continued low volatility and inflation. The S&P 500 index posted its ninth consecutive positive calendar year dating back to 2009. U.S. growth stocks led value stocks and large-cap stocks similarly outpaced small-cap stocks during this period. Value managers generally outperformed with the weaker returns from their respective indices acting as lower hurdles. In contrast, active growth managers faced headwinds due to underweight exposure to a range of high-performing stocks and sectors as biotechnology and pharmaceuticals continued to drive growth-equity index performance in small caps. Strong performance in technology drove growth equity index performance in large caps. Information technology broadly led all sectors during the second quarter, as the S&P 500 Information Technology Index returned 9.0% for the quarter. FAANG (Facebook, Amazon, Apple, Netflix, and Google) stocks disproportionately drove market returns and as a result, many active managers with light exposure to these companies underperformed their respective benchmarks.

The third quarter began with a substantial global equity market rally in January driven by improving global economic fundamentals, a continuation of generally accommodative monetary policies among global central banks and continued corporate earnings growth. Following a period of unprecedented market calm in 2017, the third quarter was characterized by higher levels of volatility as investors reacted to the prospect of higher future inflation, rising interest rates and a potential trade war between the United States and China. At their peaks, U.S. and developed international equity markets traded up 7% with emerging-market equity indices up nearly 10%. However, the market rally reversed sharply in February in response to an increase in inflation expectations and a dramatic spike in equity market volatility. The correction resulted in a drawdown in broad U.S. equity indices of just over 10%.

The quarter ended with developed equity markets in negative territory and a weakening dollar. These stock market gyrations lead to mixed results across market cap and style. The S&P 500 index's return of -0.8% marked the first negative quarter for the index since the quarter ending March 31, 2015. Declines were relatively widespread, with nine of 11 sectors producing negative returns. Small-cap stocks outperformed large cap stocks, and growth continued to outperform value. Active managers delivered a wide spread of results due to the increased volatility, but growth managers fared the best with higher success rates across the market cap spectrum. Further, active managers with a high-quality bias benefitted from the market's increased sensitivity to rising interest rates, which negatively impacted companies with higher debt levels.

In the fourth quarter, non-U.S. equities led a global stock market rally for the third quarter in a row, driven by a weaker dollar and a strengthened economic backdrop. Developed international stocks performed well on an absolute and relative basis when compared to their domestic counterparts but underperformed relative to emerging markets. Value stocks outperformed growth in developed markets while underperforming in emerging markets, however, performance varied across market cap. Small caps continued to outperform large in developed markets, while large outperformed small cap in emerging markets. This rally was broad based, with only two developed countries within the MSCI EAFE index returning negative performance. European market returns heavily influenced performance, as ECB policymakers announced the reduction of accommodative monetary policy.

Developed international markets performed well and outpaced the domestic market for the second straight quarter. The outperformance of value stocks in the prior year did not persist, with growth stocks solidly outperforming for the quarter. Small cap also outperformed large cap for the second straight quarter. The European Central Bank announced that it will taper its bond purchase program starting in 2018. In Japan, the multi-year stimulus program appears to be taking hold, with the core consumer price index rising 0.9% in November from a year earlier. However, the stimulus still trails its initial expectations, as inflation remains below Japan's 2% target.

The domestic economy bolstered U.S. stocks in the fourth quarter, particularly small caps and real estate investment trusts (REITs), which typically have less exposure to global trends and trade risk. The dollar increased, and the S&P 500 index returned 3.4%, buoyed by strong performance in the energy sector as oil prices continued to rise throughout the fourth quarter. Continuing a third quarter trend, the technology and consumer discretionary sectors also drove market performance as the S&P 500 Technology and Consumer Discretionary indices returned 7.1% and 8.2%, respectively. Increasing global trade tension pushed investors away from large caps and toward the more domestically oriented small and micro-cap segments of U.S. equity markets, while multinational companies and the global cycle appeared to become less synchronized. Passive retail flows into the small-cap space increased upon global trade concerns as investors sought protection, as well as the opportunity to take advantage of the recent tax reform. As a result, active management in the small cap space faced challenges during the quarter as low-quality, lower-capitalized, non-earning stocks outperformed. Despite positive performance across large-cap indices, macroeconomic headwinds weighed on returns during the quarter. Active large-cap growth and value managers performed well in general as secular growth trends and continued strong corporate earnings provided a favorable stock-picking environment. Value outperformed growth in small cap, while growth continued to outperform value in large cap. Momentum and growth continued their third quarter leadership, while low-volatility and high-dividend stocks notably reversed as the S&P 500 Low Volatility High Dividend index returned 5.1% versus its first quarter return of -1.1%.

In summary, the U.S. equity markets performed well as the United States continued its recovery from the Great Recession with the lowest real GDP growth of the post-war period. The continued expansion in global fundamentals provided a steady backdrop for equity markets in general. Global monetary policy still was accommodative, but less so than in prior years. Inflation remained near the low end of the Fed's stated goals driven by low commodities and wages. Fiscal year 2018 was a period of heightened geopolitical risks, but volatility remained extremely low except for the February spike. Domestic equity valuations ended the year more attractive than global equities, but that divergence was somewhat diminished after global fundamentals and valuations improved.

REAL ESTATE

The Retirement Annuity Trust Fund's real estate investments had a market value of $1.15 billion as of June 30, 2018, representing 5.8% of total assets. The annuity fund's investments in real estate are intended to provide attractive long-term returns, generate reliable cash flow and provide diversification, thereby reducing the volatility of the overall investment portfolio.

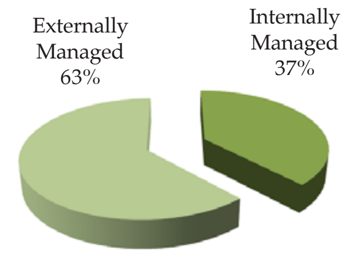
The retirement annuity trust fund's real estate exposure currently is provided through 16 portfolios. The fund maintains an internally managed portfolio of directly owned properties under long-term lease agreements with high-credit quality tenants. TRS Kentucky also is invested in two commingled, evergreen real estate funds managed by Prudential Real Estate Investors (PRISA) and TA Realty (TA Core Property Fund). These funds are core real estate equity funds that invest primarily in existing income-producing properties with strong cash flows and the potential for capital appreciation. The funds are diversified across several property types including office, retail, industrial, apartment, self-storage and hotel.

Additionally, the annuity fund is invested in Carlyle Property Investors, a core-plus commingled fund and 12 real estate limited partnerships: Carlyle Realty Partners VI, Carlyle Realty Partners VII, Carlyle Realty Partners VIII, Blackstone Real Estate Partners VII, Blackstone Real Estate Partners VIII, Rockwood Capital Real Estate Fund IX, Rockwood Capital Real Estate Fund X, TA Realty Associates Fund X, TA Realty Associates Fund XI, AG Net Lease Realty Fund III, Landmark Real Estate Partners VII and Landmark Real Estate Partners VIII. Going forward, investment staff will continue opportunistically to add to the annuity trust fund's real estate investments.

REAL ESTATE OVERVIEW

The real estate market generally has continued to present steady strength. Investment staff is conscious of the risks present at this stage in the cycle and specifically conscious of the general risk of recession. Even so, the growth rate of GDP has accelerated in recent quarters, above the levels that were present prior to fiscal year 2018. If a recession were to occur, it most likely would not be led by the real estate sector. There are a couple of key reasons. First, construction levels remain generally muted. Total construction activity remains at lower levels at this stage of the cycle compared to almost any prior recovery. Commercial construction remains 8% below the long-term average and 33% below peak 2006 levels. Second, debt levels remain below prior peaks in 2007. As a percentage of GDP, no material growth in commercial real estate debt has been seen during the 2010-2018 period. The conditions were starkly different in two prior real estate-led recessions (1990 and 2007) when commercial real estate outstanding grew dramatically.

Real Estate Investments
$1.15 Billion Fair Value
As of June 30, 2018



Deep into the recovery, it can be prudent to focus on shorter-duration assets. These are properties that would allow TRS to maintain our real estate allocation while increasing its exposure to higher-quality, income-producing properties with higher levels of liquidity and shorter commitment periods. To this end, TRS has added a core and core-plus fund to its portfolio in recent months.

In terms of sectors, demographic-based sectors present compelling risk-return characteristics at this point. By contrast, GDP-driven sectors (except for industrial) generally do not present demand factors that are reliable and accelerating.

With respect to demographic-based sectors, it is essential to target specific areas that attract specific demographic types, such as certain-age cohorts within the various sectors. The multifamily and "active adult" (senior apartments with services, activities, and associated amenities) sectors still present reliable accelerating demographics and corresponding potential growth in specific submarkets around the country. Specialty sectors in the demographic-based realm, such as self-storage, manufactured housing, student housing, senior housing and lab sectors, also present above-standard growth. Deeper into the cycle, these still present the ability to generate strong, above-standard growth in a status quo environment. These asset classes generally present lower volatility as well. As a result, these assets have the potential to be properly defensive considering the risks of investing later in the cycle.

On the GDP-driven sectors, the office market continues to face fundamental headwinds. While certain markets have seen marginal decreases in vacancy, demand factors generally remain unreliable and difficult to predict. Changing methods of using office space have led to lower levels of net absorption in many markets. Examples include the introduction of more open-plan space and technology allowing for more mobility among workers. In short, national vacancy rates remain higher today when compared to prior recoveries.

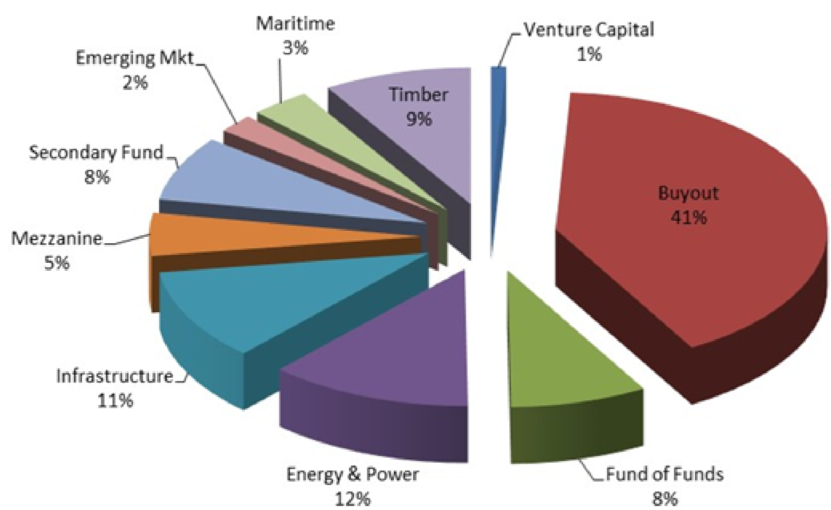
Lastly, the capital markets generally remain steady. Core managers are generally seeing steady demand and gradually increasing queues over the past six to nine months. Transaction volumes in the United States declined 4.2% in 2017, with a downward trend forecasted through 2020. There is a potential associated volume premium in the market where larger transactions seem to be attracting a deep, fully-priced bid.

Compared to other asset classes, real estate returns appear to be normalizing. For instance, core real estate returns were in the high single digits over the past 12 months while the broader stock markets were up by over 14%. Real estate is an important diversifier to the overall investment portfolio and expectations are to continue to build further the real estate allocation.

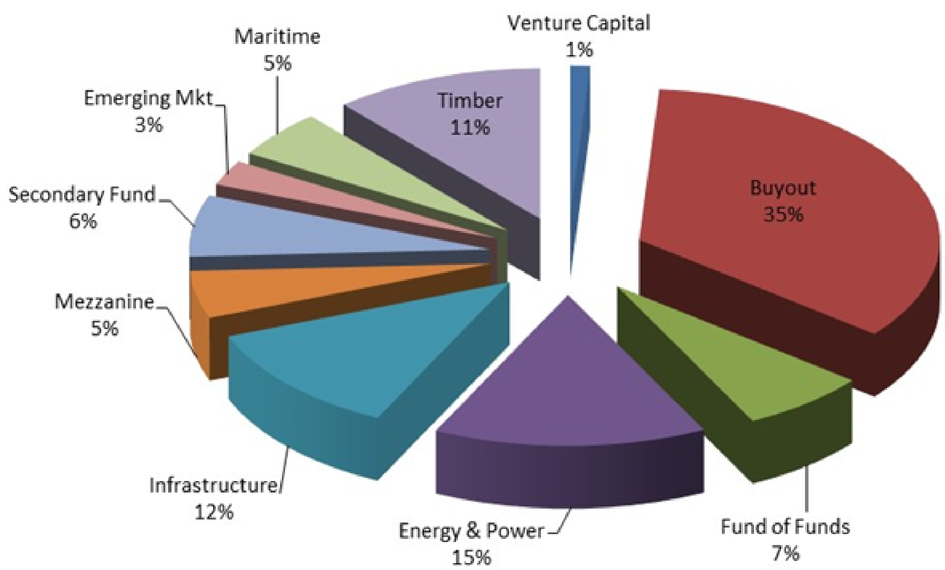
ALTERNATIVE ASSETS

As of June 30, 2018, the retirement annuity trust fund had $2.273 billion committed to alternative investments and had funded $1.471 billion of those commitments. The percentage of the retirement annuity trust fund's portfolio invested in alternative assets was 6.5%. The retirement annuity trust fund's current alternative asset portfolio consists of private equity investments and timberland.

Alternative Assets Committed
$2.273 Billion
as of June 30, 2018



Alternative Assets Funded
$1.471 Billion
as of June 30, 2017



PRIVATE EQUITY

The retirement annuity trust fund has exposure to venture, buyout, infrastructure, energy, mezzanine and several other private equity sectors via participation in limited partnerships as well as investments in funds of funds. The retirement annuity trust fund has a relatively young private equity investment program, which it intends to continue to grow with a disciplined plan of commitments each year. The retirement annuity trust fund looks to diversify its private equity portfolio by manager, country, strategy and vintage year. Vintage year diversification is achieved by building out the portfolio with disciplined levels of commitments over time. A commitment to any given partnership shall not exceed 20% of the partnership's total commitments.

The board and staff understand that private equity investments (along with many other forms of alternative assets) are illiquid and have a long-term holding period. When added to a portfolio with other publicly traded assets, this asset class can help to diversify and reduce risk for the retirement annuity trust fund's overall portfolio while enhancing returns. Private equity returns for the first several years of a partnership's life are routinely negative due to the J-curve effect. Positive returns are typically realized only several years into a partnership's existence, during the harvesting period.

PRIVATE EQUITY MARKET OVERVIEW

Private equity markets are positively affected by strong public equity markets. When public markets are strong more private equity portfolio companies are sold. The past fiscal year has seen an active initial public offering (IPO) market as the public markets grind higher. However, as result of the strong public equity markets the entry price for private equity portfolio companies has risen forcing many managers to pay higher multiples for underlying portfolio companies or to put their dry powder to work at a much slower pace that in the past.

The past fiscal year was a period of continued heightened interest in the private equity markets as investors continue to search for return in a lower rate environment. Investors continued to increase their commitment amounts while also paring down the number of managers in their portfolios, investing with only the highest quality managers. The past fiscal year also has seen large buyout funds returning to the marketplace. TRS has begun to see more opportunity in the large-cap buyout space while continuing to see opportunity in the middle-market space and in other niche areas such as infrastructure. Additionally, the European markets continue to present investment opportunities in the private equity space.

TIMBERLAND

In addition to private equity, the retirement annuity trust fund has invested in timberland in the alternative asset class. As of June 30, 2018, the retirement annuity trust fund owned approximately 73,000 acres of timberland outright, had a 7.15% interest in a commingled fund that holds approximately 98,000 acres of timberland and was a member of a joint venture that purchased an interest in approximately 124,000 acres of timberland located across seven southern states. Timberland is, by nature, a long-term investment as TRS's anticipated time horizon in this asset category generally is a minimum of 10 to 15 years. Timberland provides valuable diversification, current income, and a hedge against inflation. Due to the low correlation of returns with other asset classes, timberland investments should lower the overall volatility of the retirement annuity trust fund's portfolio. Timberland should earn real returns comparable to traditional equity investments with volatility between equities and fixed income over the long term.

The Retirement Annuity Trust Fund diversifies its timberland investments by geography, species of trees, and maturity of timber stands. Investment returns from timberland are driven primarily from net cash flow generated from the sale of trees (referred to as stumpage sales) and capital appreciation from the biological growth of the trees. Both of these return factors depend to some degree upon the direction of forest commodity prices (paper goods and lumber products). There also can be gains from the timely sale of timberland from the conversion of timberland into higher and better uses, such as vacation property sales.

TIMBERLAND MARKET OVERVIEW

U.S. timber markets have been weak across most timber-growing regions throughout the fiscal year, with the only exception being the Pacific Northwest. An oversupply of timber has allowed wood-using mills to maintain sizeable inventories and, while demand for cut timber has pushed up lumber prices, uncut timber prices have continued to fall. While widespread, this oversupply issue has been more problematic in the U.S. South than other U.S. timber-growing regions.

It is expected that this current oversupply of harvested timber will work its way through the market over the next several years as there had been approximately 5 billion board feet of new mill capacity or expansion announced for the U.S. South. Additionally, due to the oversupply in uncut timber, the number of timberland transactions that have been executed over the past fiscal year has fallen. This reduction in transaction has had the effect of reducing the appraisals for most timberland across the United States apart from the Pacific Northwest. As the aforementioned mills come on line it is expected that demand for uncut timber will increase and the timberland transaction market will normalize, putting upward pressure on timberland prices.

Retirement Annuity Trust
Portfolios Fair Values *
June 30, 2018

INTERNALLY MANAGED

Cash Equivalents		
Cash Collections Fund (Unallocated)	$	236,645,496
Fixed Income		
Broad Market Bond Fund		587,584,821
Intermediate Bond Fund		661,972,338
Internal Bond Fund		168,603,284
Long Term Bond Fund		631,765,673
Tax Shelter Fund		337,897
Equity		
S & P 500 Stock Index Fund (Large Cap)		370,313,886
S & P 400 Stock Index Fund (Mid Cap)		2,546,405,952
S & P 600 Stock Index Fund (Small Cap)		261,165,270
Real Estate		
Internally Managed Fund		420,940,001
Subtotal	**$**	**5,885,734,619**

EXTERNALLY MANAGED

Fixed Income	
Galliard Capital Management Core Fixed Income	517,343,359
Fort Washington Core Fixed Income	468,426,168
Domestic Equity	
Fort Washington Focused Equity	260,570,118
State Street US Premier Growth Equity	685,871,177
Todd Asset Intrinsic Value Opportunity (Alpha)	462,061,714
Todd Asset Large Cap Intrinsic Value	1,113,927,168
UBS Alpha Equity	264,680,086
UBS Value Oriented (Global)	933,194,588
Wellington Large Cap Equity	708,538,245
Wellington Mid Cap Equity	348,623,043
Wellington Small Cap Equity	209,594,842
International Equity	
Baillie Gifford EAFE Fund	1,205,412,258
Barings All Country World Ex US	686,422,526
Black Rock MSCI ACWI Ex US IMI Index	794,398,825
Todd Asset International Intrinsic Value	824,882,569
Todd Asset International Intrinsic Value Opportunity	92,653,702
UBS All Country World Ex US Equity	899,021,732
Real Estate	
Angelo Gordon Net Lease Realty Fund III	36,290,999
Blackstone Partners VII	40,114,102
Blackstone Partners VIII	29,717,814
Carlyle Realty Partners VI	9,111,840
Carlyle Realty Partners VII	33,446,357
Carlyle Realty Partners VIII	1
Carlyle Property Advisors	53,988,311
Landmark Real Estate Partners VII	32,572,288
Landmark Real Estate Partners VIII	6,252,584
Prudential PRISA Fund	336,512,387
Rockwood Capital Real Estate IX	21,144,837
Rockwood Capital Real Estate X	20,678,616
The Realty Associates Fund X	31,443,210
The Realty Associates Fund XI	51,425,598
TA REalty Core Property Fund	27,055,336
Alternative Investments	
Actis Global Fund IV	40,352,277
Alinda Infrastructure Fund II	25,909,250
APAX VIII	39,695,801
APAX IX	23,102,777
Audax Mezzanine Fund III	7,621,103
Audax Mezzanine Fund IV	6,074,350

Externally Managed continued ...

Audax Private Equity Fund IV		17,032,158
Audax Private Equity Fund V		17,729,954
CapitalSouth Partners III		901,981
Carlyle Europe Partners IV		39,101,810
Carlyle Global Financial Services Partners II		26,361,736
Carlyle Global Financial Services Partners III		9,092,057
Chrysalis Venture Fund III		13,936,430
Fort Washington Fund V		6,500,964
Fort Washington Fund VI		22,895,354
Fort Washington Fund VIII		25,581,043
Fort Washington Fund IX		8,733,790
Fort Washington Fund IX-K		7,255,065
Gavea Investments Fund V		8,209,479
Hancock Bluegrass LLC - Oregon		34,429,809
Hellman & Friedman Fund VII		64,821,351
Hellman & Friedman Fund VIII		35,930,839
IFM Global Infrastructure		139,482,163
J. P. Morgan Maritime Fund		33,041,661
J. P. Morgan Maritime Fund II		24,435,184
J.P. Morgan Global Transport Income Fund		4,000,000
KKR & Co Fund 2006		6,934,267
KKR & Co European III		24,592,112
KKR & Co European IV		38,790,070
KKR Americas Fund XII		7,262,272
Landmark Equity Partners Fund XIV		7,676,092
Landmark Equity Partners Fund XV		13,804,340
Lexington Capital Partners Fund VII		9,936,823
Lexington Capital Partners Fund VIII		19,889,784
Molpus Woodlands Group Lake Superior Timberlands LLC		99,862,904
Molpus Seven States LLC		53,248,106
NGP Natural Resources X		24,463,205
NGP Natural Resources XI		48,764,310
NGP Natural Resources XII		9,697,845
Oaktree European Principal Fund III		21,295,962
Oaktree European Principal Fund IV		30,417,025
Oaktree Mezzanine Fund III		1,184,565
Oaktree Mezzanine Fund IV		17,499,538
Public Pension Capital LLC		70,403,647
Riverstone/Carlyle E & P Fund IV		22,884,151
Riverstone E & P Fund V		17,405,930
Riverstone E & P Fund VI		35,314,019
Stepstone Pioneer Capital III		19,274,972
Additional Categories		
Angelo Gordon Select Partners Advantage Fund		63,819
Avenue Capital Special Situations Fund VI		8,575,194
Barings European Loan Fund		102,070,000
Columbia High Yield Bond Fund		164,312,064
Fort Washington High Yield Bond Fund		316,269,811
Golub Capital Pearls 11, LLC		88,225,420
Highbridge Principal Strategies III		21,469,553
Marathon European Credit Opp Fund II		52,250,211
Marathon European Credit Opp Fund III		49,828,882
Marathon TRS/Credit Fund		336,849,775
Oaktree European Capital Solutions Fund		21,334,426
Oaktree European Dislocation Fund		4,472,882
Oaktree Opportunities Fund IX		38,697,468
Oaktree Opportunities Fund X		18,656,234
Oaktree Opportunities Fund Xb		1,250,000
Shenkman Capital Management		204,417,015
Subtotal	**$**	**13,916,949,480**
TOTAL ASSETS	**$**	**19,802,684,099** **

* *Detailed information concerning the market values of all TRS investments is available upon request.*

** *Includes 403(b) Tax Shelter Fund of $337,897, and 401(h) value of $20,896,588. This does not include the Losey Scholarship Fund.*

Life Insurance Fund
Portfolios Fair Values*
June 30, 2018

Internally Managed		
Cash Equivalents		
Cash Collections Fund (Unallocated)	$	3,110,722
Fixed Income		
Broad Market Bond Fund		48,373,370
Equity		
S & P 400 Stock Index Fund (Mid Cap)		2,107,116
S & P 500 Stock Index Fund (Large Cap)		19,580,994
S & P 600 Stock Index Fund (Small Cap)		388,493
Subtotal	**$**	**73,560,695**

Externally Managed		
International Equity		
Blackrock All Country World ex US IMI	$	7,884,256
Real Estate		
TA Realty Core Property Fund		541,107
Additional Categories		
Marathon TRS/Credit Fund		1,300,000
Total Assets	**$**	**83,286,058**

* *Detailed information concerning the market values of all TRS investments is available upon request.*

Investment Summary
Fair Values – Retirement Annuity Trust
June 30, 2018

Type of Investment		Fair Value June 30, 2017		Acquisitions		Appreciation (Depreciation)		Sales Redemptions, Maturities & Paydowns		Fair Value June 30, 2018*
Cash Equivalents	$	541,164,274	$	4,528,116,452	$		$	4,644,752,807	$	424,527,919
Fixed Income		2,871,403,201		3,153,929,131		(97,126,176)		2,944,230,582		2,983,975,575
Real Estate		1,046,760,134		171,956,602		85,329,027		153,351,480		1,150,694,282
Alternative		1,062,855,562		393,387,210		178,485,001		351,897,448		1,282,830,325
Equities		11,589,656,638		3,050,282,959		1,410,249,468		3,506,047,940		12,544,141,125
Additional Categories		1,419,607,158		458,139,279		(2,880,369)		458,351,194		1,416,514,873
TOTAL	**$**	**18,531,446,967**	**$**	**11,755,811,633**	**$**	**1,574,056,951**	**$**	**12,058,631,451**	**$**	**19,802,684,099**

* *Includes Tax Shelter Annuity of $337,897, and 401(h) value of $20,896,588. This does not include the Juanita Losey Scholarship Fund.*

Investment Summary
Fair Values – Life Insurance Fund
June 30, 2018

Type of Investment	Fair Value June 30, 2017	Acquisitions	Appreciation (Depreciation)	Sales Redemptions, Maturities & Paydowns	Fair Value June 30, 2018
Cash Equivalents	$ 4,150,028	$ 80,701,766	$	$ 81,127,758	$ 3,724,036
Fixed Income	82,293,300	86,466,014	(1,698,456)	119,235,422	47,825,436
Equities		29,518,423	427,519	50,463	29,895,479
Real Estate		541,107			541,107
Additional Categories		1,300,000			1,300,000
TOTAL	**$ 86,443,328**	**$ 198,527,310**	**$ (1,270,937)**	**$ 200,413,643**	**$ 83,286,058**

Retirement Annuity Trust
Contracted Investment Management Expenses
Fiscal Year Ended June 30, 2018
(In thousands of dollars)

Investment Counselor Fees	Assets Under Management	Expense	Basis Points *
Equity Manager(s)	$ 9,489,853	$ 14,694	15.5
Fixed Income Manager(s)	985,770	443	4.5
Real Estate **	729,754	10,107	138.5
Additional Categories	1,428,743	9,256	64.8
Alternative Investments **	1,282,830	17,051	132.9
TOTAL	**$ 13,916,950**	**$ 51,551**	**37.0**
Administrative and Operation Expenses* **			
Custodian Fees	$ 19,803,296	$ 518	0.3
Consultant Fees		506	0.3
Legal & Research		59	0.0
Other Administrative and Operational		2,883	1.5
TOTAL	**$ 19,803,296**	**$ 3,966**	**2.0**
GRAND TOTAL		**$ 55,517**	**28.0**

* *One basis point is one hundredth of 1 percent or the equivalent of .0001.*
** *Depending on contract terms, private equity fees are withheld either from the fund operations or paid by direct disbursement.*
*** *Includes the Juanita Losey Scholarship Fund.*

Life Insurance Fund
Contracted Investment Management Expenses
Fiscal Year Ended June 30, 2018
(In thousands of dollars)

Investment Counselor Fees	Assets Under Management	Expense	Basis Points*
Equity Manager(s)	$ 7,884	$	0.0
Fixed Income Manager(s)			
Real Estate	541	1	18.5
Additional Categories	1,300	2	15.4
TOTAL	**$ 9,725**	**$ 3**	**3.1**
Administrative and Operation Expenses			
Custodian Fees	$ 83,286	$ 4	0.5
Consultant Fees			0.0
Legal & Research			0.0
Other Administrative and Operational		106	12.7
TOTAL	**$ 83,286**	**$ 110**	**13.2**
GRAND TOTAL		**$ 113**	**13.6**

* *One basis point is one hundredth of 1 percent or the equivalent of .0001.*

Schedule of Contracted and Administrative Investment Expenses
Retirement Annuity Trust
Fiscal Year Ended June 30, 2018

INVESTMENT COUNSELOR FEES

FIXED INCOME MANAGERS		
Galliard Capital Management Core Fixed Income		258,151
Fort Washington Core Fixed Income		184,885
Total Fixed Income Managers	**$**	**443,036**
DOMESTIC EQUITY MANAGERS		
State Street US Premier Growth Equity		799,463
Fort Washington Focused Equity		881,923
Todd Asset Management LLC		879,794
UBS Global Asset Management		(514,597)
Wellington Management Company		3,397,200
Total Domestic Equity Managers	**$**	**5,443,783**
INTERNATIONAL EQUITY MANAGERS		
State Street US Premier Growth Equity		4,160,155
Fort Washington Focused Equity		2,852,707
Todd Asset Management LLC		402,156
UBS Global Asset Management		514,594
Wellington Management Company		1,320,000
Total International Equity Managers	**$**	**9,249,612**
REAL ESTATE MANAGERS		
Angelo Gordon Net Lease Realty Fund III		853,602
Blackstone Partners VII		427,157
Blackstone Partners VIII		750,000
Carlyle Realty Partners VI		177,558
Carlyle Realty Partners VII		629,726
Carlyle Realty Partners VIII		568,645
Carlyle Property Advisors		270,713
Landmark Real Estate Partners VII		500,000
Landmark Real Estate Partners VIII		582,132
Prudential PRISA Fund		2,521,713
Rockwood Capital Real Estate Fund IX		685,000
Rockwood Capital Real Estate Fund X		639,302
The Realty Associates Fund X		751,766
The Realty Associates Fund XI		698,277
TA Core Property Fund		51,371
Total Real Estate Managers	**$**	**10,106,962**
ALTERNATIVE INVESTMENTS MANAGERS		
Actis Global Fund IV		644,000
Alinda Infrastructure Fund II		496,559
APAX VIII		324,599
APAX IX		589,543
Audax Mezzanine Fund III		134,845
Audax Mezzanine Fund IV		355,814
Audax Private Equity Fund IV		
Audax Private Equity Fund V		
CapitalSouth Partners Fund III		2,006
Carlyle Europe Partners IV		671,088
Carlyle Global Financial Services Partners II		527,767
Carlyle Global Financial Services Partners III		397,603
Chrysalis Venture Fund III		153,971
Fort Washington Fund V		65,105
Fort Washington Fund VI		162,058
Fort Washington Fund VIII		126,000
Fort Washington Fund IX		60,448
Fort Washington Fund IX-K		59,589
Gavea Investments Fund V		390,617
Hancock Bluegrass LLC - Oregon		248,800
Hellman & Friedman Fund VII		175,872
Hellman & Friedman Fund VIII		492,112
IFM Global Infrastructure		1,298,206

Alternative Investment Managers continued…

J. P. Morgan Maritime Fund		497,558
J. P. Morgan Maritime Fund II		288,730
J. P. Morgan Global Transport Income Fund		
KKR & Co Fund 2006		10,675
KKR & Co European Fund III		102,121
KKR & Co European Fund IV		665,811
KKR Americas Fund XII		512,596
Landmark Equity Partners Fund XIV		202,810
Landmark Equity Partners Fund XV		300,000
Lexington Capital Partners Fund VII		125,722
Lexington Capital Partners Fund VIII		253,199
Molpus Woodlands Group Lake Superior Timberlands LLC		864,608
Molpus Seven States LLC		574,933
NGP Natural Resources X		422,727
NGP Natural Resources XI		706,307
NGP Natural Resources XII		573,631
Oaktree European Principal Fund III		315,097
Oaktree European Principal Fund IV		785,215
Oaktree Mezzanine Fund III		68,406
Oaktree Mezzanine Fund IV		269,831
Public Pension Capital LLC		1,087,292
Riverstone/Carlyle E & P Fund IV		59,729
Riverstone E & P Fund V		147,495
Riverstone E & P Fund VI		689,275
Stepstone Pioneer Capital Fund III		150,798
Total Alternative Investments	**$**	**17,051,168**
ADDITIONAL CATEGORY MANAGERS		
Angelo Gordon Select Partners Advantage Fund		5,906
Avenue Special Situations Fund VI		20,658
Barings European Loan Fund		461,096
Columbia High Yield Fund		626,657
Fort Washington High Yield Bond Fund		646,874
Golub Capital Pearls 11, LLC		444,073
Highbridge Principal Strategies III		480,798
Marathon European Credit Opp Fund II		789,999
Marathon European Credit Opp Fund III		501,928
Marathon TRS/Credit Fund		3,102,620
Oaktree European Capital Solutions Fund		175,254
Oaktree European Dislocation Fund		86,832
Oaktree Opportunities IX		678,294
Oaktree Opportunities X		399,645
Shenkman Capital Management		835,724
Total Additional Category Managers	**$**	**9,256,358**

ADMINISTRATIVE & OPERATIONAL EXPENSES

CUSTODIAN		
The Bank of New York Mellon		517,884
Total Custodian Fees	**$**	**517,884**
CONSULTANT		
Aon Hewitt		419,789
Bevis Longstreth		52,905
George Philip		33,399
Total Consultant Fees	**$**	**506,093**
LEGAL & RESEARCH		
Ice Miller		59,131
Total Legal & Research	**$**	**59,131**
OTHER		
Other Administrative and Operational		2,882,696
Total Other Fees	**$**	**2,882,695**
TOTAL INVESTMENT EXPENSES	**$**	**55,516,722**

Schedule of Contracted and Administrative Investment Expenses
Life Insurance Fund
Fiscal Year Ended June 30, 2018

INVESTMENT COUSELOR FEES		
International Equity		
Blackrock All Country World ex US IMI	$	
Real Estate		
TA Realty Core Property Fund		1,027
Additional Categories		
Marathon TRS/Credit Fund LP		2,167
ADMINISTRATIVE AND OPERATIONAL EXPENSES		
CUSTODIAN		
The Bank of New York Mellon		4,412
Total Custodian Fees	**$**	**4,412**
OTHER		
Other Administrative and Operational		105,847
Total Other Fees	**$**	**105,847**
Total Investment Expenses	**$**	**113,453**

Ten Largest Stock Holdings Ranked * ** by Fair Values
June 30, 2018

Rank	Description	Fair Value	Percentage of Equities
1	Apple Inc	$ 202,567,539	1.60 %
2	Amazon.com Inc	186,765,525	1.47
3	Microsoft Corp	146,875,848	1.16
4	Facebook Inc	137,293,298	1.08
5	JP Morgan Chase & Co	113,547,574	0.90
6	United Health Group Inc	100,765,063	0.80
7	Alphabet Inc-CL C	92,907,985	0.73
8	Alphabet Inc-CL A	88,998,239	0.70
9	Visa Inc	79,317,683	0.63
10	Bank of America Corp	79,138,464	0.62

* *Includes only actively managed separate accounts.*

** *Detailed information concerning these values along with book values and cost of all TRS investments is available upon request.*

Top Ten Fixed Income Holdings *
by Fair Values
June 30, 2018

Rank	Description	Maturity	Coupon	Par Value	Fair Value	Percent of Fixed Income
1	U.S. Treasury Note	11/15/2027	2.250	89,500,000	$ 85,077,442	2.80 %
2	U.S. Treasury Note	1/15/2021	2.000	73,830,000	72,751,389	2.40
3	U.S. Treasury Note	5/15/2028	2.875	64,975,000	65,104,443	2.14
4	U.S. Treasury Note	3/31/2023	2.500	64,205,000	63,562,950	2.09
5	U.S. Treasury Note	5/15/2026	1.625	45,000,000	41,162,695	1.36
6	U.S. Treasury Bond	8/15/2023	6.250	31,900,000	37,224,559	1.23
7	U.S. Treasury Note	12/31/2022	2.125	37,500,000	36,558,105	1.20
8	U.S. Treasury Note	6/30/2022	1.750	34,870,000	33,619,583	1.11
9	U.S. Treasury Bond	2/15/2048	3.000	33,224,000	33,335,612	1.10
10	U.S. Treasury Note	5/15/2024	2.500	31,000,000	30,513,203	1.01

* *Detailed information concerning these values along with book values and cost of all TRS investments is available upon request.*

Transaction Commissions Fiscal Year Ended June 30, 2018

COMPANIES	SHARES TRADED	COMMISSIONS	COMMISSION PER SHARE	% OF TOTAL
Abel Noser	6,541,550.00	57,723.60	0.009	4.22 %
Allen & Co.	14,400.00	268.00	0.019	0.02
Barclays Capital, London	1,400.00	10.50	0.008	0.00
Barclays	338,661.00	6,549.54	0.019	0.48
Blair, William & Co.	31,135.00	921.11	0.030	0.07
BMO Capital Markets	193,515.00	1,973.28	0.010	0.14
BTIG	167,435.00	5,824.06	0.035	0.43
Burke & Quick Partners LLC	3,724.00	130.36	0.035	0.01
Canaccord Genuity, Inc.	18,372.00	387.57	0.021	0.03
Cantor Fitzgerald & Co.	7,165.00	265.28	0.037	0.02
CIBC Worldmarket	39,648.00	1,397.44	0.035	0.10
Citigroup Global	442,997.00	7,627.47	0.017	0.56
Collins Stewart LLC	100.00	3.50	0.035	0.00
ConvergEx - Algos	16,537,180.00	82,685.97	0.005	6.05
ConvergEx - FS	3,368,876.00	33,688.76	0.010	2.46
ConvergEx - Transitions	4,410,100.00	35,656.86	0.008	2.61
ConvergEx ADR Conversions	20,070,833.00	258,025.49	0.013	18.88
Cornerstone	491,054.00	14,728.92	0.030	1.08
Cowen & Co.	95,438.00	2,400.69	0.025	0.18
Credit Suisse Sec. LLC	1,146,368.00	30,800.93	0.027	2.25
Cuttone & Co Inc	28,530.00	328.30	0.012	0.02
D A Davidson & Co.	400.00	14.00	0.035	0.00
Default broker	39,089,030.87	149.34	0.000	0.01
Deutsche Bank	311,611.00	4,464.72	0.014	0.33
Evercore Group LLC	9,172.00	112.63	0.012	0.01
Fidelity Capital Markets	38,648.00	828.96	0.021	0.06
First Kentucky Securities Corp	121,000.00	3,630.00	0.030	0.27
Freidman Billings	40,314.00	875.93	0.022	0.06
Goldman Sachs	249,571.00	6,906.40	0.028	0.51
Green Street Advisors	3,900.00	102.00	0.026	0.01
Guggenheim Capital Markets	838.00	25.14	0.030	0.00
ICBC Financial Services	29,983.00	977.86	0.033	0.07
Instinet	294,150.00	2,375.55	0.008	0.17
Internal	3,386.00			0.00
Investment Tech Grp Transition	32,787,240.00	245,905.65	0.008	17.99
Investment Technology Grp.	12,415,535.00	119,469.49	0.010	8.74
ISI Algos	2,765,515.00	27,655.15	0.010	2.02
ISI Group	1,146,358.00	28,079.04	0.024	2.05
J.J.B. Hilliard, W.L. Lyons	437,217.00	13,116.51	0.030	0.96
Janney Montgomery Scott Inc.	13,766.00	386.49	0.028	0.03
Jefferies & Co.	240,466.00	5,091.25	0.021	0.37
JMP Securities	7,900.00	228.00	0.029	0.02
Jones & Associates	43,617.00	1,443.57	0.033	0.11
JP Morgan & Chase	534,702.00	9,108.37	0.017	0.67
Keefe Bruyette & Woods	22,296.00	804.18	0.036	0.06
Keybanc Capital Total	14,137.00	502.74	0.036	0.04
Leerink Swann & Co.	30,488.00	574.50	0.019	0.04
Liquidnet Inc - Transition	401,762.00	3,013.25	0.008	0.22
Liquidnet Inc.	6,381,388.00	63,443.56	0.010	4.64
Longbow Securities LLC	2,400.00	84.00	0.035	0.01
Luminex Trading	2,600.00	6.50	0.003	0.00
MacQuarie Securities Inc.	6,224.00	201.72	0.032	0.01
Merrill Lynch ADR Conversions	108,029.00	3,240.87	0.030	0.24
Merrill Lynch	2,188,291.00	50,405.50	0.023	3.69
Miller Tabak & Co. LLC	1,685.00	33.70	0.020	0.00
Mizuho Securities, USA	4,652.00	162.82	0.035	0.01
MKM Partners	7,796.00	272.86	0.035	0.02

continued on next page

Transaction Commissions continued

COMPANIES	SHARES TRADED	COMMISSIONS	COMMISSION PER SHARE	% OF TOTAL
Morgan Stanley	372,556.00	9,294.55	0.025	0.68
National Financial Services Corp.	3,600.00	27.00	0.008	0.00
Needham	4,734.00	122.93	0.026	0.01
Pershing LLC	117,512.00	2,500.09	0.021	0.18
Piper Jaffray	25,140.00	752.08	0.030	0.06
Pulse Trading	11,474.00	114.74	0.010	0.01
R W Baird	75,585.00	2,334.58	0.031	0.17
Raymond James & Assoc.	1,760,287.00	52,976.40	0.030	3.88
RBC Capital Markets	5,928,599.00	35,041.07	0.006	2.56
RBC Dain Rauscher Inc.	300.00	2.40	0.008	0.00
Renaissance Macro Securities	8,100.00	162.00	0.020	0.01
Sandler O'Neill	5,959.00	154.53	0.026	0.01
Sanford C Bernstein	400,297.00	3,360.64	0.008	0.25
Scotia Capital, USA	13,745.00	383.86	0.028	0.03
Sidoti & Company LLC	6,529.00	151.88	0.023	0.01
State Street Global	9,320.00	376.86	0.040	0.03
Stephens Inc.	20,030.00	459.68	0.023	0.03
Stifel, Nicolaus & Co.	704,637.00	21,428.31	0.030	1.57
Suntrust Robinson	30,450.00	1,003.13	0.033	0.07
Susquehanna Brokerage	18,173.00	636.06	0.035	0.05
Telsey Advisory Group LLC	21,430.00	732.07	0.034	0.05
Tradebook	6,835,955.00	34,179.85	0.005	2.50
UBS/Paine Webber Securities	270,791.00	6,741.90	0.025	0.49
UBS/Paine Webber-Louisville	570,162.00	17,104.86	0.030	1.25
Virtu Americas LLC	2,722.00	97.67	0.036	0.01
Wall Street Access	229,398.00	1,269.28	0.006	0.09
Wedbush Morgan Securities	8,536.00	277.72	0.033	0.02
Weeden & Co.	1,159,317.00	35,235.24	0.030	2.58
Wells Fargo Securities, LLC	62,329.00	1,833.98	0.029	0.13
Williams Capital Group	63,746.00	2,231.11	0.035	0.16
Wolfe Research Securities	20,343.00	595.86	0.029	0.04
Zacks & Company	4,000.00	92.00	0.023	0.01
TOTALS	**172,470,304.87**	**$ 1,366,764.21**	**0.008**	**100.00%**

The acquisition of initial public offerings (IPOs) represented a portion of small-capitalization stock purchases. IPOs usually have a high commission rate; however, the security issuers and not the investors pay the commissions. In Fiscal Year 2018, the retirement annuity trust fund bought small capitalization IPOs that gerenerated $279,303 in commissions. Although these commissions were not paid by tTRS, they resulted from the retirement annuity trust fund's investment activities and are included in the total commissions of $1,366,764. Typical stock transactions occur at lower commission rates than IPO transactions, frequently at $0.03 per share or less. Investment companies usually provide investment research for brokerage clients.

PROXY VOTING AND CORPORATE BEHAVIOR

TRS regularly votes proxy statements associated with its equity ownership. The positions assumed by TRS are intended to represent the financial interests of the membership. The Board of Trustees has adopted a policy that directs the staff not to subjugate the financial concerns of TRS to social or political protests. At the same time, TRS expects the companies in which it acquires stock to be solid corporate citizens that abide by federal, state, and local laws. The board has adopted the following position on corporate behavior:

The board's stated fiduciary duty is to obtain the highest return for the fund commensurate with acceptable levels of risk. This implies that non-financial considerations cannot take precedence to pure risk/return considerations in the evaluation of investment decisions. However, action taken by the fund as a shareowner can be instrumental in encouraging action as a responsible corporate citizen by the companies in which the fund has invested.

The board expects the managements of the companies whose equity securities are held in the fund's portfolio to conduct themselves with propriety and with a view toward social considerations. A level of performance above minimum adherence to the law is generally expected. If any improper practices come into being, the board expects corporate management to move decisively to eliminate them and effect adequate controls to prevent recurrence.

On the other hand, the board does not intend to supplant the duties which are the responsibility of federal or state regulatory agencies, such as the Equal Employment Opportunity Commission, the Environmental Protection Agency, the Occupational Safety and Health Agency, the Nuclear Regulatory Commission, the Securities and Exchange Commission and others that are covered by the laws of the U.S. Government or the state of Kentucky.

Should satisfaction of the Board's criteria by any company not be adequate, the Board will consider what action to take, which may include, but not be limited to, correspondence with the company, meetings with company officials, sponsoring of shareholder resolutions or, as a last resort, liquidation of the System's holdings in the company, if the sale is consistent with sound investment policy.

SECURITY LENDING

TRS operates its security lending program through its custodian, Bank of New York Mellon (BNYM), under contract. Securities lending occurs when TRS transfers a security to the borrower, such as a broker-dealer or bank, for cash collateral pursuant to an agreement to return the identical security in the future. Securities are borrowed for a variety of reasons including: settlement of short sales and to cover hedges, options, arbitrage positions and settlement fails. Consequently, the borrower receives custody of the transferred security. The borrower, however, is obligated to return the exact same security at the end of the loan period and to make the retirement system whole for dividends, interest and other distributions as if the security remained in the retirement system's portfolio.

The restrictions applying to loanable securities are as follows:

- There is no limit on the amount of government securities that can be loaned.
- There will be a limit of 30% of the equity portfolio. Securities may be loaned from any equity portfolio.
- A maximum of 50 corporate bonds may be on loan at any time.

TRS maintains with BNYM an approved borrowers list to which TRS will lend securities. The approved borrowers list is comprised of large, high-quality brokers, and TRS has discretion to add or remove names from the list.

BNYM acts as lending agent in exchanging securities for collateral. The collateral provided in exchange for securities may include cash or non-cash collateral. For a loan of U.S. securities, collateralization of 102% or greater of the market value of the securities lent is required. For a loan of foreign securities, collateralization of 105% or greater of the market value of the securities lent is required. BNYM bears the risk of loss of any cash or non-cash collateral.

Cash collateral may be invested in any of the following:

- Government securities
- Repurchase and reverse repurchase transactions with approved counterparties

Staff closely monitors the lending program to make sure that BNYM is in compliance with lending restrictions. BNYM provides a detailed listing of all securities that are on loan on a daily basis. They also provide a summary report that lists the market value of securities on loan with a particular borrower and the collateral value that the borrower has provided to cover the loan. The collateralization percentage for each broker also is listed.

KENTUCKY INVESTMENTS

TRS always is cognizant of its significant role in the commonwealth's economy. Over $2 billion in benefits are distributed to members and annuitants living in Kentucky annually. Approximately $275 million of the retirement annuity trust fund's investments directly impact the commonwealth. These investments include: commercial real estate; bonds issued by public agencies of the commonwealth and those of local municipalities; pools of single-family mortgages in Kentucky; financing for multi-family housing; and investments in companies that have an impact on the commonwealth's economy but receive earnings from global operations. Fiduciary duty requires that investments be made solely for the benefit of TRS's members and annuitants. Investments that benefit the commonwealth's economy are made only when fully consistent with this fiduciary duty.

Professional Service Providers

Investment Consultant
Aon Hewitt

Investment Custodian
The Bank of New York Mellon

Fixed Income Managers
Galliard Capital Management
Fort Washington Investment Advisors

Domestic Equity Managers
Todd Asset Management
UBS Global Asset Management
Wellington Management Co.
GE Asset Management
Fort Washington Investment Advisors

International Equity Managers
Todd Asset Management
UBS Global Asset Management
Baring Asset Management Inc.
Baillie Gifford
BlackRock Institutional Trust Co.

Real Estate Managers
Prudential Real Estate Investors
Carlyle Realty Partners
Blackstone Real Estate Partners
Rockwood Capital Real Estate
The Realty Associates
Angelo Gordon & Co.
Landmark Real Estate Partners

Alternative Investment Managers
Molpus Woodlands Group
Hancock Natural Resources Group
Kohlberg Kravis Roberts & Co.
Chrysalis Ventures
Fort Washington Private Equity Investors
Alinda Capital Partners
Riverstone Holdings
CapitalSouth Partners
Landmark Partners
Lexington Partners
Oaktree Capital Management
Stepstone Pioneer Capital
Audax Group
J.P. Morgan Asset Management
Hellman & Friedman Capital Partners
Natural Gas Partners
Apax Partners
Actis
Carlyle Global Partners
Public Pension Capital
IFM Investors
Gavea Investimentos

Additional Categories Investment Managers
Avenue Capital Group
Marathon Asset Management
Fort Washington Investment Advisors
Oaktree Capital Management
Shenkman Capital Management Inc.
Highbridge Principal Strategies
Angelo Gordon & Co.
Golub Capital
Barings Asset Management Inc.
Columbia Threadneedle Investments

Attorney
Ice Miller
Reinhert, Boerner, Van Deuren

HEALTH INSURANCE TRUST FUND

INVESTMENT POLICY SUMMARY

The statute that created the Health Insurance Trust Fund on July 1, 2010, KRS 161.677, obliges the board to "manage the assets of the fund in the same general manner in which it administers the retirement funds, except that the asset allocation may differ and separate accounting and financial reporting shall be maintained for the trust fund." KRS 161.430, which governs the investment of funds for the retirement funds, requires that members' assets be managed in a manner consistent with fiduciary standards set forth in the prudent person rule. Subject to this statute, administrative regulation 102 KAR 1:178 establishes investment policies for the health insurance trust fund. This regulation requires the board and Investment Committee to diversify assets prudently and to consider the fund's "liquidity and its capability of meeting both short and long-term obligations" in setting asset allocation policy.

Due to an imbalance of required distributions over contributions early in the fund's existence, liquidity needs have dominated investment policy. This will evolve as contribution rate increases provided in statute improve cash flow in future years. As near-term liquidity needs recede in importance, the focus will increasingly be on establishing an investment policy which achieves the required rate of return and matches the health insurance liability.

INVESTMENT OBJECTIVES

The definitive objective of the Health Insurance Trust Fund is to provide for beneficiaries' health insurance benefit obligations, both short and long term. In support of this objective, investment policy will be designed, on an ongoing basis, to: meet all liquidity needs, achieve the actuarially assumed 8.0% rate of return over the long term, and do so within appropriate risk levels.

RISK CONTROLS

Any investment program faces various risks; as with the retirement fund, the primary risk is that the assets will not support liabilities over the long-term. Risk control measures for the Health Insurance Trust Fund mirror those of the Retirement Annuity Trust Fund, but are customized to reflect the fund's unique liability. Primary risk-control measures include the following steps:

- Actuarial valuations are performed each year to evaluate the funding objectives of the health insurance trust fund. Every 10 years an external audit of the actuary is conducted to ensure that the assumptions made and calculation methods used are resulting in properly computed liabilities of the fund.

- Asset/liability studies are conducted approximately every five years. These studies ensure that the portfolio design is structured to meet the liabilities of the fund.

- In accordance with administrative regulation 102 KAR 1:178, which governs investment policies for the fund, the TRS Investment Committee adopts and regularly reviews an asset allocation policy designed to meet the fund's needs.

ASSET ALLOCATION

As of June 30, 2018, the Health Insurance Trust Fund had approximately $1,061.2 billion in total assets. This included $92.4 million in investment-grade bonds. This trust fund also had $88.7 million in high-yield bonds, $607.1 million in public equity investments, $81.2 million in private equity investments, $41.4 million in bank loan investments, $57.8 million in alternative credit funds and $62.9 million in real estate funds.

Asset allocation will be adjusted annually by the Investment Committee to reflect changing liquidity needs and actuarial funding status. Due to upcoming contribution rate increases enacted in statute, liquidity needs are expected to decline in coming years while funding status improves. The information below shows the health insurance trust fund's asset allocation by market value as of June 30, 2018 and 2017.

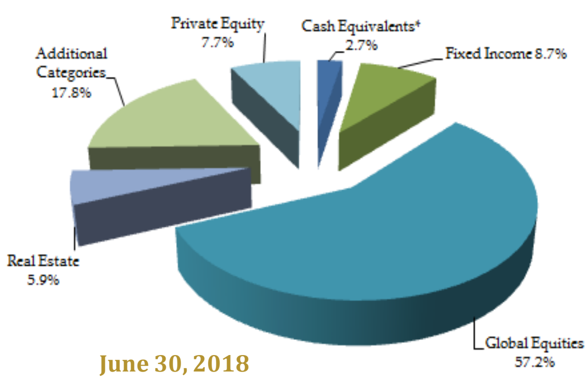
Health Insurance Trust

	June 30, 2018 **	%	June 30, 2017	%
Cash Equivalents*	$ 28,906,910	2.7	$ 19,312,440	2.4
Fixed Income	92,417,014	8.7	73,252,237	9.0
Global Equities	607,134,943	57.2	474,453,790	58.2
Real Estate	62,962,565	5.9	42,701,494	5.2
Additional Categories	81,232,638	17.8	163,246,284	20.2
Private Equity	188,639,147	7.7	42,340,364	5.0
TOTALS	**$ 1,061,293,217**	**100.0**	**$ 815,306,609**	**100.0**

* *Reflects only cash balances not allocated to other asset classes. Uninvested cash balances allocated to various asset classes are represented in the respective asset classes.*

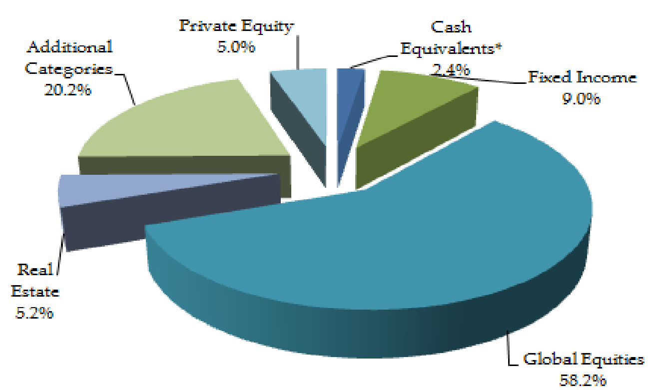
** *Does not include 401(h) value of $20,896,588.*

Distribution of Investments Health Insurance Trust Fair Values



June 30, 2018

June 30, 2017



** Reflects only cash balances not allocated to other asset classes. Uninvested cash balances allocated to various asset classes are represented in the respective asset classes.*

HEALTH INSURANCE TRUST
PORTFOLIO RETURNS

For the fiscal year 2018, the health insurance trust fund's portfolio returned 8.86% versus a policy index of 8.70%. The fund's global equities returned 11.54% versus 11.14% for the MSCI All Country World IMI Index. All cap equities returned 11.66% versus 14.78% for the Russell 3000 Index. A high-quality bond fund returned -0.60% versus -0.63% for the Barclays Government/Credit Index. This was the third year of managing the bond fund against this index. In the previous years it was managed against 90-day T-bills. TRS is working to extend duration but given the historically low interest rates TRS is being very selective at our extension points. The additional categories returned 3.12% versus 2.53% for its benchmark (Bank of America Merrill Lynch High Yield Master II).

Prior to July 1, 2015 TRS did not benchmark overall fund performance. Effective July 1, 2015 the Board of Trustees approved a policy index that represents the returns of appropriate benchmarks for the various asset classes weighted by the mid-point of the strategic range for the current fiscal year. Returns were generated by the Segal Marco Advisors performance reporting system using a time-weighted rate of return calculation based upon market values.

Schedule of Investment Returns – Health Insurance Trust – Gross

		Market Value	1-year	3-year*	5-year*	10-year	20-year
TOTAL PLAN	$	1,061,293,216	8.86	7.10	7.56		
*Policy Benchmark***			*8.70*	*7.61*			
Total Equity	$	607,134,943	11.53	8.60	9.95		
All Cap Equities	$	35,488,410	11.66				
Russell 3000			*14.78*				
Global Equities	$	571,646,533	11.54	8.76	10.05		
MSCI AC World IMI (Net)			*11.14*	*8.34*	*9.60*		
Fixed Income	$	92,417,014	-0.60	1.48	1.24		
Barclays Government Credit			*-0.63*	*1.83*	*2.29*		
Core Real Estate	$	28,142,914	7.24				
NCREIF ODCE (VW)			*8.44*				
Non-Core Real Estate	$	34,819,650	13.95	15.34			
NCREIF Property Index			*7.19*	*8.25*			
Private Equity	$	81,232,638	19.76	17.03	16.12		
Mature Private Equity	$	8,214,217	13.64	15.29	14.15		
S&P 500 plus 3%			*17.81*	*15.29*	*16.82*		
Private Equity < 5 Years	$	73,018,421	20.86	17.44	16.37		
Additional Categories:	$	188,639,147	3.12	3.92	4.52		
B of A Merrill Lynch High Yield Master II			*2.53*	*5.55*	*5.51*		
Cash (Unallocated)	$	28,906,910	1.41	0.72	0.46		
90 Day T-Bill			*1.36*	*0.64*	*0.40*		

* *Returns are annualized for periods longer than one year.*
** *Prior to July 1, 2015, TRS did not benchmark overall fund performance. Effective July 1, 2015, the Board of Trustees approved a policy index that represents the returns of appropriate benchmarks for the various asset classes weighted by the midpoint of the strategic range for the current fiscal year.*

SCHEDULE OF INVESTMENT RETURNS – HEALTH INSURANCE TRUST

Annual Rate of Return Net of Investment Expense

2018	8.44%
2017	14.37
2016	-2.20
2015	1.38
2014	15.38

HEALTH INSURANCE TRUST
PORTFOLIOS FAIR VALUES *
June 30, 2018

INTERNALLY MANAGED

Cash Equivalents		
Cash Collections Fund (Unallocated)	$	28,906,910
Fixed Income		92,417,014
Internal Bond Fund		
Subtotal	**$**	**121,323,924**

EXTERNALLY MANAGED

Domestic Equity	
Ft. Washington Focused Equity	35,488,411
International Equity	
Blackrock Fund B	571,646,533
Real Estate	
Blackstone Partners VIII	5,943,555
Carlyle Realty Partners VII	6,689,277
Carlyle Realty Partners VIII	1
Carlyle Property Advisors	10,797,661
Landmark Real Estate Partners Fund VII	6,514,456
Landmark Real Estate Partners Fund VIII	1,250,519
Prudential PRISA Fund	11,934,186
Rockwood Capital Real Estate Fund X	4,136,723
The Realty Associates Fund XI	10,285,119
TA Realty Core Property Fund	5,411,067

Externally Managed continued

Alternative Investments		
Actis Global Fund IV		4,034,928
APAX IX		4,620,556
Audax Private Equity Fund V		5,909,985
Carlyle Europe Partners IV		7,820,364
Carlyle Global Financial Services Partners III		1,818,412
Fort Washington PE Opportunities Fund III		4,618,511
Fort Washington Fund VII		4,179,289
Fort Washington Fund VIII		7,308,871
Fort Washington Fund IX		2,495,226
Fort Washington Fund IX-K		2,072,875
KKR & Co European Fund IV		7,758,012
KKR Americas Fund XII		1,452,451
Landmark Equity Partners Fund XV		2,300,715
NGP Natural Resources XI		9,756,664
NGP Natural Resources XII		1,939,568
Oaktree European Principal Fund IV		6,083,406
Riverstone E & P Fund VI		7,062,805
Additional Categories		
Columbia High Yield Fund		43,902,504
Fort Washington High Yield Bond Fund		44,873,033
Highbridge Principal Strategies III		2,146,955
Marathon European Credit Opp Fund II		3,483,347
Marathon European Credit Opp Fund III		6,643,851
Marathon TRS/Credit Fund		41,599,592
Oaktree European Capital Solutions Fund		4,264,407
Oaktree Opportunities Xb		250,000
Shenkman Capital Management		41,475,458
Subtotal	**$**	**939,969,293**
TOTAL ASSETS	**$**	**1,061,293,217 ****

* *Detailed information concerning the market values of all TRS investments is available upon request.*
** *Does not include 401(h) value of $20,896,588.*

Investment Summary
Fair Values – Health Insurance Trust
June 30, 2018

Type of Investment	Fair Value June 30, 2017	Acquisitions	Appreciation (Depreciation)	Sales Redemptions, Maturities & Paydowns	Fair Value June 30, 2018
Cash Equivalents	$ 26,537,098	$ 417,376,976	$	$ 407,817,028	$ 36,097,046
Fixed Income	70,283,077	38,239,097	(2,758,890))	16,081,353	89,681,931
Real Estate	42,701,494	24,984,288	5,085,890	9,809,108	62,962,565
Equities	473,274,401	80,784,054	56,040,467	4,393,055	605,705,867
Alternative	42,340,364	41,065,841	12,994,803	15,168,369	81,232,638
Additional Categories	160,170,175	84,517,119	(2,407,780)	56,666,343	185,613,170
TOTAL	**$ 815,306,609**	**$ 686,967,375**	**$ 68,954,490**	**$ 509,935,256**	**$ 1,061,293,217**

Does not include 401(h) value of $20,896,588.

Health Insurance Trust Fund
Contracted Investment
Management Expenses
Fiscal Year Ended June 30, 2018
(In thousands of dollars)

Investment Counselor Fees	Assets Under Management	Expense	Basis Points *
Equity Manager(s)			
Fixed Income Manager(s)	$ 607,135	$ 315	5.2
Real Estate **			
Additional Categories	62,963	998	158.5
Alternative Investments **	188,639	977	51.8
	81,233	1,313	161.6
TOTAL	**$ 939,970**	**$ 3,603**	**38.3**
Other Investment Services			
Custodian Fees	$ 1,061,293	$ 84	0.8
Consultant Fees			0.0
Legal & Research			0.0
Other Administrative and Operational		256	2.4
TOTAL	**$ 1,061,293**	**340**	**3.2**
GRAND TOTAL		**$ 3,943**	**37.2**

* *One basis point is one hundredth of one percent or the equivalent of .0001.*
** *Depending on contract terms, private equity fees are either withheld from the fund operations or paid by direct disbursement.*

Schedule of Contracted and Administrative Investment Expenses
Health Insurance Trust Fund
Fiscal Year Ended June 30, 2018

INVESTMENT COUNSELOR FEES

DOMESTIC EQUITY	
Fort Washington Focused Equity	120,165
Total Equity Managers	**$ 120,165**

INTERNATIONAL EQUITY	
Blackrock Fund B	194,711
Total International Managers	**$ 194,711**

REAL ESTATE	
Blackstone Partners VIII	150,000
Carlyle Realty Partners VII	125,946
Carlyle Realty Partners VIII	113,729
Carlyle Property Advisors	54,142
Landmark Real Estate Partners Fund VII	100,000
Landmark Real Estate Partners Fund VIII	116,426
Prudential PRISA Fund	89,402
Rockwood Capital Real Estate Fund X	98,110
The Realty Associates Fund XI	139,656
TA Realty Core Property Fund	10,274
Total Real Estate Managers	**$ 997,685**

ALTERNATIVE INVESTMENTS	
Actis Global Fund IV	64,000
APAX IX	117,909
Audax Private Equity Fund V	
Carlyle Europe Partners IV	98,840
Carlyle Global Financial Services Parnters III	79,521
Fort Washington PE Opportunities Fund III	15,549
Fort Washington Fund VII	30,377
Fort Washington Fund VIII	36,000
Fort Washington Fund IX	17,271
Fort Washington Fund IX-K	17,025
Alternative Investment Managers continued	
KKR Americas Fund XII	102,520
KKR & Co European Fund IV	133,162
Landmark Equity Partners Fund XV	50,000
NGP Natural Resources XI	141,262
NGP Natural Resources XII	114,726
Oaktree European Principal Fund IV	157,043
Riverstone E & P Fund VI	137,854
Total Alternative Investment Managers	**$ 1,313,059**

ADDITIONAL CATEGORIES	
Columbia High Yield Fund	167,497
Fort Washington High Yield Bond Fund	82,245
Highbridge Principal Strategies III	48,080
Marathon European Credit Opp Fund II	52,667
Marathon European Credit Opp Fund III	66,924
Marathon TRS/Credit Fund	356,815
Oaktree European Capital Solutions Fund	35,051
Shenkman Capital Management	168,127
Total Additional Category Managers	**$ 977,406**

ADMINISTRATIVE AND OPERATIONAL EXPENSES

CUSTODIAN	
The Bank of New York Mellon	84,018
Total Custodian	**$ 84,018**

OTHER	
Other Administrative and Operational (includes Personnel, Subscription services, etc...)	255,698
Total Other	**$ 255,698**

TOTAL INVESTMENT EXPENSES	**$ 3,942,742**

HEALTH INSURANCE TRUST PROFESSIONAL SERVICE PROVIDERS

Investment Consultant
Aon Hewitt

Investment Custodian
The Bank of New York Mellon

Additional Categories Managers
Fort Washington Investment Advisors
Shenkman Capital Management Inc.
Highbridge Principal Strategies
Marathon Asset Management
Oaktree Capital Management
Columbia Threadneedle Investments

Real Estate
Carlyle Realty Partners
Landmark Real Estate Partners
Blackstone Real Estate Partners
The Realty Associates
Prudential Real Estate Investors
Rockwood Capital Real Estate

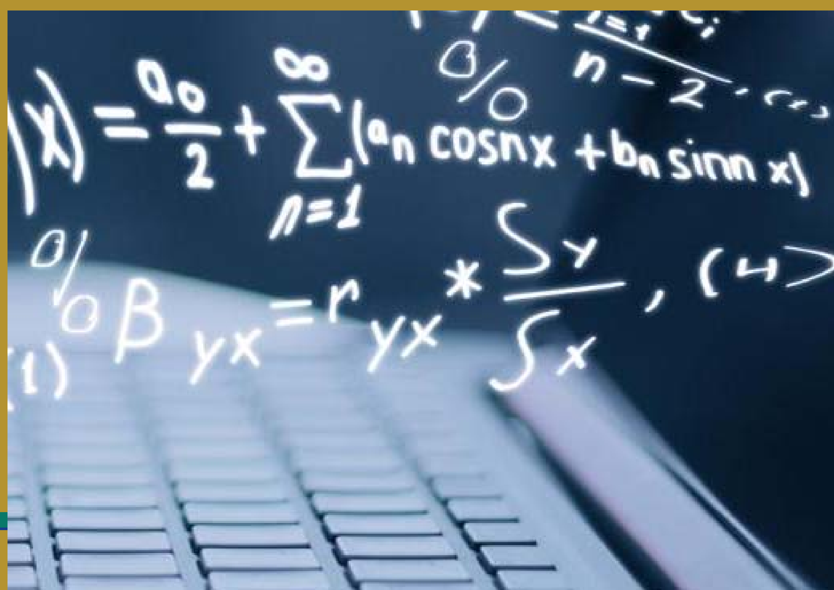
Alternative Investment Managers
Fort Washington Private Equity Investors
Actis
Landmark Partners
Kohlberg Kravis Roberts & Co.
Natural Gas Partners
Carlyle Global Partners
Audax Group
Riverstone Holdings
Apax Partners

Equity Manager
BlackRock Institutional Trust Co.
Fort Washington Investment Advisors

Attorney
Ice Miller

Teachers' Retirement System of the State of Kentucky

2018



Actuarial Section

Report of the Actuary
Annual Valuation
of the Defined Benefit Plan

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

November 12, 2018

Board of Trustees
Teachers' Retirement System of the
State of Kentucky
479 Versailles Road
Frankfort, KY 40601-3800

Members of the Board:

Section 161.400 of the law governing the operation of the Teachers' Retirement System of the State of Kentucky provides that the actuary shall make an actuarial valuation of the System. We have submitted the results of the annual actuarial valuation prepared as of June 30, 2018. While not verifying the data at source, the actuary performed tests for consistency and reasonability. The combined member and state contribution rates as a percentage of payroll for the fiscal year ending June 30, 2021 required to support the total benefits of the System are as follows:

Group	Combined Member and State Contribution Requirement
University members hired before July 1, 2008	35.60%
University members hired on or after July 1, 2008	36.60%
Non-University members hired before July 1, 2008	38.56%
Non-University members hired on or after July 1, 2008	39.56%

These rates represent an increase since the previous valuation in the total Pension actuarially determined employer contribution rates (ADEC) of 0.05% of payroll for the fiscal year ending June 30, 2021.

A breakdown of the changes in the components of the ADEC are as follows:

- a decrease in the expected state special appropriation from 3.00% to 2.89%, or 0.11% of payroll
- an increase in the amount required for life insurance benefits from 0.05% to 0.06%, or 0.01% of payroll
- the additional required increase of 0.17%, from 14.10% to 14.27%

The financing objective of the System is that contribution rates will remain relatively level over time as a percentage of payroll. The promised benefits of the System are included in the actuarially calculated contribution rates which are developed using the entry age normal cost method.

Five-year market related value of plan assets is used for actuarial valuation purposes. Gains and losses are reflected in the total unfunded actuarial accrued liability that is being amortized by regular annual contributions as a level percentage of payroll in accordance with the funding policy adopted by the Board, on the assumption that payroll will increase by 3.5% annually. The assumptions recommended by the actuary and adopted by the Board are reasonably related to the experience under the System and to reasonable expectations of anticipated experience under the System.

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Board of Trustees
November 12, 2018
Page 2

We have prepared the trend information shown in the Schedule of Funding Progress in the Financial Section of the Annual Report and Schedule A, Schedule B, Schedule C, Solvency Test and Analysis of Financial Experience shown in the Actuarial Section of the Annual Report.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the assumptions and methods used for funding purposes meet the parameters set by Actuarial Standards of Practice, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.

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

This actuarial valuation was performed to determine the recommended funding amount for the System. The asset values used to determine unfunded actuarial accrued liabilities and funded ratios are not market values but less volatile market related values. A smoothing technique is applied to market values to determine the market-related values. The unfunded actuarial accrued liability amounts and funded ratios using the market value of assets would be different. The interest rate used for determining liabilities is based on the expected return of assets. Therefore, liability amounts in this report cannot be used to assess a settlement of the obligation.

In our opinion, the System has not been funded on an actuarially sound basis since, historically, the full actuarially determined contributions were not made by the employer. However, an additional appropriation of $474.7 million was made during fiscal year 2018 and it is our understanding that the state budget includes additional appropriations to the pension plan for fiscal years 2019 and 2020. If contributions by the employer to the System in subsequent fiscal years are less than those required, the assets are expected to become insufficient to pay promised benefits. However, assuming that contributions to the System are made by the employer and state from year to year in the future at rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the assets to provide the benefits called for under the System may be safely anticipated.

Respectfully submitted,

Edward J. Koebel

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

Alisa Bennett

Alisa Bennett, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

Cathy Turcot

Cathy Turcot
Principal and Managing Director

Report of Actuary on the Valuation
Prepared as of June 30, 2018
Section I - SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation and a comparison with the results of the previous valuation are summarized below (dollar amounts in thousands):

Valuation Date	June 30, 2018	June 30, 2017
Number of active members	72,205	72,130
Annual salaries	$ 3,605,116	$ 3,563,584
Number of annuitants and beneficiaries	54,377	52,966
Annual allowances	$ 2,043,518	$ 1,953,464
Assets		
Market value	$ 19,981,633	$ 18,707,699
Actuarial value	19,496,056	18,514,638
Actuarial Accrued Liability	$ 33,795,671	$ 32,819,887
Unfunded actuarial accrued liability (UAAL)	$ 14,299,615	$ 14,305,248
Funded Ratio	57.7 %	56.4 %
Amortization period (years)	26.5	27.4

Contribution Rates for University Members

Valuation Date	June 30, 2018		June 30, 2017	
For Fiscal Year Ending	June 30, 2021		June 30, 2020	
	Members hired before 7/1/2008	Members hired on or after 7/1/2008	Members hired before 7/1/2008	Members hired on or after 7/1/2008
Pension Plan:				
Normal	10.690 %	10.690 %	10.800 %	10.800 %
Actuarial Accrued liability	24.910	25.910	24.750	25.750
Total	35.600 %	36.600 %	35.550 %	36.550 %
Member	7.625 %	7.625 %	7.625 %	7.625 %
State (ARC)	27.975	28.975	27.925	28.925
Total	35.600 %	36.600 %	35.550 %	36.550 %
Life Insurance Fund:				
State	0.060 %	0.060 %	0.050 %	0.050 %
Medical Insurance Fund:				
Member	2.775 %	2.775 %	2.775 %	2.775 %
State Match	2.775	1.775	2.775	1.775
Total	5.550 %	4.550 %	5.550 %	4.550 %
Total Contributions	41.210 %	41.210 %	41.150 %	41.150%
Member Statutory	10.400 %	10.400 %	10.400 %	10.400 %
State Statutory	13.650	13.650	13.650	13.650
Required Increase	14.270	14.270	14.100	14.100
State Special	2.890	2.890	3.000	3.000
Total	41.210 %	41.210 %	41.150 %	41.150 %

Contribution Rates for Non-University Members

Valuation Date	**June 30, 2018**		**June 30, 2017**	
For Fiscal Year Ending	June 30, 2021		June 30, 2020	
	Members hired before 7/1/2008	Members hired on or after 7/1/2008	Members hired before 7/1/2008	Members hired on or after 7/1/2008
Pension Plan:				
Normal	14.760 %	14.760 %	14.840 %	14.840 %
Accrued liability	23.800	24.800	23.670	24.670
Total	38.560 %	39.560 %	38.510 %	39.510 %
Member	9.105 %	9.105 %	9.105 %	9.105 %
State (ARC)	29.455	30.455	29.405	30.405
Total	38.560 %	39.560 %	38.510 %	39.510 %
Life Insurance Fund:				
State	0.060 %	0.060 %	0.050 %	0.050 %
Medical Insurance Fund:				
Member	3.750 %	3.750 %	3.750 %	3.750 %
State Match	3.750	2.750	3.750	2.750
Total	7.500 %	6.500 %	7.500 %	6.500 %
Total Contributions	46.120 %	46.120 %	46.060 %	46.060 %
Member Statutory	12.855 %	12.855 %	12.855 %	12.855 %
State Statutory	16.105	16.105	16.105	16.105
Required Increase	14.270	14.270	14.100	14.100
State Special	2.890	2.890	3.000	3.000
Total	46.120%	46.120%	46.060 %	46.060 %

2. The valuation includes only the assets and liabilities associated with the pension plan. The valuation of the Medical Insurance Fund and the Active and Retired Life Insurance Benefits will be prepared separately.

3. Comments on the valuation results as of June 30, 2018 are given in Section IV and further discussion of the contribution levels is set out in Sections V and VI.

4. Schedule B shows the development of the actuarial value of assets. The assumed investment rate of return is 7.50%. Schedule D of this report outlines the full set of actuarial assumptions and methods employed in the current valuation. There have been no changes since the previous valuation.

5. Provisions of the System, as summarized in Schedule F, were taken into account in the current valuation. There have been no changes since the previous valuation.

6. The funded ratio shown in the Summary of Principal Results, is the ratio of actuarial value of assets to the actuarial accrued liability. The funded status would be different based on the market value of assets. The funded ratio is an indication of progress in funding the promised benefits. Since the ratio is less than 100%, there is a need for additional contributions toward the payment of the unfunded actuarial accrued liability. In addition, this funded ratio does not have any relationship to measuring the sufficiency if the plan had to settle its liabilities.

Section II - MEMBERSHIP DATA

1. Data regarding the membership of the system for use as a basis of the valuation were furnished by the retirement system office. The following table shows the number of active members and their annual salaries as of June 30, 2018 on the basis of which the valuation was prepared.

Group	Number	Annual Salaries ($1,000's)
University hired before 7/1/2008	1,578	$ 118,570
University hired after 7/1/2008	1,579	83,582
Non-University Full Time hired before 7/1/2008	34,000	2,259,772
Non-University Full Time hired after 7/1/2008	22,526	1,065,810
Non-University Part Time hired before 7/1/2008	2,098	18,041
Non-University Part Time hired after 7/1/2008	10,424	59,341
TOTAL	**72,205**	**$ 3,605,116**

2. The following table shows the number and annual retirement allowances payable to annuitants and beneficiaries on the roll of the retirement system as of the valuation date.

The Number and Annual Retirement Allowances of Annuitants and Beneficiaries on the Roll as of June 30, 2018

Group	Number	Annual Retirement Allowances[1] ($1,000's)
Service Retirements	47,495	$ 1,863,635
Disability Retirements	2,831	85,270
Beneficiaries of Deceased Members	4,051	94,613
TOTAL	**54,377**	**$ 2,043,518**

[1] Includes cost-of-living adjustments effective through July 1, 2018.

In addition, there are 8,814 terminated vested employees entitled to benefits in the future and 44,031 inactive non-vested members.

3. Table 1 of Schedule G shows a distribution by age and years of service of the number and annual salaries of active members included in the valuation, while Table 2 shows the number and annual retirement allowances of annuitants and beneficiaries included in the valuation, distributed by age.

Section III - ASSETS

1. As of June 30, 2018, the market value of Pension Plan assets for valuation purposes held by the System amounted to $19,981,633,096. This value excludes assets in the Medical Insurance Fund, the 403(b) Program Reserve Fund, and the Life Insurance Fund, which are not included in the assets used for Pension Plan valuation purposes. The estimated market investment return for the plan year was 10.50%. Schedule C shows the receipts and disbursements for the year preceding the valuation date and a reconciliation of the asset balances for the Pension Plan.

2. The five-year market related value of Pension Plan assets used for valuation purposes as of June 30, 2018 was $19,496,055,514. The estimated investment return for the plan year ending June 30, 2018 on an actuarial value of assets basis was 9.14%, compared to the assumed investment rate of return for the period of 7.50%. Schedule B shows the development of the actuarial value of assets as of June 30, 2018.

Section IV - COMMENTS ON VALUATION

1. Schedule A of this report contains the valuation balance sheet which shows the present and prospective assets and liabilities of the System as of June 30, 2018. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method, which are described in Schedule D and Schedule E.

2. The valuation balance sheet shows that the System has total prospective liabilities of $16,515,254,593 for benefits expected to be paid on account of the present active members. The liability on account of benefits payable to annuitants and beneficiaries amounts to $21,525,543,928 of which $720,598,026 is for special appropriations remaining to be made toward funding ad hoc increases and sick leave allowances granted after 1981. The liability for benefits expected to be paid to inactive members and to members entitled to deferred vested benefits is $396,936,901. The total prospective liabilities of the System amounts to $38,437,735,422. Against these liabilities, the System has present assets for valuation purposes of $19,496,055,514. When this amount is deducted from the total liabilities of $38,437,735,422, there remains $18,941,679,908 as the present value contributions to be made in the future.

3. The employer's contributions to the System consist of normal contributions and actuarial accrued liability contributions. The valuation indicates that employer normal contributions at the rate of 10.69% of payroll for University and 14.76% of payroll for Non-University are required.

4. Prospective normal employer and employee contributions have a present value of $4,642,064,420. When this amount is subtracted from $18,941,679,908, which is the present value of the total future contributions to be made by the employer, there remains $14,299,615,488 as the amount of future unfunded actuarial accrued liability contributions.

5. The unfunded actuarial accrued liability decreased by approximately $5.6 million for the plan year ending June 30, 2018 and the funding ratio increased from 56.4% to 57.7%. See Section VII for a complete breakdown of the experience of the System.

Section V - CONTRIBUTIONS PAYABLE UNDER THE SYSTEM

1. Section 161.540 of the retirement law provides that each university member contribute 10.400% of annual salary to the System and each non-university member contribute 12.855% of annual salary. Of this amount, for each university member, 2.775% is paid to the Medical Insurance Fund for medical benefits and for each non-university member, 3.75% is paid to the Medical Insurance Fund for medical benefits. The remainder, 7.625% for university members and 9.105% for non-university members, is applicable for the retirement benefits taken into account in the valuation.

2. Section 161.550 provides that the State will match a portion of the member contributions and contribute a supplemental 3.25% of members' salaries towards discharging the System's unfunded obligations. Additional contributions are made to the Medical Insurance Fund as required under 161.550(3).

3. Therefore for university members, 10.875% of the salaries of active members who become members before July 1, 2008 and 11.875% of the salaries of active members who become members on or after July 1, 2008 is funded by statute or supplemental funding for the Pension Plan and Life Insurance Fund. For non-university members, 12.355% of the salaries of active members who become members before July 1, 2008 and 13.355% of the salaries of

active members who become members on or after July 1, 2008 is funded by statute or supplemental funding for the Pension Plan and Life Insurance Fund. Of these amounts, 0.06% of payroll will be allocated to the Life Insurance Fund. Based on the results of the valuation, an additional 14.27% of payroll for both university and non-university will be required in order to maintain the amortization of the unfunded actuarial accrued liability of the Pension Plan based on the funding policy adopted by the Board. An additional special appropriation of 2.89% of total payroll will be made by the State. Therefore, the total actuarially determined employer contribution rate to the Pension Plan is 27.975% for university members who become members before July 1, 2008 and 28.975% for university members who become members on or after July 1, 2008. The total actuarially determined employer contribution rate to the Pension Plan is 29.455% for non-university members who become members before July 1, 2008 and 30.455% for non-university members who become members on or after July 1, 2008. The total member and employer contribution rates to the Pension Plan are shown on the following table:

Contribution Rates by Source
University

	Members hired before 7/1/2008	Members hired on or after 7/1/2008
Member		
Statutory Total	10.400 %	10.400 %
Statutory Medical Insurance Fund	(2.775)	(2.775)
Contribution to Pension Plan	7.625 %	7.625 %
Employer		
Statutory Matching Total	10.400 %	10.400 %
Statutory Medical Insurance Fund	(2.775)	(1.775)
Supplemental Funding	3.250	3.250
Subtotal	10.875 %	11.875 %
Life Insurance	(0.060) %	(0.060) %
Additional to Comply with Board Funding Policy	14.270	14.270
Special Appropriation	2.890	2.890
Contribution to Pension Plan	27.975 %	28.975 %
Total Contribution to Pension Plan	**35.600 %**	**36.600 %**

Contribution Rates by Source
Non-University

	Members hired before 7/1/2008	Members hired on or after 7/1/2008
Member		
Statutory Total	12.855 %	12.855 %
Statutory Medical Insurance Fund	(3.750)	(3.750)
Contribution to Pension Plan	9.105 %	9.105 %
Employer		
Statutory Matching Total	12.855 %	12.855 %
Statutory Medical Insurance Fund	(3.750)	(2.750)
Supplemental Funding	3.250	3.250
Subtotal	12.355 %	13.355 %
Life Insurance	(0.060) %	(0.060) %
Additional to Comply with Board Funding Policy	14.270	14.270
Special Appropriation	2.890	2.890
Contribution to Pension Plan	29.455 %	30.455 %
Total Contribution to Pension Plan	**38.560 %**	**39.560 %**

4. The valuation indicates that normal contributions at the rate of 10.69% of active university members' salaries and 14.76% of active non-university members' salaries are required. The difference between the total contribution rate and the normal rate remains to be applied toward the liquidation of the unfunded actuarial accrued liability. This actuarial accrued liability rate, based on the assumptions set forth in the Board's funding policy, is 24.91% for university members hired before July 1, 2008, 25.91% for university members hired on and after July 1, 2008, 23.80% for non-university members hired before July 1, 2008, and 24.80% for non-university members hired on and after July 1, 2008. These rates include special appropriations of 2.89% of payroll to be made by the State. These rates are shown in the following table:

Actuarially Determined Contribution Rates

Rate	Percentage of Active Members' Salaries			
	UNIVERSITY		NON-UNIVERSITY	
	Members hired before 7/1/2008	Members hired on or after 7/1/2008	Members hired before 7/1/2008	Members hired on or after 7/1/2008
Normal	10.69 %	10.69 %	14.76 %	14.76 %
Accrued Liability *	24.91	25.91	23.80	24.80
Total	**35.60 %**	**36.60 %**	**38.56 %**	**39.56 %**

** Includes special appropriations of 2.89% of payroll to be made by the State.*

5. The following table shows the components of the total UAAL and the derivation of the UAAL contribution rate in accordance with the funding policy:

Total UAAL and UAAL Contribution Payment
(In thousands of dollars)

	Original UAAL	Current UAAL	Remaining Amortization Period (years)	Amortization Payment
Legacy	$ 14,010,205	$ 14,930,003	26	$ 920,415
New Incremental 6/30/2015	(351,610)	(349,480)	17	(28,426)
New Incremental 6/30/2016	340,766	339,694	18	26,539
New Incremental 6/30/2017	(428,468)	(428,362)	19	(32,241)
New Incremental 6/30/2018	(192,240)	(192,240)	20	(13,976)
Total UAAL		$ 14,299,615		$ 872,311
Blended Amortization Period (years)				26.5

Section VI - COMMENTS ON LEVEL OF FUNDING

1. Our calculations indicate that the contribution rates shown in the previous section will be sufficient to cover the benefits of the System, the annual 1.5% increases in the allowances of retired members and beneficiaries, and the liabilities for ad hoc increases and sick leave allowances granted after 1981.

2. The valuation indicates that the present statutory contribution rates, supplemental funding and special appropriations, if continued at the current level percentage, along with an additional required contribution of 14.27%, are sufficient to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability in accordance with the Board funding policy. However, as existing special contributions expire, the statutory contributions or supplemental funding may be required to increase as an equal percentage of payroll.

3. There are no excess assets or contributions available to provide additional benefits, and there is a cumulative increase in the required employer contribution of 14.27% of payroll for the fiscal year ending June 30, 2021, as shown in the following table:

VALUATION DATE	FISCAL YEAR	INCREASE/ (DECREASE)	CUMULATIVE INCREASE	AMOUNT
June 30, 2004	June 30, 2007	0.11%	0.11%	$ 3,174,600
June 30, 2005	June 30, 2008	1.21	1.32	38,965,900
June 30, 2006	June 30, 2009	0.56	1.88	60,499,800
June 30, 2007	June 30, 2010	0.58	2.46	82,331,200
June 30, 2008	June 30, 2011	1.13	3.59	121,457,000
June 30, 2009	June 30, 2012	2.22	5.81	208,649,000
June 30, 2010	June 30, 2013	1.46	7.27	260,980,000
June 30, 2011	June 30, 2014	0.75	8.02	299,420,000
June 30, 2012	June 30, 2015	2.40	10.42	386,400,000
June 30, 2013	June 30, 2016	2.55	12.97	487,400,000
June 30, 2014	June 30, 2017	0.83	13.80	520,372,000
June 30, 2015	June 30, 2018	(0.31)	13.49	512,883,000
June 30, 2016	June 30, 2019	1.12	14.61	553,597,000
June 30, 2017	June 30, 2020	(0.51)	14.10	538,253,000
June 30, 2018	June 30, 2021	0.17	14.27	551,092,000

In addition, as existing special contributions expire, the statutory contributions or supplemental funding may be required to increase as an equal percentage of payroll, in order to amortize the unfunded actuarial accrued liability in accordance with the Board funding policy. Any further benefit improvements must be accompanied by the entire additional contributions necessary to support the benefits.

Section VII - ANALYSIS OF FINANCIAL EXPERIENCE

The following table shows the estimated gain or loss from various factors that resulted in a decrease of $5,632,843 in the unfunded actuarial accrued liability from $14,305,248,331 to $14,299,615,488 during the year ending June 30, 2018. The decrease in the unfunded actuarial accrued liability was primarily due to gains for the investment return on an actuarial value basis that was greater than expected and salary increases that were less than assumed. In addition to these gains were small demographic gains and losses due to turnover, retirement and mortality.

Analysis of Financial Experience
(In thousands of dollars)

ITEM	AMOUNT OF INCREASE/ (DECREASE)
Interest (7.50%) added to previous unfunded accrued liability	$ 1,072,894
Expected accrued liability contribution	(888,427)
Loss due to Contribution Shortfall and Timing	8,540
Experience:	
Valuation asset growth	(297,572)
Pensioners' mortality	58,828
Turnover and retirements	72,847
New entrants	40,380
Salary increases	(73,123)
Amendments	0
Assumption changes	0
Method changes	0
Total	**$** (5,633)

Section VIII - ACCOUNTING INFORMATION

The information required under Governmental Accounting Standards Board (GASB) Statements No. 67 and 68 will be issued in separate reports. The following information is provided for informational purposes only.

1. The following is a distribution of the number of employees by type of membership.

Number of Active and Retired Members as of June 30, 2018

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	54,377
Terminated vested employees entitled to benefits but not yet receiving benefits	8,814
Inactive non-vested members	44,031
Active plan members	72,205
Total	**179,427**

2. The schedule of funding progress is shown below.

Schedule of Funding Progress

(In thousands of dollars)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) /c)
6/30/2013	$ 14,962,758	$ 28,817,232	$ 13,854,474	51.9 %	$ 3,480,066	398.1 %
6/30/2014*	16,174,199	30,184,404	14,010,205	53.6	3,486,327	401.9
6/30/2015	17,219,520	31,149,962	13,930,442	55.3	3,515,113	396.3
6/30/2016*	17,496,894	32,028,227	14,531,333	54.6	3,537,226	410.8
6/30/2017	18,514,638	32,819,887	14,305,249	56.4	3,563,584	401.4
6/30/2018	19,496,056	33,795,671	14,299,615	57.7	3,605,116	396.6

* *Reflects change in assumptions and methods.*

3. The information presented above was determined as part of the actuarial valuation at June 30, 2018. Additional information as of the latest actuarial valuation follows.

Valuation date	06/30/2018
Actuarial cost method	Entry age
Amortization method	Level percent of pay, closed
Remaining amortization period	26.5 years
Asset valuation method	5-year smoothed market

Actuarial Assumptions:

Investment rate of return*
7.50%

Projected salary increases**
3.50 - 7.30%

Cost-of-living adjustments
1.50% Annually

**Includes price inflation at 3.00%*
***Includes wage inflation at 3.50%*

Schedule of Employer Contributions

Fiscal Year Ended June 30	Actuarially Determined Employer Contributions	Actual Employer Contributions	Percentage Contributed
2013	$ 802,984,644	$ 568,233,446	71 %
2014	823,446,156	563,326,249	68
2015	913,653,854	559,579,290	61
2016	999,270,174	565,454,590	57
2017	1,076,617,093	1,060,719,993	99
2018	1,080,892,201	1,048,671,201	97

Section IX - SENSITIVITY ANALYSIS

The valuation results are a projection of expected benefit payments based on the actuarial assumptions. Actual experience will differ from these assumptions, either increasing or decreasing liabilities and valuation results. The charts on the following pages provide a simple analysis on how the costs are sensitive to changes in the assumed discount rate, the assumed price inflation rate and the rate of wage inflation. The charts show the actuarial accrued liability, the unfunded actuarial accrued liability, the funded ratio and the employer contribution rate under each of the following scenarios:

- TABLE 1 - The discount rate assumption sensitivity analysis shows the valuation results with the baseline discount rate assumption, 7.50%, together with an increase and a decrease of 1.00% in the discount rate. Under this scenario, the underlying price inflation rate assumption is held constant at 3.00% and the wage inflation assumption is held constant at 3.50%.

- TABLE 2 - The price inflation assumption sensitivity analysis shows the valuation results with the baseline underlying price inflation rate assumption, 3.00%, together with decreases in the price inflation rate to 2.75% and 2.50%. Under this scenario, the decrease in the underlying price inflation rate assumption leads to corresponding decreases in the discount rate (7.25% and 7.00%, respectively), the wage inflation assumption (3.25% and 3.00%, respectively), and the assumed rates of salary increase for active members.

- TABLE 3 - The wage inflation assumption sensitivity analysis shows the valuation results with the baseline underlying wage inflation assumption, 3.50%, together with decreases in the wage inflation assumption to 2.00% and 0.00%. Under this scenario, all other assumptions, including the individual member salary scale, are held constant so that the only impact is in the amortization of the unfunded actuarial accrued liability, leading to higher employer contribution rates.

TABLE 1
Assumed Discount Rate Sensitivity Analysis
as of June 30, 2018
(In thousands of dollars)

	Decrease Discount Rate	Valuation Results	Increase Discount Rate
Actuarial Accrued Liability	$ 37,702,021	$ 33,795,671	$ 30,519,411
Actuarial Value of Assets	19,496,056	19,496,056	19,496,056
Unfunded Actuarial Accrued Liability	$ 18,205,965	$ 14,299,615	$ 11,023,355
Funded Ratio	51.7%	57.7%	63.9%
Employer ADEC - University*	37.505%	28.975%	21.575%
Employer ADEC - Non-University*	38.985%	30.455%	23.055%
Discount Rate	6.50%	7.50%	8.50%
Wage Inflation Rate	3.50%	3.50%	3.50%
Price Inflation Rate	3.00%	3.00%	3.00%

* *Less 1% for members hired before July 1, 2008*

TABLE 2
Assumed Discount Rate Sensitivity Analysis
As of June 30, 2018
(In thousands of dollars)

	Valuation Results	Decrease Inflation Rate 25 Basis Points	Decrease Inflation Rate 50 Basis Points
Actuarial Accrued Liability	$ 33,795,671	$ 34,587,658	$ 35,413,014
Actuarial Value of Assets	19,496,056	19,496,056	19,496,056
Unfunded Actuarial Accrued Liability	$ 14,299,615	$ 15,091,602	$ 15,916,958
Funded Ratio	57.7%	56.4%	55.1%
Employer ADEC - University*	28.975%	31.035%	33.175%
Employer ADEC - Non-University*	30.455%	32.515%	34.655%
Discount Rate	7.50%	7.25%	7.00%
Wage Inflation Rate	3.50%	3.25%	3.00%
Price Inflation Rate	3.00%	2.75%	2.50%

* *Less 1% for members hired before July 1, 2008*

TABLE 3
Wage Inflation Assumption Sensitivity Analysis
as of June 30, 2018
(In thousands of dollars)

	Valuation Results	Decrease Inflation to 2%	No Wage Inflation
Actuarial Accrued Liability	$ 33,795,671	$ 33,795,671	$ 32,795,671
Actuarial Value of Assets	19,496,056	19,496,056	19,496,056
Unfunded Actuarial Accrued Liability	$ 14,299,615	$ 14,299,615	$ 14,299,615
Funded Ratio	57.7%	57.7%	57.7%
Employer ADEC - University*	28.975%	33.255%	39.655%
Employer ADEC - Non-University*	30.455%	34.735%	41.135%
Discount Rate	7.50%	7.50%	7.50%
Wage Inflation Rate	3.50%	2.00%	0.00%
Price Inflation Rate	3.00%	3.00%	3.00%

* *Less 1% for members hired before July 1, 2008*

SCHEDULE A

Valuation Balance Sheet and Solvency Test
Showing the Present and Prospective Assets and Liabilities
As of June 30, 2018
(In thousands of dollars)

Actuarial Liabilities

(1)	Present value of prospective benefits payable on account of present active members		
	- Service retirement benefits	$ 15,493,983	
	- Disability retirement benefits	636,767	
	- Death and survivor benefits	127,040	
	- Refunds of member contributions	257,464	
	Total		$ 16,515,254
(2)	Present value of prospective benefits payable on account of present retired and disabled members, and beneficiaries of deceased members		
	- Service retirement benefits	$ 19,903,893	
	- Disability retirement benefits	824,297	
	- Death and survivor benefits	797,354	
	Total		$ 21,525,544
(3)	Present value of prospective benefits payable on account of inactive members and members entitled to deferred vested benefits		$ 396,937
(4)	TOTAL ACTUARIAL LIABILITIES		$ 38,437,735

Present and Prospective Assets

(5)	Actuarial value of assets		$ 19,496,056
(6)	Present value of total future contributions = (4)-(5)	$ 18,941,679	
(7)	Present value of future member contributions and employer normal contributions		$ 4,642,064
(8)	Prospective unfunded accrued liability contributions = (6)-(7)		$ 14,299,615
(9)	TOTAL PRESENT AND PROSPECTIVE ASSETS		$ 38,437,735

Schedule A continued ...

Solvency Test

(In millions of dollars)

Valuation Date	Aggregate Actuarial Accrued Liability for (1) Active Member Contributions	(2) Retirants and Beneficiaries	(3) Active Members (Employer Financed Portion)	Valuation Assets	Portion of Accrued Liabilities Covered by Assets (1)	(2)	(3)
6/30/2013	$ 3,514.4	$ 17,716.4	$ 7,586.5	$ 14,962.8	100 %	65 %	0 %
6/30/2014	3,629.7	18,676.3	7,878.3	16,174.2	100	67	0
6/30/2015	3,700.6	19,522.5	7,926.8	17,219.5	100	69	0
6/30/2016	3,756.0	20,416.4	7,855.8	17,496.9	100	67	0
6/30/2017	3,849.9	21,108.0	7,862.1	18,514.6	100	69	0
6/30/2018	3,927.8	21,922.5	7,945.4	19,496.1	100	71	0

SCHEDULE B

Development of Actuarial Value of Assets as of June 30, 2018

(1)	Actuarial Value of Assets Beginning of Year		$ 18,514,638,263
(2)	Net Position at Market Value at End of Year		19,981,633,096
(3)	Net Position at Market Value at Beginning of Year		18,707,699,025
(4)	Cash Flow		
	a.	Contributions	1,367,798,288
	b.	Benefit Payments	2,035,689,755
	c.	Administrative Expense	11,388,493
	d.	Net: (4)a - (4)b - (4)c	(679,279,960)
(5)	Investment Income		
	a.	Market total: (2) - (3) - (4)d	1,953,214,031
	b.	Assumed Rate	7.50%
	c.	Amount for Immediate Recognition: [(3) x (5)b] + [(4)d x (5)b x 0.5]	1,377,604,428
	d.	Amount for Phased-In Recognition: (5)a - (5)c	575,609,603
(6)	Phased-In Recognition of Investment Income		
	a.	Current Year: 0.20 x (5)d	115,121,921
	b.	First Prior Year	247,314,724
	c.	Second Prior Year	(312,346,803)
	d.	Third Prior Year	(92,160,668)
	e.	Fourth Prior Year	325,163,609
	f.	Total Recognized Investment Gain	283,092,783
(7)	Actuarial Value of Assets End of Year: (1) + (4)d + (5)c + (6)f		$ 19,496,055,514
(8)	Difference Between Market & Actuarial Values: (2) - (7)		$ 485,577,582
(9)	Net Investment Rate of Return on Actuarial Value		9.14%

SCHEDULE C

Summary of Receipts & Disbursements*
(Market Value)

	For the Year Ending June 30, 2018	June 30, 2017
Receipts for the Year		
Contributions		
Members	$ 319,127,087	$ 313,625,434
Employers	1,048,671,201	1,060,719,993
Total	1,367,798,288	1,374,345,427
Net Investment Income	1,953,214,031	2,475,752,798
Total	3,321,012,319	3,850,098,225
Disbursements for the Year		
Benefit Payments	2,004,617,334	1,918,612,128
Refunds to Members	31,072,421	26,305,240
Miscellaneous, including expenses	11,388,493	10,313,715
Total	2,047,078,248	1,955,231,083
Excess of Receipts over Disbursements	1,273,934,071	1,894,867,142
Reconciliation of Net Position		
Net Position as of the Beginning of the Year	18,707,699,025	16,812,831,883
Excess of Receipts over Disbursements	1,273,934,071	1,894,867,142
Net Position as of the End of the Year	$ 19,981,633,096	$ 18,707,699,025
Net Investment Rate of Return on Market Value	10.5%	15.0%

* *Excludes assets for Medical Insurance Fund, the 403(b) Program Reserve Fund and the Life Insurance Fund.*

SCHEDULE D
Outline of Actuarial Assumptions and Methods

The assumptions and methods used in the valuation were selected based on the actuarial experience study prepared as of June 30, 2015, submitted to and adopted by the Board on September 19, 2016.

INVESTMENT RATE OF RETURN: 7.50% per annum, compounded annually, including price inflation at 3.00% per annum.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows and include wage inflation at 3.50% per annum:

Age	20	25	30	35	40	45	50	55	60	65
Annual Rate	7.20%	6.40%	5.40%	4.70%	4.20%	3.80%	3.70%	3.50%	3.50%	3.50%

SEPARATIONS FROM SERVICE: Representative values of the assumed annual rates of death, disability, withdrawal, service retirement and early retirement are as follows:

MALES: Annual Rate of . . .

AGE	DEATH	DISABILITY	WITHDRAWAL SERVICE 0 - 4	WITHDRAWAL SERVICE 5 - 9	WITHDRAWAL SERVICE 10+	RETIREMENT Before 27 Years of Service	RETIREMENT After 27 Years of Service*
20	0.019 %	0.01%	11.00 %				
25	0.021	0.01	11.00	3.00%			
30	0.025	0.01	11.00	3.00	3.00%		
35	0.043	0.04	12.00	3.50	1.40		
40	0.060	0.09	12.00	4.50	1.40		
45	0.084	0.20	12.00	4.50	1.30		17.0%
50	0.119	0.30	14.00	4.50	1.90		17.0
55	0.202	0.58	15.00	4.50	2.40	5.0%	45.0
60	0.340	0.75	15.00	4.00	2.40	13.0	35.0
62	0.419	0.75	15.00	3.80	2.40	15.0	25.0
65	0.565	0.75	15.00	3.50	2.40	20.0	25.0
70	0.913	0.75	20.00	0.00	0.00	20.0	20.0
75	1.556	0.75	20.00	0.00	0.00	100.0	100.0

**Plus 7.5% in year when first eligible for unreduced retirement with 27 years of service.*

Schedule D continued ...

FEMALES: Annual Rate of . . .

AGE	DEATH	DISABILITY	WITHDRAWAL SERVICE 0 - 4	WITHDRAWAL SERVICE 5 - 9	WITHDRAWAL SERVICE 10+	RETIREMENT Before 27 Years of Service	RETIREMENT After 27 Years of Service*
20	0.007%	0.01%	9.00%				
25	0.008	0.01	9.00	4.00%			
30	0.010	0.03	12.00	4.00	1.65%		
35	0.018	0.06	12.00	4.00	1.50		
40	0.026	0.12	12.00	4.00	1.30		
45	0.042	0.25	13.00	4.00	1.20		15.0%
50	0.062	0.44	13.00	5.00	1.50		18.0
55	0.096	0.65	15.00	5.00	2.00	5.5%	50.0
60	0.157	0.85	15.00	5.00	2.00	14.0	40.0
62	0.197	0.85	15.00	4.60	2.00	14.0	40.0
65	0.287	0.85	15.00	4.00	2.00	22.0	35.0
70	0.495	0.85	15.00	0.00	0.00	20.0	35.0
75	0.831	0.85	15.00	0.00	0.00	100.0	100.0

**Plus 7.5% in year when first eligible for unreduced retirement with 27 years of service.*

DEATHS AFTER RETIREMENT: The RP-2000 Combined Mortality Table projected to 2025 using scale BB (set forward two years for males and one year for females) is used for death after service retirement and beneficiaries. The RP-2000 Disabled Mortality Table (set forward two years for males and seven years for females) is used for death after disability retirement. There is a margin for future mortality improvement in the tables used by the System. Based on the results of the most recent experience study adopted by the Board on September 19, 2016, the numbers of expected future deaths are 15-19% less than the actual number of deaths that occurred during the study period for healthy retirees and 13-17% less than expected under the selected table for disabled retirees. Representative values of the assumed annual rates of death after service retirement and after disability retirement are shown in this table:

Annual Rate of Death After . . .

AGE	SERVICE RETIREMENT MALE	SERVICE RETIREMENT FEMALE	DISABILITY RETIREMENT MALE	DISABILITY RETIREMENT FEMALE
45	0.1609 %	0.1135 %	2.3306 %	1.2482 %
50	0.2474	0.1718	2.9279	1.5650
55	0.4246	0.2658	3.4400	1.7807
60	0.6985	0.4409	3.5881	2.3164
65	1.1300	0.8100	3.8275	3.1687
70	1.8697	1.3739	4.7566	4.4032
75	3.2147	2.2899	6.3153	6.0857
80	5.5160	3.7551	8.3527	8.4679
85	9.5631	6.3873	10.9122	12.7572
90	17.2787	11.2476	17.2787	19.4718
95	27.1263	18.1190	27.1263	24.2074

ASSETS: Five-year market related actuarial value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the ultimate assumed valuation rate of return of 7.50%. The amount recognized each year is 20% of the difference between market value and expected actuarial value.

EXPENSE LOAD: None.

PERCENT MARRIED: 100%, with females 3 years younger than males.

LOADS: Unused sick leave: 2% of active liability.

SCHEDULE E

Actuarial Cost Method

1. The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently at 7.50%), of each active member's expected benefit at retirement or death is determined, based on his/her age, service, sex and compensation. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his/her terminating with a service, disability or survivor's benefit. Future salary increases and post-retirement cost-of-living adjustments are also anticipated. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members and beneficiaries and inactive members to obtain the present value of all expected benefits payable from the System on account of the present group of members and beneficiaries.

2. The employer contributions required to support the benefits of the System are determined following a level funding approach, and consist of a normal contribution and an actuarial accrued liability contribution.

3. The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his/her anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his/her behalf.

4. The unfunded actuarial accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the System.

SCHEDULE F

Summary of Main System Provisions as Interpreted for Valuation Purposes

The Teachers' Retirement System of the State of Kentucky was established on July 1, 1940. The valuation took into account amendments to the System effective through June 30, 2018. The following summary describes the main benefit and contribution provisions of the System as interpreted for the valuation.

1 - DEFINITIONS

"Final average salary" means the average of the five highest annual salaries which the member has received for service in a covered position and on which the member has made contributions or on which the public board, institution or agency has picked up the member contributions. For a member who retires after attaining age 55 with 27 years of service, "final average salary" means the average of the three highest annual salaries.

2 - BENEFITS

Service Retirement Allowance for Members Before 7/1/2008
Condition for Allowance

- Completion of 27 years of service or attainment of age 55 and 5 years of service.

Amount of Allowance

- The annual retirement allowance for non-university members is equal to:
  - (a) 2.0% of final average salary multiplied by service before July 1, 1983, plus
  - (b) 2.5% of final average salary multiplied by service after July 1, 1983.
  - (c) For individuals who become members of the retirement system on or after July 1, 2002 and have less than 10 years of service at retirement, the retirement allowance is 2.0% of final average salary multiplied by service. If, however, they have 10 or more years, they receive a benefit percentage of 2.5% for all years of service up to 30 years.
  - (d) For members retiring on or after July 1, 2004, the retirement allowance formula is 3.0% of final average salary for each year of service credit earned in excess of 30 years.

Schedule F continued ...

The annual retirement allowance for university members is equal to 2.0% of final average salary multiplied by all years of service.

For all members, the annual allowance is reduced by 5% per year from the earlier of age 60 or the date the member would have completed 27 years of service.

The minimum annual service allowance for all members is $440 multiplied by credited service.

Service Retirement Allowance for Members on and after 7/1/2008
Condition for Allowance

- Completion of 27 years of service, attainment of age 60 and 5 years of service or attainment of age 55 and 10 years of service.

Amount of Allowance
The annual retirement allowance for non-university members is equal to:

- 1.7% of final average salary if service is 10 years or less.
- 2.0% of final average salary if service is greater than 10 years and no more than 20 years.
- 2.3% of final average salary if service is greater than 20 years but no more than 26 years.
- 2.5% of final average salary if service is greater than 26 years but no more than 30 years.
- 3.0% of final average salary for years of service greater than 30 years.

The annual retirement allowance for university members is equal to:

- 1.5% of final average salary if service is 10 years or less.
- 1.7% of final average salary if service is greater than 10 years and no more than 20 years.
- 1.85% of final average salary if service is greater than 20 years but less than 27 years.
- 2.0% of final average salary if service is greater than or equal to 27 years.

For all members, the annual allowance is reduced by 6% per year from the earlier of age 60 or the date the member would have completed 27 years of service.

Disability Retirement Allowance
Condition for Allowance

- Totally and permanently incapable of being employed as a teacher and under age 60 but after completing 5 years of service.

Amount of Allowance

- The disability allowance is equal to the greater of the service retirement allowance or 60% of the member's final average salary. The disability allowance is payable over an entitlement period equal to 25% of the service credited to the member at the date of disability or five years, whichever is longer. After the disability entitlement period has expired and if the member remains disabled, he will be retired under service retirement. The service retirement allowance will be computed with service credit given for the period of disability retirement. The allowance will not be less than $6,000 per year. The service retirement allowance will not be reduced for commencement of the allowance before age 60 or the completion of 27 years of service.

Benefits Payable on Separation from Service

- Any member who ceases to be in service is entitled to receive his contributions with allowable interest. A member who has completed 5 years of creditable service and leaves his contributions with the system may be continued in the membership of the system after separation from service, and file application for service retirement after the attainment of age 60.

Life Insurance

- A separate Life Insurance fund has been created as of June 30, 2000 to pay benefits on behalf of deceased TRS active and retired members.

Death Benefits
A surviving spouse of an active member with less than 10 years of service may elect to receive an annual allowance of $2,880 except that if income from other sources exceeds $6,600 per year the annual allowance will be $2,160.

A surviving spouse of an active member with 10 or more years of service may elect to receive an allowance which is the actuarial equivalent of the allowance the deceased member would have received upon retirement. The allowance

Schedule F continued ...

will commence on the date the deceased member would have been eligible for service retirement and will be payable during the life of the spouse.

If the deceased member is survived by unmarried children under age 18 the following schedule of annual allowances applies:

Number of Children	Annual Allowance
1	$ 2,400
2	4,080
3	4,800
4 or more	5,280

The allowances are payable until a child attains age 18, or age 23 if a full-time student.

If the member has no eligible survivor, a refund of his accumulated contributions is payable to his estate.

Options

In lieu of the regular Option 1, a retirement allowance payable in the form of a life annuity with refundable balance, any member before retirement may elect to receive a reduced allowance which is actuarially equivalent to the full allowance, in one of the following forms:

Option 2. A single life annuity payable during the member's lifetime with payments for 10 years certain.

Option 3. At the death of the member his allowance is continued throughout the life of his beneficiary.

Option 3(a). At the death of the beneficiary designated by the member under Option 3, the member's benefit will revert to what would have been paid had he not selected an option.

Option 4. At the death of the member one half of his allowance is continued throughout the life of his beneficiary.

Option 4(a). At the death of the beneficiary designated by the member under Option 4, the member's benefit will revert to what would have been paid had he not selected an option.

Post-Retirement Adjustments

The retirement allowance of each retired member and of each beneficiary shall be increased by 1.50% each July 1.

3- CONTRIBUTIONS

Member Contributions

University members contribute 7.625% of salary to the retirement system. Non-university members contribute 9.105% of salary to the retirement system. Member contributions are picked up by the employer.

Table 1: Age - Service Table
Distribution of Active Members as of June 30, 2018
by Age and Service Groups

Attained Age	Completed Years of Service								
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	>= 35	TOTAL
24 & under	3,356								3,356
Total Pay	73,197,998								73,197,998
Avg. Pay	21,811								21,811
25 to 29	5,728	1,663	5						7,396
Total Pay	203,495,638	82,568,556	187,852						286,252,046
Avg. Pay	35,526	49,650	37,570						38,704
30 to 34	2,675	4,547	1,612	3					8,837
Total Pay	86,293,957	232,507,874	93,615,745	171,059					412,588,635
Avg. Pay	32,259	51,134	58,074	57,020					46,689
35 to 39	2,254	2,127	4,670	1,452	8				10,511
Total Pay	66,909,314	110,685,191	282,452,313	94,329,491	434,996				554,811,305
Avg. Pay	29,685	52,038	60,482	64,965	54,375				52,784
40 to 44	1,783	1,360	2,099	4,041	1,099	6			10,388
Total Pay	50,536,837	70,800,804	127,327,260	271,875,642	78,592,555	466,037			599,599,135
Avg. Pay	28,344	52,059	60,661	67,279	71,513	77,673			57,720
45 to 49	1,481	1,082	1,507	2,140	3,650	1,019	4		10,883
Total Pay	38,192,866	57,257,531	91,642,244	141,344,490	258,449,408	75,036,251	337,145		662,259,935
Avg. Pay	25,789	52,918	60,811	66,049	70,808	73,637	84,286		60,853
50 to 54	1,235	656	968	1,242	1,603	1,883	341	9	7,937
Total Pay	26,561,350	32,743,609	58,414,733	82,215,623	112,128,856	141,021,748	26,428,299	771,555	480,285,773
Avg. Pay	21,507	49,914	60,346	66,196	69,949	74,892	77,502	85,728	60,512
55 to 59	1,517	465	610	913	1,003	726	265	33	5,532
Total Pay	25,011,517	20,976,754	35,767,841	58,954,988	70,939,328	56,218,141	23,218,735	2,581,322	293,668,626
Avg. Pay	16,487	45,111	58,636	64,573	70,727	77,435	87,618	78,222	53,085
60 to 64	1,679	344	305	482	483	390	106	47	3,836
Total Pay	21,246,589	12,139,654	17,529,572	31,791,751	34,076,493	28,894,613	8,938,762	3,162,631	157,780,065
Avg. Pay	12,654	35,290	57,474	65,958	70,552	74,089	84,328	67,290	41,131
65 & over	2,137	525	189	194	199	147	76	62	3,529
Total Pay	18,319,211	10,686,323	8,081,622	12,048,328	13,626,663	11,374,461	5,370,666	5,164,995	84,672,269
Avg. Pay	8,572	20,355	42,760	62,105	68,476	77,377	70,667	83,306	23,993
Total	23,845	12,769	11,965	10,467	8,045	4,171	792	151	72,205
Total Pay	609,765,277	630,366,296	715,019,182	692,731,372	568,248,299	313,011,251	64,293,607	11,680,503	3,605,115,787
Avg. Pay	25,572	49,367	59,759	66,182	70,634	75,045	81,179	77,354	49,929

Average Age: 43.5 Average Service: 10.9

Schedule G continued ...

Table 2: Schedule of Active Member Valuation Data
as of June 30, 2018

Valuation Date June 30	Number	Annual Payroll	Annual Average Pay	% Increase in Average Pay
2018	72,205	$ 3,605,115,787	$ 49,929	0.01%
2017	72,130	3,563,584,342	49,405	0.35
2016	71,848	3,537,226,348	49,232	1.19
2015	72,246	3,515,113,127	48,655	2.45
2014	73,407	3,486,326,799	47,493	2.12
2013	74,831	3,480,066,406	46,506	1.51
2012	75,951	3,479,567,004	45,813	1.33
2011	76,349	3,451,756,287	45,210	3.97
2010	76,387	3,321,614,223	43,484	1.51
2009	75,937	3,253,076,600	42,839	1.43

Table 3: Number of Retired Members, Beneficiaries and their Benefits by Age
as of June 30, 2018

Attained Age	Number of Members	Total Annual Payments	Average Annual Benefits
49 & Under	833	$ 10,962,632	$ 13,160
50 - 54	1,466	59,000,557	40,246
55 - 59	4,140	180,263,981	43,542
60 - 64	7,967	332,177,567	41,694
65 - 69	12,885	510,187,288	39,595
70 - 74	11,706	440,901,296	37,665
75 - 79	7,212	259,248,784	35,947
80 - 84	4,199	139,521,951	33,227
85 - 89	2,471	73,501,434	29,746
90 & Over	1,498	37,752,626	25,202
TOTAL	54,377	$ 2,043,518,116	$ 37,581

Average Current Age: 69.8

Average Age at Retirement for All Retirees and Beneficiaries: 56.1

Schedule G continued ...

Table 4: Schedule of Retirees, Beneficiaries and Survivors Added to and Removed from Rolls

Fiscal Year Ending June 30	ADD TO ROLLS Number	ADD TO ROLLS Annual Allowances (Millions)	REMOVED FROM ROLLS Number	REMOVED FROM ROLLS Annual Allowances (Millions)	ROLLS AT END OF YEAR Number	ROLLS AT END OF YEAR Annual Allowances (Millions)	Increase In Annual Allowances	Average Annual Allowances
2009	2,351	$ 96.2	1,040	$ 22.7	42,050	$ 1,280.3	6.1 %	$ 30,447
2010	2,105	93.7	1,021	21.8	43,134	1,352.2	5.6	31,348
2011	2,133	98.9	848	17.7	44,419	1,433.4	6.0	32,270
2012	2,513	111.2	838	19.4	46,094	1,525.2	6.4	33,089
2013	2,303	105.7	991	22.2	47,406	1,608.7	5.5	33,934
2014	2,146	99.6	976	23.4	48,576	1,684.9	4.7	34,685
2015	2,917	119.1	1,671	36.4	49,822	1,767.6	4.9	35,479
2016	2,753	128.2	1,012	26.9	51,563	1,868.9	5.7	36,244
2017	2,638	119.8	1,235	35.2	52,966	1,953.5	4.5	36,881
2018	2,499	120.0	1,088	30.0	54,377	2,043.5	4.6	37,581

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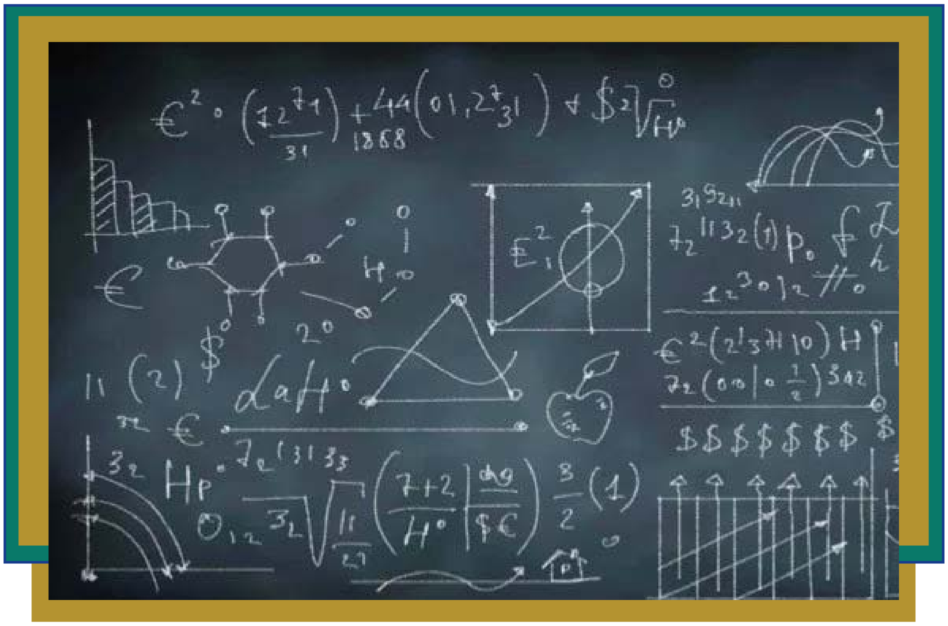
Teachers' Retirement System of the State of Kentucky

2018



Actuarial Section

Report of the Actuary Annual Valuation of the Retiree Medical Plan and the Life Insurance Plan

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

November 12, 2018

Board of Trustees
Teachers' Retirement System of the State of Kentucky
479 Versailles Road
Frankfort, KY 40601-3800

Members of the Board:

This report covers the Retiree Medical Plan funded by the Medical Insurance Fund (MIF) and OPEB liabilities related to the Life Insurance Plan funded by the Life Insurance Fund (LIF). Cavanaugh Macdonald Consulting, LLC (CMC) has submitted the results of the annual actuarial valuation prepared as of June 30, 2018. While not verifying the data at source, the actuary performed tests for consistency and reasonability.

The valuation indicates a total actuarially determined contribution of 5.82% as of percentage of active member payroll for the MIF payable for the fiscal year ending June 30, 2019 is required to support the benefits of the Kentucky Employees' Health Plan (KEHP) and the Medicare Eligible Health Plan (MEHP). Of this amount, 2.775% of payroll is estimated to be paid by University members and 3.750% of payroll is estimated to be paid by all other members, leaving 3.045% and 2.070% respectively, as the remaining actuarially determined contribution. This actuarially determined contribution reflects the actuarial value of assets of the MIF and an 8.00% discount rate for valuing liabilities.

The initial per capita costs of health care and the rates of health care inflation used to project the per capita health care costs have been revised since the previous valuation to reflect recent experience and revised expectations. Additionally, the results of the valuation include a change to the KEHP dependent subsidies offered to retirees who retired prior to July 1, 2010.

The Life Insurance Plan valuation indicates a total actuarially determined contribution of 0.06% of active member payroll payable for the fiscal year ending June 30, 2021 is required to support the benefits of the LIF. This actuarially determined contribution reflects the actuarial value of assets of the LIF and a 7.50% discount rate for valuing liabilities.

The promised benefits of the Retiree Medical and Life Insurance Plans are included in the actuarially calculated contribution rates that are developed using the entry age normal actuarial cost method. Five-year market related value of plan assets is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded actuarial accrued liability that is being amortized by regular annual contributions as a level percentage of payroll within a 22-year period for the Retiree Medical Plan and a 26-year period for the Life Insurance Plan, on the assumption that payroll will increase by 3.50% annually. The assumptions recommended by the actuary and adopted by the Board are in aggregate reasonably related to the experience under the Retiree Medical and Life Insurance Plans and to reasonable expectations of anticipated experience under the Retiree Medical and Life Insurance Plans.

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Board of Trustees
November 12, 2018
Page 2

CMC has prepared the trend information shown in the Schedule of Funding Progress in the Financial Section of the Annual Report and Section VII shown in the Actuarial Section of the Annual Report.

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

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

This actuarial valuation was performed to determine the recommended funding amount for the System. The asset values used to determine unfunded liabilities and funded ratios are not market values, but less volatile market-related values. A smoothing technique is applied to market values to determine the market-related values. The unfunded liability amounts and funded ratios using the market value of assets would be different. The interest rate used for determining liabilities is based on the expected return of assets. Therefore, liability amounts in this report cannot be used to assess a settlement of the obligation.

In our opinion, if the contributions to the Medical Insurance Fund continue at the current statutorily required levels, the funded ratio of the Retiree Medical Plan will continue to increase, and the ability of the MIF to fund the benefits called for under the Retiree Medical Plan will improve.

Respectfully submitted,

Alisa Bennett, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

Report of Actuary on the Annual Valuation of the Retiree Medical and Life Insurance Plans
Prepared as of June 30, 2018
Section I - SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation and a comparison with the results of the previous valuation are summarized below (dollar amounts are in thousands):

Medical Insurance Fund

Valuation Date	June 30, 2018	June 30, 2017
Number of active members	72,205	72,130
Annual salaries	$ 3,605,116	$ 3,563,584
Number of deferred vested members	7,337	7,410
Number of annuitants in medical plans	40,230	39,497
Number of spouses and beneficiaries in medical plans*	7,595	7,189
Total	47,825	46,686
Assets:		
Market value	$ 1,190,281	$ 963,269
Actuarial value	$ 1,213,918	$ 985,694
Unfunded actuarial accrued liability	$ 2,126,791	$ 2,706,025
Funded ratio based on actuarial value of assets	36.3%	26.7%
Amortization period (years)	22	23
Discount rate	8.00%	8.00%

* *Spouses of post-65 retirees, as well as surviving spouses of deceased retirees on or after July 1, 2002, pay 100% of the full contribution. The full contribution for non-Medicare-eligible dependents is paid through a combination of payments from beneficiaries and the state. The non-Medicare dependent subsidy amount drops to two thirds in 2019 and one third in 2020.*

Medical Insurance Fund Contribution Rates for University Members

Valuation Date	June 30, 2018		June 30, 2017	
Contribution For Fiscal Year Ending	June 30, 2019		June 30, 2018	
	Members hired before 7/1/2008	Members hired on or after 7/1/2008	Members hired before 7/1/2008	Members hired on or after 7/1/2008
Normal	1.78 %	1.78 %	1.94 %	1.94 %
Accrued liability	4.04	4.04	5.07	5.07
Total	5.82 %	5.82 %	7.01 %	7.01 %
Member	2.775 %	2.775 %	2.775 %	2.775 %
Employer (ARC)	2.775	1.775	2.775	1.775
State (ARC)	0.270	1.270	1.460	2.460
Total	5.820 %	5.820 %	7.010 %	7.010 %

Medical Insurance Fund Contribution Rates for School District Employees (Non-Federal)

Valuation Date	June 30, 2018		June 30, 2017	
Contribution For Fiscal Year Ending	June 30, 2019		June 30, 2018	
	Members hired before 7/1/2008	Members hired on or after 7/1/2008	Members hired before 7/1/2008	Members hired on or after 7/1/2008
Normal	1.78 %	1.78 %	1.94 %	1.94 %
Accrued liability	4.04	4.04	5.07	5.07
Total	5.82 %	5.82 %	7.01 %	7.01 %
Member	3.750 %	3.750 %	3.750 %	3.750 %
Employer (ARC)	3.000	3.000	3.000	3.000
State (ARC)	(0.930)	(0.930)	0.260	0.260
Total	5.820 %	5.820 %	7.010 %	7.010 %

Medical Insurance Fund Contribution Rates for Other Employees

Valuation Date	**June 30, 2018**		**June 30, 2017**	
Contribution For Fiscal Year Ending	June 30, 2019		June 30, 2018	
	Members hired before 7/1/2008	Members hired on or after 7/1/2008	Members hired before 7/1/2008	Members hired on or after 7/1/2008
Normal	1.78 %	1.78 %	1.94 %	1.94 %
Accrued liability	4.04	4.04	5.07	5.07
Total	5.82 %	5.82 %	7.01 %	7.01 %
Member	3.750 %	3.750 %	3.750 %	3.750 %
Employer (ARC)	3.750	2.750	3.750	2.750
State (ARC)	(1.680)	(0.680)	(0.490)	0.510
Total	5.820 %	5.820 %	7.010 %	7.010 %

Life Insurance Fund

(In thousands of dollars)

Valuation Date	**June 30, 2018**	**June 30, 2017**
Number of active members	72,205	72,130
Annual salaries	$ 3,605,116	$ 3,563,584
Number of vested former members	8,814	8,525
Number of retirees in Life Insurance Plan	49,422	48,225
Assets:		
Market value	$ 84,462	$ 87,777
Actuarial value	93,808	95,730
Unfunded actuarial accrued liability*	$ 18,663	$ 13,339
Funded ratio based on actuarial value of assets	83.4%	87.8 %
Amortization period (years)	26	27
Discount rate	7.50%	7.50 %
Contribution for fiscal year ending	**June 30, 2021**	**June 30, 2020**
Normal	0.03 %	0.03 %
Accrued liability	0.03	0.02
Total	0.06 %	0.05 %

* *Includes liability for death in active service. This amount could be segregated from the OPEB liability and assets could be split for active and post-employment purposes. However, since this could be administratively burdensome and since death in active service liabilities can be considered de minimis, we will consider the entire liability an OPEB liability under GASB 74 and 75.*

2. The valuation indicates combined member, employer, and State contributions of 5.82% of active member payroll would be sufficient to support the current benefits of the Retiree Medical Plan and State contributions of 0.06% of active member payroll would be sufficient to support the current benefits of the Life Insurance Plan. Comments on the valuation results as of June 30, 2018 are given in Section IV and further discussion of the contribution levels is set out in Sections VI and VII.

3. Schedule B shows the development of the actuarial value of assets. The assumed investment rate of return is 8.00% for MIF and 7.50% for LIF.

4. Schedule D of this report outlines the full set of actuarial assumptions and methods employed in the current valuation. Since the previous valuation, the initial per capita costs of health care and the rates of health care inflation used to project the per capita health care costs have been revised to reflect recent experience.

5. Provisions of the System, as summarized in Schedule F, were taken into account in the current valuation. Since the previous valuation, there has been a change to the KEHP dependent subsidies offered to retirees. The

Report of Actuary on the Annual Valuation of the Retiree Medical and Life Insurance Plans continued ...

premium subsidy for KEHP-participating members who retired prior to July 1, 2010 was restored for the June 30, 2017 valuation. In 2019, TRS will contribute two-thirds of the non-single premium and in 2020, TRS will contribute one-third of the non-single premium.

6. The funded ratio shown in the Summary of Principal Results, is the ratio of actuarial value of assets to the actuarial accrued liability. The funded status would be different based on the market value of assets. The funded ratio is an indication of progress in funding the promised benefits. Since the ratio is less than 100%, there is a need for additional contributions toward the payment of the unfunded actuarial accrued liability. In addition, this funded ratio does not have any relationship to measuring the sufficiency if the plan had to settle its liabilities.

Section II - MEMBERSHIP DATA

1. Data regarding the membership of the Retiree Medical and Life Insurance Plans for use as a basis of the valuation were furnished by the System's office. The following tables summarize the membership of the System as of June 30, 2018, upon which the valuation was based. Detailed tabulations of the data are given in Schedule F.

Active Members as of June 30, 2018

Group	Number	Annual Salaries ($1,000's)
University Full Time hired before 7/1/2008	1,578	$ 118,570
University Full Time hired after 7/1/2008	1,579	83,582
Non-University Full Time hired before 7/1/2008	34,000	2,259,772
Non-University Full Time hired after 7/1/2008	22,526	1,065,810
Non-University Part Time hired before 7/1/2008	2,098	18,041
Non-University Part Time hired after 7/1/2008	10,424	59,341
TOTAL	**72,205**	**$ 3,605,116**

2. The following tables show the number of retired members and their beneficiaries receiving health care as of the valuation date as well as average ages.

Retirees Receiving Health Benefits as of June 30, 2018

	Under Age 65	Age 65 and Over	TOTAL
Number	10,707	29,523	40,230
Average Age	60.0	74.0	70.3

Spouses Receiving Health Benefits as of June 30, 2018

	Under Age 65	Age 65 and Over	TOTAL
Number	2,813	4,782	7,595
Average Age	59.0	74.9	69.0

3. The Retiree Medical Plan valuation 7,337 deferred vested members eligible for health care at age 60 and the Life Insurance Plan valuation includes 8,814 deferred vested members eligible for retiree life insurance at age 60.

Section III - ASSETS

1. As of June 30, 2018, the market value of MIF assets held by the Retiree Medical Plan amounted to $1,190,280,808 and the market value of LIF assets held by the Life Insurance Plan amounted to $84,462,256.

2. The five-year market related value of MIF assets used for valuation purposes as of June 30, 2018 was $1,213,917,592 and the five-year market related value of LIF assets used for valuation purposes as of June 30, 2018 was $93,466,093. Schedule B shows the development of the actuarial value of assets as of June 30, 2018.

3. Schedule C shows the receipts and disbursements for the year preceding the valuation date and a reconciliation of the asset balances for the MIF and the LIF.

Section IV - COMMENTS ON VALUATION

1. Schedule A of this report outlines the results of the actuarial valuation. The valuation was prepared in accordance with the actuarial assumptions and the actuarial cost method, which are described in Schedule D.

2. The valuation shows the Retiree Medical Plan has an actuarial accrued liability of $1,648,393,959 for benefits expected to be paid on account of the present active membership, based on service to the valuation date. The liability on account of deferred vested members amounts to $38,605,041. The liability on account of benefits payable to retirees and covered spouses amounts to $1,653,709,895. The total actuarial accrued liability of the Retiree Medical Plan amounts to $3,340,708,895. Against these liabilities, the Retiree Medical Plan has present assets for valuation purposes of $1,213,917,592. When this amount is deducted from the actuarial accrued liability of $3,340,708,895, there remains $2,126,791,303 as the unfunded actuarial accrued liability for the Retiree Medical Plan.

3. The normal contribution is equal to the actuarial present value of benefits accruing during the current year. The normal contribution for the Retiree Medical Plan is determined to be $64,032,400, or 1.78% of payroll.

4. The valuation shows that the Life Insurance Plan has an actuarial accrued liability of $18,254,598 for benefits expected to be paid on account of the present active membership, based on service to the valuation date. The liability on account of deferred vested members amounts to $3,708,587. The liability on account of benefits payable to retirees amounts to $90,507,319. The total actuarial accrued liability of the Life Insurance Plan amounts to $112,470,504. This amount includes liability for death in active service. The liability for death in active service could be segregated from the OPEB liability and assets could be split for active and post-employment purposes. As this could be administratively burdensome and, as death in active service liabilities can be considered de minimis, we will consider the entire liability an OPEB liability under GASB 75 and 75. Against these liabilities, the Life Insurance Plan has present assets for valuation purposes of $93,808,352. When this amount is deducted from the actuarial accrued liability of $112,470,504, there remains $18,662,152 as the unfunded actuarial accrued liability for the life insurance plan.

5. The normal contribution is equal to the actuarial present value of benefits accruing during the current year. The normal contribution for the life insurance plan is determined to be $1,182,249, or 0.03% of payroll.

Section V - DERIVATION OF EXPERIENCE GAINS AND LOSSES

1. Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year-to-year fluctuations are common. Detail on the derivation of the experience gain (loss) for the year ended June 30, 2018 is shown below ($1,000's).

	EXPERIENCE GAIN/(LOSS)* OF THE:	MEDICAL INSURANCE FUND	LIFE INSURANCE FUND
(1)	UAAL** as of 6/30/2017	$ 2,706,025	$ 13,339
(2)	Normal cost from last valuation	69,128	994
(3)	Expected employer contributions	249,742	1,768
(4)	Interest accrual: [(1) + (2) - (3)] x interest***	202,033	942
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	$ 2,727,444	$ 13,507
(6)	Change due to benefit provisions	0	0
(7)	Change due to new actuarial assumptions	0	0
(8)	Change due to claims experience	(659,751)	0
(9)	Expected UAAL after changes: (5) + (6) + (7) + (8)	$ 2,067,692	$ 13,507
(10)	Actual UAAL as of 6/30/2018	2,126,791	18,663
(11)	Total gain/(loss): (9) - (10)	(59,099)	(5,156)
	(a) Contribution and investment gain/(loss)	57,161	(5,748)
	(b) Experience gain/(loss) (11) - (11a)	(116,260)	592
(12)	Accrued liabilities as of 6/30/2017	$ 3,691,719	$ 109,069
(13)	Experience gain/(loss) as percent of actuarial accrued liabilities at start of year (11b) / (12)	(3.1%)	0.5%

* *Rows labeled as a change, rather than a gain/(loss), are expressed as negative if the UAAL is decreased and positive if the UAAL is increased.*
** *Unfunded actuarial accrued liability.*
*** *Interest is 8% for the Medical Insurance Fund and 7.5% for the Life Insurance Fund.*

Section VI - CONTRIBUTIONS PAYABLE UNDER THE PLANS

1. Sections 161.420 and 161.550 of the Kentucky Revised Statutes provide the amounts employers and the state are required to contribute to the Medical Insurance Fund. These contribution amounts vary by date of membership and employee type.

Employer Percentage of Payroll Contributions Made to Medical Insurance Fund

UNIVERSITY EMPLOYEES		SCHOOL DISTRICT EMPLOYEES (Non-Federal)*		OTHER EMPLOYEES	
Members hired before 7/1/2008	Members hired on or after 7/1/2008	Members hired before 7/1/2008	Members hired on or after 7/1/2008	Members hired before 7/1/2008	Members hired on or after 7/1/2008
2.775 %	1.775 %	3.000 %	3.000 %	3.750 %	2.750 %

* *In addition to the amounts contributed by school districts on behalf of non-federal employees, the state contributes 0.75%.*

2. For the fiscal year ending June 30, 2019, member contributions will be 2.775% for University employees and 3.750% for all other members. Based upon the amortization of the unfunded actuarial accrued liability over a 22-year period as a level percentage of payroll, the valuation indicates employer and State contributions of 3.045% of payroll for University employees and 2.070% of payroll for all other members.

3. The State is scheduled to contribute 0.05% of salary to the Life Insurance Fund for the fiscal year ending June 30, 2020. Based upon the amortization of the unfunded actuarial liability over a 26-year period as a level percentage of payroll, CMC's valuation indicates a contribution of 0.06% for the fiscal year ending June 30, 2021 is required to support sufficiently the benefits of the Life Insurance Plan.

Required Contribution Rates
For Fiscal Year Ending June 30, 2019
Medical Insurance Fund

Normal	1.78 %
Accrued Liability	4.04
Total	5.82 %

	UNIVERSITY EMPLOYEES		SCHOOL DISTRICT EMPLOYEES (Non-Federal)		OTHER EMPLOYEES	
	Members hired prior 7/1/2008	Members hired on or after 7/1/2008	Members hired prior 7/1/2008	Members hired on or after 7/1/2008	Members hired prior 7/1/2008	Members hired on or after 7/1/2008
Member	2.775 %	2.775 %	3.750 %	3.750 %	3.750 %	3.750 %
Employer (ARC)	2.775	1.775	3.000	3.000	3.750	2.750
State (ARC)	0.270	1.270	(0.930)	(0.930)	(1.680)	(0.680)
Total	5.820 %	5.820 %	5.820 %	5.820 %	5.820 %	5.820 %

Required Contribution Rates
Life Insurance Fund
For Fiscal Year Ending June 30, 2021

Normal	0.03 %
Accrued Liability	0.03
Total	0.06%
Member	0.00 %
Accrued liability	0.06
Total	0.06%

4. The valuation indicates that a total normal contribution of 1.78% of payroll is required to meet the cost of benefits currently accruing under the Retiree Medical Plan and 0.03% of payroll is required to meet the cost of benefits currently accruing under the Life Insurance Plan. The difference between the total contribution and the normal contribution remains to be applied toward the liquidation of the unfunded actuarial accrued liability. This accrued liability payment is 4.04% of payroll for the Retiree Medical Plan and 0.03% of payroll for the Life Insurance Plan.

5. The unfunded actuarial accrued liability amounts to $2,126,791,303 for the Retiree Medical Plan and $18,662,152 for the Life Insurance Plan as of the valuation date. An accrued liability contribution rate of 5.07% of payroll for the Retiree Medical Plan and 0.03% of payroll for the Life Insurance Plan is sufficient to amortize the unfunded actuarial accrued liabilities over a 22-year period for the Retiree Medical Plan and a 26-year period for the Life Insurance Plan, based on the assumption that the payroll will increase by 3.50% annually.

Section VII - COMMENTS ON LEVEL OF FUNDING

1. The System's monthly contribution for retirees who opt into the Retiree Medical Plan is based upon date of hire, date of attaining age 65, and years of service at retirement. Additionally, beneficiary contributions may vary by date of hire, date of attaining age 65, years of service at retirement, plan election, Medicare eligibility, and tobacco use. Beneficiary contributions for dependents are targeted to be 100% of the cost of expected claims and/or insured premiums for spouses age 65 and older. Historically, this target has been achieved. 100% of the full cost for non-Medicare eligible dependents is paid through a combination of payments from beneficiaries and the State on a current disbursement basis. Current employer and State contributions have been determined to be sufficient to fund the cost of the benefits to be provided. Benefits for university, school district (non-Federal), and other members are identical, although active employee contributions collected from university, school district (non-Federal), and other members differ. A listing of active member Retiree Medical Plan contributions by fiscal year, date of membership, and employer type is provided in Schedule E.

2. This valuation provides the contributions required to fund sufficiently the Retiree Medical Plan and to ensure the future solvency of the Medical Insurance Fund. For University employees, a member contribution of 2.775% of payroll together with employer and State contributions of 3.045% of payroll are required to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability over a period of 22 years. For the remaining membership, a member contribution of 3.750% of payroll together with employer and State contributions of 2.070% of payroll is required to meet the cost of benefits currently accruing and provide for the amortization of the unfunded actuarial accrued liability over a period of 22 years.

Section VIII - ACCOUNTING INFORMATION

1. The information required under Governmental Accounting Standards Board (GASB) Statements No. 74 and 75 will be issued in separate reports. The following information is provided for informational purposes only.

Number of Active and Retired Members in Medical Plan as of June 30, 2018

GROUP	NUMBER
Retirees currently receiving health benefits	40,230
Spouses of retirees currently receiving health benefits	7,595
Terminated employees entitled to benefits but not yet receiving benefits	7,337
Active plan members	72,205
Total	**127,367**

Number of Active and Retired Members in Life Insurance Plan as of June 30, 2018

GROUP	NUMBER
Retirees	49,422
Terminated employees	8,814
Active plan members	72,205
Total	**130,441**

Schedule of Funding Progress
Medical Insurance Fund
(In thousands of dollars)

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liabilities (AAL)	Unfunded AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a % of Covered Payroll
	A	B	(B-A)	(A/B)	C	[(B-A)/C]
6/30/2012	$ 338,746	$ 3,594,540	$ 3,255,794	9.4 %	$ 3,479,567	93.6 %
6/30/2013	412,185	3,521,073	3,108,888	11.7	3,480,066	89.3
6/30/2014	508,913	3,194,689	2,685,776	15.9	3,486,327	77.0
6/30/2015	637,839	3,525,584	2,887,745	18.1	3,515,113	82.2
6/30/2016*	795,055	3,634,073	2,839,018	21.9	3,537,226	80.3
6/30/2017	985,694	3,691,719	2,706,025	26.7	3,563,584	75.9
6/30/2018	1,213,918	3,340,709	2,126,791	36.3	3,605,116	58.9

* *Reflects change in participation assumptions and plan design.*

Schedule of Funding Progress
Life Insurance Fund
(In thousands of dollars)

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liabilities (AAL)	Unfunded AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a % of Covered Payroll
	A	B	(B-A)	(A/B)	C	[(B-A)/C]
6/30/2012	$ 92,241	$ 91,398	$ (843)	100.9	$ 3,479,567	(0.02)
6/30/2013	94,863	94,325	(538)	100.6	3,480,066	(0.02)
6/30/2014	96,130	97,354	1,224	98.7	3,486,327	0.04
6/30/2015	97,186	98,739	1,553	98.4	3,515,113	0.04
6/30/2016*	97,269	106,059	8,790	91.7	3,537,226	0.25
6/30/2017	95,730	109,069	13,339	87.8	3,563,584	0.37
6/30/2018	93,808	112,471	18,663	83.4	3,605,116	0.52

* *Reflects change in decrement and participation assumptions.*

2. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at June 30, 2018. Additional information as of the latest actuarial valuation follows.

Valuation Date	Actuarial Cost Method	Amortization Method	Remaining Amortization Period	Asset Valuation Method	Actuarial Assumptions: Investment Rate of Return*	Actuarial Assumptions: Investment Rate of Return*
06/30/2018	Entry age	Level percent of pay, closed	22 Years Retiree Medical Plan 26 Years Life Insurance Plan	5-Year Smoothed Market	8.00%-Retiree Medical Plan	7.50%-Retiree Life Insurance Plan

Medical Trend Assumption	Pre-Medicare**	Medicare
Ultimate Trend Rate	7.50 %	5.50 %
Year of Ultimate Trend Rate	5.00 %	5.00 %
	2024	2021

* *Includes price inflation at 3.00%.*
** *Alternate trend rates were used for Medicare Part B premiums and are disclosed in Schedule D.*

Schedule of Employer Contributions
Medical Insurance Fund

Fiscal Year Ending	Annual Required Contribution (ARC)	Actual Employer Contribution	Retiree Drug Subsidy Contribution	TOTAL Contribution	Percentage of ARC Contributed
	(A)	(B)	(C)	(B) + (C)	[(B) + (C)]/(A)
6/30/2013	$ 186,725,823	$ 166,611,420	$ 0	$ 166,611,420	89.2 %
6/30/2014	159,583,400	162,568,395	0	162,568,395	101.9
6/30/2015	106,606,132	168,084,353	0	168,084,353	157.7
6/30/2016	97,982,580	221,966,705	0	221,966,705	226.5
6/30/2017	102,854,017	180,375,986	0	180,375,986	175.4
6/30/2018	118,837,620	187,102,413	0	187,102,413	157.4

Schedule of Employer Contributions
Life Insurance Fund

Fiscal Year Ending	Annual Required Contribution (ARC)	Actual Employer Contribution	Percentage of ARC Contributed
	(A)	(B)	(B) / (A)
6/30/2013	$ 1,739,908	$ 1,680,495	96.6 %
6/30/2014	1,044,959	1,006,091	96.3
6/30/2015	1,050,216	1,019,519	97.1
6/30/2016	1,057,851	1,037,769	98.1
6/30/2017	1,065,122	1,049,683	98.6
6/30/2018	1,075,305	1,058,329	98.4

SCHEDULE A

Results of the Valuation
June 30, 2018
(In thousands of dollars)

		Medical Insurance Fund	Life Insurance Fund
PAYROLL		$ 3,605,116	$ 3,605,116
ACTUARIAL ACCRUED LIABILITY			
Present value of prospective benefits payable in respect of:			
(a)	Present active members	$ 1,648,394	$ 18,255
(b)	Present terminated vested members	38,605	3,709
(c)	Present retired members and covered spouses	1,653,710	90,507
(d)	Total actuarial accrued liability	$ 3,340,709	$ 112,471
PRESENT ASSETS FOR VALUATION PURPOSES		$ 1,213,918	$ 93,808
UNFUNDED ACTUARIAL ACCRUED LIABILITY		**$ 2,126,791**	**$ 18,663**
CONTRIBUTIONS		Fiscal Year Ending June 30, 2019	Fiscal Year Ending June 30, 2021
	Normal	1.78%	0.03%
	Accrued Liability	4.04	0.03
	Total	5.82%	0.06%

Medical Insurance Fund
Solvency Test
(In millions of dollars)

Valuation Date	Aggregate Actuarial Accrued Liability for: (1) Active Member Contributions	(2) Retirants and Beneficiaries	(3) Active Members (Employer Financed Portion)	Valuation Assets	Portion of Accrued Liabilities Covered by Assets (1)	(2)	(3)
6/30/2013	n/a	$ 2,001.8	$ 1,519.3	$ 412.2	n/a	21%	0%
6/30/2014	n/a	1,771.9	1,422.8	508.9	n/a	29	0
6/30/2015	n/a	1,982.2	1,543.4	637.8	n/a	32	0
6/30/2016	n/a	1,950.9	1,683.2	795.1	n/a	41	0
6/30/2017	n/a	1,985.1	1,706.6	985.7	n/a	50	0
6/30/2018	n/a	1,692.3	1,648.4	1,213.9	n/a	72	0

Schedule A continued ...

Life Insurance Fund
Solvency Test
(In millions of dollars)

Valuation Date	Aggregate Actuarial Accrued Liability for: (1) Active Member Contributions	(2) Retirants and Beneficiaries	(3) Active Members (Employer Financed Portion)	Valuation Assets	Portion of Accrued Liabilities Covered by Assets (1)	(2)	(3)
6/30/2012	n/a	$ 75.2	$ 16.2	$ 92.2	n/a	100 %	105 %
6/30/2013	n/a	78.1	16.2	94.9	n/a	100	104
6/30/2014	n/a	81.0	16.3	96.1	n/a	100	93
6/30/2015	n/a	82.7	16.0	97.2	n/a	100	91
6/30/2016	n/a	89.0	17.1	97.3	n/a	100	49
6/30/2017	n/a	92.1	17.0	95.7	n/a	100	21
6/30/2018	n/a	94.2	18.3	93.8	n/a	99	0

SCHEDULE B

Development of the Actuarial Value of Assets
Medical Insurance Fund
June 30, 2018

(1)	Actuarial Value of Assets Beginning of Year		$ 985,694,300
(2)	Market Value of Assets End of Year		1,190,280,808
(3)	Market Value of Assets Beginning of Year		963,269,031
(4)	Cash Flow		
	a.	Contributions	375,563,335
	b.	Benefit Payments	218,765,152
	c.	Administrative Expense	1,747,561
	d.	Net: (4)a - (4)b - (4)c	155,050,622
(5)	Investment Income		
	a.	Market total: (2) - (3) - (4)d	71,961,155
	b.	Assumed Rate	8.00%
	c.	Amount for Immediate Recognition: [(3) x (5)b] + [(4)d x (5)b x 0.5]	83,263,547
	d.	Amount for Phased-In Recognition: (5)a - (5)c	(11,302,392)
(6)	Phased-In Recognition of Investment Income		
	a.	Current Year: 0.20 x (5)d	(2,260,479)
	b.	First Prior Year	6,277,740
	c.	Second Prior Year	(12,827,105)
	d.	Third Prior Year	(7,773,884)
	e.	Fourth Prior Year	6,492,851
	f.	Total Recognized Investment Gain	(10,090,877)
(7)	Actuarial Value of Assets End of Year: (1) + (4)d + (5)c + (6)f		1,213,917,592
(8)	Difference Between Market & Actuarial Values: (2) - (7)		$ (23,636,784)
(9)	Rate of Return on Actuarial Value		6.71%

Schedule B continued ...

Development of the Actuarial Value of Assets
Life Insurance Fund
June 30, 2018

(1)	Actuarial Value of Assets Beginning of Year		$	95,730,467
(2)	Market Value of Assets End of Year			84,462,256
(3)	Market Value of Assets Beginning of Year			87,777,405
(4)	Cash Flow			
	a.	Contributions		1,058,329
	b.	Benefit Payments		5,452,920
	c.	Administrative Expense		30,979
	d.	Net: (4)a - (4)b - (4)c		(4,425,570)
(5)	Investment Income			
	a.	Market total: (2) - (3) - (4)d		1,110,421
	b.	Assumed Rate		7.50%
	c.	Amount for Immediate Recognition: [(3) x (5)b] + [(4)d x (5)b x 0.5]		6,417,347
	d.	Amount for Phased-In Recognition: (5)a - (5)c		(5,306,926)
(6)	Phased-In Recognition of Investment Income			
	a.	Current Year: 0.20 x (5)d		(1,061,385)
	b.	First Prior Year		(1,150,797)
	c.	Second Prior Year		(353,444)
	d.	Third Prior Year		(941,279)
	e.	Fourth Prior Year		(406,987)
	f.	Total Recognized Investment Gain		(3,913,892)
(7)	Actuarial Value of Assets End of Year: (1) + (4)d + (5)c + (6)f			93,808,352
(8)	Difference Between Market & Actuarial Values: (2) - (7)		$	(9,346,096)
(9)	Rate of Return on Actuarial Value			2.64%

SCHEDULE C

Medical Insurance Fund
Summary of Receipts & Disbursements
(Market Value)

	For the Year Ending June 30, 2018	For the Year Ending June 30, 2017
RECEIPTS FOR THE YEAR		
Contributions		
Members Statutory	$ 130,777,471	$ 128,819,243
Payment by Retired Members	57,683,452	57,941,968
TOTAL MEMBERS	188,460,923	186,761,211
State Statutory Contributions	22,424,350	22,042,563
Employer Contributions	106,143,410	104,879,255
State Statutory - Transition Fund/KEHP	58,534,652	53,454,168
TOTAL EMPLOYER	187,102,412	180,375,986
GRAND TOTAL	375,563,335	367,137,197
Recovery Income	0	0
Net Investment Income	76,840,513	95,452,597
TOTAL	452,403,848	462,589,794
DISBURSEMENTS FOR THE YEAR		
Administrative Expense	1,747,561	1,538,574
Medical Insurance Expense	218,765,152	236,442,514
TOTAL	220,512,713	237,981,088
EXCESS OF RECEIPTS OVER DISBURSEMENTS	231,891,135	224,608,706
RECONCILIATION OF ASSET BALANCES		
Asset Balance as of the Beginning of the Year	958,389,673	733,780,967
Excess of Receipts over Disbursements	231,891,135	224,608,706
Asset Balance as of the End of the Year	$ 1,190,280,808	$ 958,389,673

Schedule C continued ...

Life Insurance Fund
Summary of Receipts & Disbursements
(Market Value)

	For the Year Ending June 30, 2018	June 30, 2017
RECEIPTS FOR THE YEAR		
Contributions		
Members	0	0
State	896,974	881,703
Employer	161,355	167,980
TOTAL	1,058,329	1,049,683
Net Investment Income	1,110,421	915,497
TOTAL	2,168,750	1,965,180
DISBURSEMENTS FOR THE YEAR		
Benefit Payments	5,452,920	5,151,013
Refunds to Members	0	0
Miscellaneous, including expenses	30,979	27,690
TOTAL	5,483,899	5,178,703
EXCESS OF RECEIPTS OVER DISBURSEMENTS	(3,315,149)	(3,213,523)
RECONCILIATION OF ASSET BALANCES		
Asset Balance as of the Beginning of the Year	87,777,405	90,990,928
Excess of Receipts over Disbursements	(3,315,149)	(3,213,523)
Asset Balance as of the End of the Year	$ 84,462,256	$ 87,777,405

SCHEDULE D
Statement of Actuarial Assumptions and Methods

The rates of retirement, disability, mortality, termination, salary increases, and rates of future benefit participation used in the valuation were selected based on the actuarial experience study prepared as of June 30, 2015, submitted to and adopted by the Board on September 19, 2016. The health care cost trend rates, and expected plan costs were determined by the actuary based on recent experience.

Valuation Date: June 30, 2018

Discount Rate: 8.0% per annum, compounded annually for Medical Insurance Fund.
7.50% per annum, compounded annually for Life Insurance Fund.

Schedule D continued ...

Health Care Cost Trend Rates: Following is a chart detailing trend assumptions.

Annual Trend Rate

Fiscal Year Ended	Medicare Part B	Under Age 65	Age 65 and Over
2019	2.63%	7.50%	5.50%
2020	4.70	7.00	5.25
2021	4.63	6.50	5.00
2022	4.88	6.00	5.00
2023	5.88	5.50	5.00
2024	5.71	5.00	5.00
2025	5.00	5.00	5.00
2026	5.41	5.00	5.00
2027	5.93	5.00	5.00
2028	5.62	5.00	5.00
2029	5.37	5.00	5.00
2030	5.12	5.00	5.00
2031 and beyond	5.00	5.00	5.00

Age Related Morbidity: For retirees ages 65 and older, per capita health care costs are adjusted to reflect expected health care cost changes related to age. The increase to the net incurred health care claims is assumed to be:

Participant Age	Annual Increase
65 – 69	3.0 %
70 – 74	2.5
75 – 79	2.0
80 – 84	1.0
85 - 89	0.5
90 and over	0.0

For the retiree health care liabilities of those under age 65, the current premium charged by the Kentucky Employees' Health Plan (KEHP) is used as the base cost and is projected forward using the health care trend assumption. No implicit rate subsidy is calculated or recognized as the implicit rate subsidy is deemed the responsibility of the KEHP. Under Actuarial Standard of Practice No. 6 (ASOP No. 6), aging subsidies (or implicit rate subsidies) should be recognized, as the differences in health care utilization and cost due to age have been demonstrated and well quantified. The impact of aging on a valuation's results can be as significant as the use of mortality, trend, and discounting. It has been the long-standing position that the responsibility for compliance with GASB Statement No. 43, when it relates to KEHP implicit subsidies, rests with KEHP, not the System, as the System has no operational authority over KEHP. As such, KEHP implicit subsidies are excluded from the OPEB valuation process of the Retiree Medical Plan. As GASB 74 and 75 prohibit such a deviation from ASOP No. 6, additional consideration to the current treatment of KEHP implicit rate subsidies may be needed in the future. Valuing the KEHP implicit subsidies will increase the actuarial accrued liability for GASB 74 and 75 purposes.

Retiree Medical Plan Costs: Assumed per capita health care costs were based on past experience and trended based on the assumptions. Following are charts detailing retiree per capita assumptions. These amounts include medical, drug, and administrative costs and represent the amount that the System pays as the full contribution amount. An additional $7.44 per month is paid to the Department of Employee Insurance (DEI) and is not included in the under age 65 costs listed below. For retirees ages 65 and older, the average costs shown are normalized to age 65 and then age adjusted in calculating liabilities.

Monthly Under Age 65 (KEHP) Full Costs as of January 1, 2019

Tier Elected	LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDP
Single	$ 709.46	$ 729.34	$ 682.80	$ 607.54
Parent Plus	978.50	1,037.08	940.64	865.08
Couple	1,333.64	1,589.10	1,450.02	1,327.16
Family	1,489.76	1,767.60	1,615.30	1,477.04
Family C-R	818.96	876.68	800.94	730.90

Schedule D continued ...

Average Monthly TRS Full Costs & Contributions

Calendar Year	Under Age 65 (KEHP) Contributions	Age 65 & Over (MEHP) Full Costs	Age 65 & Over (MEHP) Contributions
2008	$ 484	$ 278	$ 278
2009	545	301[1]	301
2010	594	373[1]	373
2011	626	289[1]	289
2012	622	270[2]	270
2013	635	294[2]	294
2014	679	290[2]	290
2015	669	240[2]	240
2016	681	260[2]	260
2017	680	252[2]	252
2018	688	258[2]	258
2019	691	226[3]	226

[1] *Under GASB 45, cost reductions for the amount of the Medicare Part D Retiree Drug Subsidy could not be taken into account in the gross cost calculations.*

[2] *2,257 current, Medicare-eligible benefit recipients have been identified by the client to be ineligible for premium-free Medicare Part A benefits. For these individuals, the full cost of coverage is, on average, $575 per month. It is assumed 9% of current retirees under the age of 65 who were hired prior to 4/1/1986 will be ineligible for premium-free Medicare Part A benefits upon reaching Medicare eligibility (age 65) and 0% of these retirees will cover a spouse. All active members are assumed to have begun contributing to Medicare as of 4/1/1986 and are assumed eligible for premium-free Medicare Part A benefits.*

[3] *Blended basis, includes increased costs for retirees without premium-free Medicare Part A. All active members are assumed to have begun contributing to Medicare as of 4/1/1986 and are assumed eligible for premium-free Medicare Part A benefits.*

Current Retiree Medical Plan Participation: Actual census data and current plan elections (including waivers) provided by the System were used for those retirees currently participating in the Retiree Medical Plan. Current participants are assumed to maintain their current Retiree Medical Plan coverage until they are no longer eligible.

Anticipated Retireee Medical Plan Participation: The assumed annual rates of health care plan participation for future retirees are as follows:

Member Participation

Years of Service	Entered TRS Before 7/1/2002	Entered TRS After 6/30/2002 & Before 7/1/2008	Entered TRS After 6/30/2008
5-9.99	20 %	20%	Not Eligible
10-14.99	49	20	Not Eligible
15-19.99	70	41	41%
20-24.99	91	61	61
25-25.99	91	76	76
26-26.99	91	84	84
27 or more	91	91	91

Anticipated Retiree Medical Plan Elections: The assumed rates of plan election for future retirees participating in the KEHP plans are provided in the following table. As the assumed plan election rates are estimates and actual results may be materially different, this assumption will need to be revised as experience evolves.experience evolves.

LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDP
42%	50%	5%	3%

Schedule D continued ...

Spouse Coverage in Medical Plans: Actual census data and current plan elections were used for MEHP and KEHP covered spouses (including beneficiaries) of current retirees. For spouses of future retirees, 25% of future male retirees are assumed to cover their spouse and 15% of future female retirees are assumed to cover their spouse. Male retirees are assumed to be three years older than their spouse and female retirees are assumed to be one year younger than their spouse.

Disabled Dependent Children in Retiree Medical Plan: The liability associated with disabled dependent children was determined to be de minimis and was therefore excluded from this valuation.

Withdrawal Assumption: Future vested members who terminate employment prior to retirement are assumed to elect to withdraw their contributions based upon their age and service at termination of employment as follows:

Rates of Withdrawal Upon Termination of Employment

Age at Termination of Employment	Years of Service 5 - 10	10 - 15	15+
Under Age 55	20%	15%	10%
Ages 55+	10%	10%	10%

All vested members who terminate employment prior to retirement are assumed to elect to withdraw their contributions prior to receiving a pension benefit based upon their service as follows:

Rates of Withdrawal Prior to Receiving a Pension Benefit

Years of Service 5 - 10	10 - 15	15 - 27	27+
25%	15%	10%	25%

All vested members who terminate employment prior to retirement and who are assumed to elect to receive a pension benefit are assumed to begin receiving their benefit at age 60.

Payroll Growth: 3.50% per annum, compounded annually.

Price Inflation: 3.00% per annum, compounded annually.

Affordable Care Act (ACA): The impact of the Affordable Care Act (ACA) was addressed in this valuation. Review of the information currently available did not identify any specific provisions of the ACA that are anticipated to significantly impact results. While the impact of certain provisions such as the potential future implementation of the excise tax on high-value health insurance plans (if applicable), mandated benefits and participation changes due to the individual mandate should be recognized in the determination of liabilities, overall future plan costs and the resulting liabilities are driven by the assumed rate of health care inflation (i.e., trend). The trend assumption forecasts the anticipated increase to initial per capita costs, taking into account health care cost inflation, increases in benefit utilization, government-mandated benefits, and technological advances. Given the uncertainty regarding the ACA's implementation (e.g., the impact of excise tax on high-value health insurance plans, changes in participation resulting from the implementation of state-based health insurance exchanges), continued monitoring of the ACA's impact on the Retiree Medical Plan's liability will be required.

Asset Valuation Method: Five-year market related actuarial value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the ultimate assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected actuarial value. The ultimate assumed valuation rate of return is assumed to be 8.00% for the Medical Insurance Fund and 7.50% for the Life Insurance Fund.

Actuarial Cost Method: The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future, of each active member's expected benefit at retirement or death

Schedule D continued ...

is determined, based on his/her age, service, and gender. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his/her terminating with a service, disability or survivor's benefit. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members and beneficiaries and deferred vested members to obtain the present value of all expected benefits payable from the System on account of the present group of members and beneficiaries.

The employer contributions required to support the benefits of the System are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new member during the entire period of his/her anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his/her behalf.

The unfunded actuarial accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the System.

Separations from Service: Representative values of the assumed annual rates of salary increases, death, disability, withdrawal, service retirement and early retirement are as follows:

Males: Annual Rate of . . .

				WITHDRAWAL			RETIREMENT	
				YEARS OF SERVICE				
AGE	SALARY*	DEATH	DISABILITY	0 - 4	5 - 9	10+	Before 27 Years of Service	After 27 Years of Service**
20	7.20%	0.019%	0.01%	11.00%				
25	6.40	0.021	0.01	11.00	3.00%			
30	5.40	0.025	0.01	11.00	3.00	3.00%		
35	4.70	0.043	0.04	12.00	3.50	1.40		
40	4.20	0.060	0.09	12.00	4.50	1.40		
45	3.80	0.084	0.20	12.00	4.50	1.30		17.0%
50	3.70	0.119	0.30	14.00	4.50	1.90		17.0
55	3.50	0.202	0.58	15.00	4.50	2.40	5.0%	45.0
60	3.50	0.340	0.75	15.00	4.00	2.40	13.0	35.0
62	3.50	0.419	0.75	15.00	3.80	2.40	15.0	25.0
65	3.50	0.565	0.75	15.00	3.50	2.40	20.0	25.0
70	3.50	0.913	0.75	20.00	0.00	0.00	20.0	20.0
75	3.50	1.556	0.75	20.00	0.00	0.00	100.0	100.0

Females: Annual Rate of . . .

				WITHDRAWAL			RETIREMENT	
				YEARS OF SERVICE				
AGE	SALARY*	DEATH	DISABILITY	0 - 4	5 - 9	10+	Before 27 Years of Service	After 27 Years of Service**
20	7.20%	0.007%	0.01%	9.00%				
25	6.40	0.008	0.01	9.00	4.00%			
30	5.40	0.010	0.03	12.00	4.00	1.65%		
35	4.70	0.018	0.06	12.00	4.00	1.50		
40	4.20	0.026	0.12	12.00	4.00	1.30		
45	3.80	0.042	0.25	13.00	4.00	1.20		15.0%
50	3.70	0.062	0.44	13.00	5.00	1.50		18.0
55	3.50	0.096	0.65	15.00	5.00	2.00	5.5%	50.0
60	3.50	0.157	0.85	15.00	5.00	2.00	14.0	40.0
62	3.50	0.197	0.85	15.00	4.60	2.00	14.0	40.0
65	3.50	0.287	0.85	15.00	4.00	2.00	22.0	35.0
70	3.50	0.495	0.85	15.00	0.00	0.00	20.0	35.0
75	3.50	0.831	0.85	15.00	0.00	0.00	100.0	100.0

* *Includes wage inflation at 3.5% per annum.*

** *Plus 7.5% in year when first eligible for unreduced retirement with 27 years of service.*

Schedule D continued ...

Deaths After Retirement: The RP-2000 Combined Mortality Table projected to 2025 using scale BB (set forward two years for males and one year for females) is used for death after service retirement and beneficiaries. The RP-2000 Disabled Mortality Table (set forward two years for males and seven years for females) is used for death after disability retirement. There is a margin for future mortality improvement in the tables used by the System. Based on the results of the most recent experience study adopted by the Board on September 19, 2016, the numbers of expected future deaths are 15-19% less than the actual number of deaths that occurred during the study period for healthy retirees and 13-17% less than expected under the selected table for disabled retirees. Representative values of the assumed annual rates of death after service retirement and after disability retirement are shown here:

Annual Rate of Death After . . .

	Service Retirement		Disability Retirement	
Age	MALE	FEMALE	MALE	FEMALE
45	0.1609%	0.1135%	2.3306%	1.2482%
50	0.2474	0.1718	2.9279	1.5650
55	0.4246	0.2658	3.4400	1.7807
60	0.6985	0.4409	3.5881	2.3164
65	1.1300	0.8100	3.8275	3.1687
70	1.8697	1.3739	4.7566	4.4032
75	3.2147	2.2899	6.3153	6.0857
80	5.5160	3.7551	8.3527	8.4679
85	9.5631	6.3873	10.9122	12.7572
90	17.2787	11.2476	17.2787	19.4718
95	27.1263	18.1190	27.1263	24.2074

SCHEDULE E

Summary of Main Plan Provisions as Interpreted for Valuation Purposes

Eligibility for Access to Retiree Medical Coverage

Service Retirement: For employees hired prior to July 1, 2008, Retiree Medical Plan coverage eligibility is attained when an employee retires, which is possible after the completion of 27 years of service or attainment of age 55 and 5 years of service. For employees hired on or after July 1, 2008, employees may retire after the completion of 27 years of service, the attainment of age 55 and 10 years of service, or the attainment of age 60 and 5 years of service, but must complete a minimum of 15 years of service to be eligible for Retiree Medical Plan coverage.

Disability Retirement: Disabled employees hired prior to July 1, 2008 with at least 5 years of service, who are totally and permanently incapable of being employed as a teacher, are eligible for Retiree Medical Plan coverage. Disabled employees hired after July 1, 2008 must have 15 years of service to be eligible for Retiree Medical Plan coverage.

Members and dependents under age 65 and eligible for Medicare due to a disability after January 1, 2013 are only eligible to enroll in the MEHP. Under age 65 members who retired prior to Jan. 1, 2013, are grandfathered from this requirement and allowed a choice of KEHP or MEHP coverage. Actual census data and current plan elections were used for current disabled retirees. All future disabled members under the age of 65 with Medicare are placed on the MEHP and not the KEHP. This has been consistently applied since 2013.

Survivors: Spouses of employees who die in service while eligible to retire, as well as survivors of service and disabled retirees, are eligible for Retiree Medical Plan coverage if elected within 30 days of the employee's/retiree's death with no future remarriage. Otherwise, survivor is not eligible for Retiree Medical Plan coverage.

Spousal Shared Risk Waiver for MEHP: Beginning in 2013, eligible spouses who waive the MEHP coverage, will no longer have the opportunity to enroll during any annual MEHP open enrollment so most spousal waivers on the MEHP are now permanent waivers unless a KTRS specific qualifying event is met. This does not apply to the KEHP. This MEHP eligibility rule became necessary to mitigate spousal adverse selection with zero premium Medicare Advantage plans on the individual and open market.

Termination: For employees hired prior to July 1, 2008 and who terminated with at least 5 years of service, Retiree Medical Plan coverage eligibility is attained at age 60, with unreduced pension benefits. For employees hired on or after

Schedule E continued ...

July 1, 2008 and who terminated with at least 15 years of service, Retiree Medical Plan coverage eligibility is attained at age 60 with unreduced pension benefits.

Reemployed Retirees: Retirees who return to work in an agency that participates in KEHP are required to terminate their coverage through the System. Additionally, if a retiree returns to work somewhere that does not participate in the KEHP, but offers health insurance, the retiree must terminate System coverage unless the employer coverage is of lesser value. For valuation purposes, active employees identified as currently receiving retiree health care through the System are valued as retirees.

Covered Member Retiree Medical Plan Contributions

Under Age 65 Retiree Shared Responsibility Contribution: Effective July 1, 2010, retirees under the age of 65 began a three-year phase-in of the Shared Responsibility Contribution. This contribution reduces the applicable amount of the full contribution provided by the System to retirees, by adjusting the Shared Responsibility Contribution amount by 100% less the appropriate percentage from the Retiree Percentage Contribution table below. Effective July 1, 2012, the full Shared Responsibility Contribution equals the Standard Medicare Part B premium paid by retirees ages 65 and older.

Monthly Under Age 65 Shared Responsibility Contribution Timeline

Effective Date	Medicare Part B Monthly Cost	Formula	Shared Responsibility Contribution
July 1, 2010	$ 110.50	(1/3 x $110.50)	$ 37.00
January 1, 2011	115.40	(1/3 x 115.40)	39.00
July 1, 2011	115.40	(2/3 x 115.40)	77.00
January 1, 2012	99.90	(2/3 x 99.90)	66.00
July 1, 2012	99.90	99.90	99.90
January 1, 2013	104.90	104.90	104.90
January 1, 2014	104.90	104.90	104.90
January 1, 2015	104.90	104.90	104.90
January 1, 2016	121.80	121.80	121.80
January 1, 2017	134.00	134.00	134.00
January 1, 2018	134.00	134.00	134.00
January 1, 2019	135.50	135.50	135.50

Retiree Years of Service Percentage Contribution: Retirees contribute the following percentages based on years of service at retirement, which are then applied to the Retiree Contribution Rate Basis:

Retiree Percentage Contribution*

Years of Service	Hired before 7/1/2002: Age 65 or Older and Covered Before 1/1/2005	Hired before 7/1/2002: Age 65 After or Covered After 12/31/2004	Entered TRS After 6/30/2002 and Before 7/1/2008	Entered TRS After 6/30/2008
5 - 9.99	30%	75%	90%	Not Eligible
10 - 14.99	20	50	75	Not Eligible
15 - 19.99	10	25	55	55%
20 - 24.99	0	0	35	35
25 - 25.99	0	0	10	10
26 - 26.99	0	0	5	5
27 or more	0	0	0	0

** 0% for disabled retirees that retired prior to 1/1/2002.*

Schedule E continued ...

Monthly Retiree Contribution Rate Basis
Effective January 1, 2019
Under Age 65 (KEHP)

Tier Elected	LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDP	Ages 65 and Older (MEHP)
Single	$ 660.04	$ 646.96	$ 656.60	$ 583.96	$ 226.00
Parent Plus	851.84	802.26	878.24	808.92	n/a
Couple	1,029.02	1,060.74	1,189.96	1,093.10	n/a
Family	1,131.64	1,105.34	1,303.24	1,196.18	n/a
Family Cross-Reference	738.64	719.12	771.84	704.70	n/a

Under Age 65 Retiree Plan Cost Contribution: An additional contribution according to the table below is required to be paid by retirees under the age of 65 based upon the plan elected and the date of retirement:

Monthly Under Age 65 Plan Cost Contribution*
Effective January 1, 2019

Tier Elected	LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDP
Single	$ 49.42	$ 82.38	$ 26.20	$ 23.58
Parent Plus	126.66	234.82	62.40	56.16
Couple	304.62	528.36	260.06	234.06
Family	358.12	662.26	312.06	280.86
Family Cross-Reference	80.32	157.56	29.10	26.20

* *Does not include the additional contribution required to be paid by retirees under the age of 65 who use tobacco ($40 for Single or Family Cross-Reference, and $80 for Parent Plus, Couple or Family). Also, this does not include the additional contribution required to be paid by retirees und the age of 65 who do not complete their LivingWell Promise, which is an additional $40 per month for all levels of coverage-single, parent +, couple, and family. Approximately 600 retirees did not complete their LivingWell Promise for 2017.*

Schedule E continued ...

Spouse Contributions: 100% of the full cost for non-Medicare eligible dependents is paid through a combination of payments from beneficiaries and the State. Spouses of current post-65 retirees and surviving spouses of deceased retirees with a date of death on or after July 1, 2002 pay 100% of the full contribution. Spouses of active members who died while eligible to retire prior to July 1, 2002, are provided the same subsidy by the System that would have been provided to the retiree for the lifetime of the spouse, or until remarriage. Spouses of active members who die while eligible to retire on or after July 1, 2002 or later pay 100% of the full contribution.

Survivors: Spouses of employees who die in service while eligible to retire, as well as survivors of service and disabled retirees, are eligible for Retiree Medical Plan coverage if elected within 30 days of the employee's/retiree's death with no future remarriage. Otherwise, survivor is not eligible for Retiree Medical Plan coverage.

Spousal Shared Risk Waiver for MEHP: Beginning in 2013, eligible spouses who waive the MEHP coverage, will no longer have the opportunity to enroll during any annual MEHP open enrollment so most spousal waivers on the MEHP are now permanent waivers unless a KTRS specific qualifying event is met. This does not apply to the KEHP. This MEHP eligibility rule became necessary to mitigate spousal adverse selection with zero premium Medicare Advantage plans on the individual and open market.

Monthly Surviving Spouse Contribution
Effective January 1, 2019
Under Age 65 (KEHP)

Tier Elected by Surviving Spouse	LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDP	Age 65 and Older (MEHP)
Single	$ 716.90	$ 736.78	$ 690.24	$ 614.98	$ 226.00
Parent Plus	985.94	1,044.52	948.08	872.52	n/a

System Retiree Medical Plan Contributions: The System Contribution Rate Basis is determined annually by the System; and the full cost is projected based on historical claims data. For retirees, the following percentages are based on years of service at retirement and are then applied to the System Contribution Rate Basis:

Percentage of System Contribution Rate Provided to Retirees*

Years of Service	Entered TRS Before 7/1/2002: Age 65 or Older & Covered Before 1/1/2005	Entered TRS Before 7/1/2002: Age 65 After or Covered After 12/31/2004	Entered TRS After 6/30/2002 and Before 7/1/2008	Entered TRS After 6/30/2008
5 - 9.99	70 %	25 %	10 %	Not Eligible
10 - 14.99	80	50	25	Not Eligible
15 - 19.99	90	75	45	45%
20 - 24.99	100	100	65	65
25 - 25.99	100	100	90	90
26 - 26.99	100	100	95	95
27 or more	100	100	100	100

** 100% for disabled retirees that retired prior to 1/1/2002.*

Schedule E continued ...

Monthly System Contribution Rate Basis
Effective January 1, 2019
Under Age 65 (KEHP)*

Tier Elected	LivingWell CDHP	LivingWell PPO	LivingWell Basic CDHP	LivingWell Limited HDP	Ages 65 and Older (MEHP)
Single	$ 660.04	$ 646.96	$ 656.60	$ 583.96	$ 226.00
Parent Plus	851.84	802.26	878.24	808.92	n/a
Couple	1,029.02	1,060.74	1,189.96	1,093.10	n/a
Family	1,131.64	1,105.34	1,303.24	1,196.18	n/a
Family Cross-Reference	738.64	719.12	771.84	704.70	n/a

* *Irrespective of a participating retiree's service, an additional $7.44 per month is paid by the system to the Department of Employee Insurance (DEI) for KEHP coverage.*

Active Member Retiree Medical Plan Contributions: Actively employed members make payroll contributions to the Medical Insurance Fund based upon the following schedule:

Active Member Percentage of Payroll Contribution Made to Medical Insurance Fund

UNIVERSITY EMPLOYEES		SCHOOL DISTRICT EMPLOYEES (Non-Federal)		OTHER EMPLOYEES	
Hired Before 7/1/2008	Hired on or After 7/1/2008	Hired Before 7/1/2008	Hired on or After 7/1/2008	Hired Before 7/1/2008	Hired on or After 7/1/2008
2.775 %	2.775 %	3.750 %	3.750%	3.750 %	3.750 %

Life Insurance Plan Benefits:

(1) Effective July 1, 2000, the Teachers' Retirement System shall:

(a) Provide a life insurance benefit in a minimum amount of five thousand dollars ($5,000) for its members who are retired for service or disability. This life insurance benefit shall be payable upon the death of a member retired for service or disability to the member's estate or to a party designated by the member on a form prescribed by the retirement system; and

(b) Provide a life insurance benefit in a minimum amount of two thousand dollars ($2,000) for its active contributing members. This life insurance benefit shall be payable upon the death of an active contributing member to the member's estate or to a party designated by the member on a form prescribed by the retirement system.

Note: Members employed on a substitute or part-time basis and working at least 69% of a full contract year in a single fiscal year will be eligible for a life insurance benefit for the balance of the fiscal year or the immediately succeeding fiscal year under certain conditions. For non-vested members employed on a substitute or part-time basis, the life insurance benefit is provided if death occurs as the result of a physical injury on the job. For vested members employed on a substitute or part-time basis, death does not have to be the result of a physical injury on the job for life insurance benefits to be provided.

SCHEDULE F
Table 1: Age - Service Table
Distribution of Active Members as of June 30, 2018
by Age and Service Groups

Attained Age	Completed Years of Service 0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	>= 35	TOTAL
24 & under	3,356								3,356
Total Pay	73,197,998								73,197,998
Avg. Pay	21,811								21,811
25 to 29	5,728	1,663	5						7,396
Total Pay	203,495,638	82,568,556	187,852						286,252,046
Avg. Pay	35,526	49,650	37,570						38,704
30 to 34	2,675	4,547	1,612	3					8,837
Total Pay	86,293,957	232,507,874	93,615,745	171,059					412,588,635
Avg. Pay	32,259	51,134	58,074	57,020					46,689
35 to 39	2,254	2,127	4,670	1,452	8				10,511
Total Pay	66,909,314	110,685,191	282,452,313	94,329,491	434,996				554,811,305
Avg. Pay	29,685	52,038	60,482	64,965	54,375				52,784
40 to 44	1,783	1,360	2,099	4,041	1,099	6			10,388
Total Pay	50,536,837	70,800,804	127,327,260	271,875,642	78,592,555	466,037			599,599,135
Avg. Pay	28,344	52,059	60,661	67,279	71,513	77,673			57,720
45 to 49	1,481	1,082	1,507	2,140	3,650	1,019	4		10,883
Total Pay	38,192,866	57,257,531	91,642,244	141,344,490	258,449,408	75,036,251	337,145		662,259,935
Avg. Pay	25,789	52,918	60,811	66,049	70,808	73,637	84,286		60,853
50 to 54	1,235	656	968	1,242	1,603	1,883	341	9	7,937
Total Pay	26,561,350	32,743,609	58,414,733	82,215,623	112,128,856	141,021,748	26,428,299	771,555	480,285,773
Avg. Pay	21,507	49,914	60,346	66,196	69,949	74,892	77,502	85,728	60,512
55 to 59	1,517	465	610	913	1,003	726	265	33	5,532
Total Pay	25,011,517	20,976,754	35,767,841	58,954,988	70,939,328	56,218,141	23,218,735	2,581,322	293,668,626
Avg. Pay	16,487	45,111	58,636	64,573	70,727	77,435	87,618	78,222	53,085
60 to 64	1,679	344	305	482	483	390	106	47	3,836
Total Pay	21,246,589	12,139,654	17,529,572	31,791,751	34,076,493	28,894,613	8,938,762	3,162,631	157,780,065
Avg. Pay	12,654	35,290	57,474	65,958	70,552	74,089	84,328	67,290	41,131
65 & over	2,137	525	189	194	199	147	76	62	3,529
Total Pay	18,319,211	10,686,323	8,081,622	12,048,328	13,626,663	11,374,461	5,370,666	5,164,995	84,672,269
Avg. Pay	8,572	20,355	42,760	62,105	68,476	77,377	70,667	83,306	23,993
Total	23,845	12,769	11,965	10,467	8,045	4,171	792	151	72,205
Total Pay	609,765,277	630,366,296	715,019,182	692,731,372	568,248,299	313,011,251	64,293,607	11,680,503	3,605,115,787
Avg. Pay	25,572	49,367	59,759	66,182	70,634	75,045	81,179	77,354	49,929

Average Age: 43.5 **Average Service: 10.9**

Schedule F continued ...

Table 2 – Schedule of Total Active Member Valuation Data

Valuation Date June 30	Number	Annual Payroll	Annual Average Pay	Percentage Increase in Average Pay
2018	72,205	$ 3,605,115,787	$ 49,929	1.06 %
2017	72,130	3,563,584,342	49,405	0.35
2016	71,848	3,537,226,348	49,232	1.19
2015	72,246	3,515,113,127	48,655	2.45
2014	73,407	3,486,326,799	47,493	2.12
2013	74,831	3,480,066,406	46,506	1.51
2012	75,951	3,479,567,004	45,813	1.33

Table 3 – Eligible Deferred Vested Members
as of June 30, 2018
Medical Insurance Fund
Male & Female Demographic Breakdown

Attained Age	Number of Males	Number of Females	Total Number
Under 30	1	0	1
30-34	51	195	246
35-39	284	904	1,188
40-44	300	876	1,176
45-49	327	1,147	1,474
50-54	264	975	1,239
55-59	230	823	1,053
60 & Over	253	707	960
Total	**1,710**	**5,627**	**7,337**

Eligible Deferred Vested Members
as of June 30, 2018
Life Insurance Fund
Male & Female Demographic Breakdown

Attained Age	Number of Males	Number of Females	Total Number
Under 30	15	26	41
30-34	158	570	728
35-39	378	1,071	1,449
40-44	350	1,024	1,374
45-49	361	1,298	1,659
50-54	287	1,071	1,358
55-59	254	884	1,138
60 & Over	294	773	1,067
Total	**2,097**	**6,717**	**8,814**

Schedule F continued ...

Table 4 – All Retirees & Spouses Receiving Health Care Benefits as of June 30, 2018
Male & Female Demographic Breakdown

Attained Age	Number of Males	Number of Females	Total Number
Under 40	7	6	13
40-44	25	26	51
45-49	101	165	266
50-54	446	1,075	1,521
55-59	954	3,109	4,063
60-64	1,688	5,918	7,606
65-69	2,962	8,757	11,719
70-74	3,092	6,598	9,690
75-79	2,073	4,013	6,086
80-84	1,257	2,340	3,597
85-89	602	1,412	2,014
90-94	210	712	922
95-99	37	197	234
100 and over	2	41	43
Total	**13,456**	**34,369**	**47,825**

Table 5 – Schedule of Retirees, Beneficiaries and Survivors Added To and Removed From Rolls *
Medical Insurance Fund

Fiscal Year Ending June 30	Number of Members Added to Rolls	Number of Spouses** Added to Rolls	Total Number Added to Rolls	Number of Members Removed from Rolls	Number of Spouses** Removed from Rolls	Total Number Removed from Rolls	Number of Members on Rolls at the End of the Year	Number of Spouses** on Rolls at the End of the Year	Total Number on Rolls at the End of the Year
2009	1,777	640	2,417	887	510	1,397	33,481	6,808	40,289
2010	1,710	555	2,265	876	529	1,405	34,315	6,834	41,149
2011	1,770	629	2,399	1,052	541	1,593	35,033	6,922	41,955
2012	1,996	702	2,698	1,029	616	1,645	36,000	7,008	43,008
2013	1,853	664	2,517	1,076	619	1,695	36,777	7,053	43,830
2014	1,663	638	2,301	1,165	660	1,825	37,275	7,031	44,306
2015	1,990	731	2,721	1,190	633	1,823	38,075	7,129	45,204
2016	2,045	726	2,771	1,305	674	1,979	38,815	7,181	45,996
2017	1,835	699	2,534	1,153	691	1,844	39,497	7,189	46,686
2018	1,903	828	2,731	1,170	422	1,592	40,230	7,595	47,825

* *Reflects members, spouses, and beneficiaries participating in a health care plan.*
** *Includes spouses, beneficiaries, and surviving spouses.*

Schedule F continued ...

Table 6 – Schedule of Retirees, Beneficiaries and Survivors Added To and Removed From Rolls *
Life Insurance Fund

Fiscal Year Ending June 30	Number Added to Rolls	Life Insurance Benefit ($1,000's)	Number Removed from Rolls	Life Insurance Benefit ($1,000's)	Number on Rolls at the End of the Year	Life Insurance Benefit ($1,000's)	Increase in Life Insurance Benefit	Average Life Insurance Benefit
2009	1,949	$ $9,745	769	$ 3,845	38,958	$ 194,790	3.12 %	$ 5,000
2010	1,799	8,995	806	4,030	39,951	199,755	2.55	5,000
2011	2,025	10,125	858	4,290	41,118	205,590	2.92	5,000
2012	2,364	11,820	880	4,400	42,602	213,010	3.61	5,000
2013	2,195	10,975	952	4,760	43,845	219,225	2.92	5,000
2014	1,964	9,820	954	4,770	44,855	224,275	2.30	5,000
2015	2,270	11,350	1,641	8,205	45,484	227,420	1.40	5,000
2016	2,394	11,970	807	4,035	47,071	235,355	3.49	5,000
2017	2,175	10,875	1,021	5,105	48,225	241,125	2.45	5,000
2018	2,605	13,025	1,408	7,040	49,422	247,110	2.48	5,000

** The life insurance benefit is payable upon the death of only members retired for service or disability. Numbers do not include life insurance benefits payable upon the death of an active contributing member.*

Sensitivity Analysis
Medical Insurance Fund
as of June 30, 2018

The June 30, 2018 valuation results of the Medical Insurance Fund (MIF) are projections based on the actuarial assumptions. Actual experience will differ from these assumptions, either increasing or decreasing cost. The charts on the following pages provide a simple analysis on how the costs are sensitive to changes to the assumed discount rate, the assumed inflation rate, the assumed rate of payroll growth, and the assumed rates of health care inflation (trend). The charts show the actuarial accrued liability, the unfunded liability, the funded ratio and the employer contribution rate under the following scenarios:

- The discount rate assumption sensitivity analysis shows the valuation results with the baseline discount rate assumption, 8.00%, together with a decrease in the discount rate to 7.00% and an increase in the discount rate to 9.00%. Under this scenario, the underlying inflation rate assumption is held constant at 3.00% and the payroll growth assumption is held constant at 3.50%.

- The inflation assumption sensitivity analysis shows the valuation results with the baseline underlying inflation rate assumption, 3.00%, together with decreases in the inflation rate to 2.75% and 2.50%. Under this scenario, the decrease in the underlying inflation rate assumption leads to corresponding decreases in the discount rate, the payroll growth assumption, and the assumed rates of salary increase for active members. The assumed decreases in inflation are not assumed to impact the assumed rates of health care inflation (trend).

- The payroll growth assumption sensitivity analysis shows the valuation results with the baseline underlying payroll growth assumption, 3.50%, together with decreases in the payroll growth assumption to 2.00% and 0.00%. Under this scenario, all other assumptions, including the individual member salary scale, are held constant so that the only impact is in the amortization of the unfunded liability, leading to higher employer contribution rates.

- The health care inflation (trend) assumption sensitivity analysis shows the valuation results with the baseline trend assumption along with a 1.00% increase in all assumed trend rates and a 1.00% decrease in all assumed trend rates.

Sensitivity Analysis continued ...

Assumed Discount Rate Sensitivity Analysis
Medical Insurance Fund
as of June 30, 2018
(In thousands of dollars)

	Decrease Discount Rate	Valuation Results	Increase Discount Rate
Actuarial Accrued Liability	$ 3,792,234	$ 3,340,709	$ 2,967,365
Actuarial Value of Assets	1,213,918	1,213,918	1,213,918
Unfunded Liability	$ 2,578,316	$ 2,126,791	$ 1,753,447
Funded Ratio	32.01%	36.34%	40.91%
Contributions			
Normal Cost	2.33%	1.78%	1.36%
Accrued Liability	4.51%	4.04%	3.61%
Total	6.84%	5.82%	4.97%
Member	(3.70%)	(3.70%)	(3.70%)
Employer/State	3.14%	2.12%	1.27%
Discount Rate	7.00%	8.00%	9.00%
Payroll Growth	3.50%	3.50%	3.50%
Inflation Rate	3.00%	3.00%	3.00%

Inflation Assumption Sensitivity Analysis
Medical Insurance Fund
as of June 30, 2018
(In thousands of dollars)

	Valuation Results	Decrease Inflation Rate 25 Basis Points	Decrease Inflation Rate 50 Basis Points
Actuarial Accrued Liability	$ 3,340,709	$ 3,459,825	$ 3,586,056
Actuarial Value of Assets	1,213,918	1,213,918	1,213,918
Unfunded Liability	$ 2,126,791	$ 2,245,907	$ 2,372,138
Funded Ratio	36.34%	35.09%	33.85%
Contributions			
Normal Cost	1.78%	1.88%	2.00%
Accrued Liability	4.04%	4.27%	4.52%
Total	5.82%	6.15%	6.52%
Member	(3.70%)	(3.70%)	(3.70%)
Employer/State	2.12%	2.45%	2.82%
Discount Rate	8.00%	7.75%	7.50%
Payroll Growth	3.50%	3.25%	3.00%
Inflation Rate	3.00%	2.75%	2.50%

Sensitivity Analysis continued ...

Payroll Growth Assumption Sensitivity Analysis
Medical Insurance Fund
as of June 30, 2018
(In thousands of dollars)

	Valuation Results	Decrease Payroll Growth 150 Basis Points	No Payroll Growth
Actuarial Accrued Liability	$ 3,340,709	$ 3,340,709	$ 3,340,709
Actuarial Value of Assets	1,213,918	1,213,918	1,213,918
Unfunded Liability	$ 2,126,791	$ 2,126,791	$ 2,126,791
Funded Ratio	36.34%	36.34%	36.34%
Contributions			
Normal Cost	1.78%	1.78%	1.78%
Accrued Liability	4.04%	4.58%	5.35%
Total	5.82%	6.36%	7.13%
Member	(3.70%)	(3.70%)	(3.70%)
Employer/State	2.12%	2.66%	3.43%
Discount Rate	8.00%	8.00%	8.00%
Payroll Growth	3.50%	2.00%	0.00%
Inflation Rate	3.00%	3.00%	3.00%

Health Care Trend Assumption Sensitivity Analysis
Medical Insurance Fund
as of June 30, 2018
(In thousands of dollars)

	Decrease Trend Rates 100 Basis Points	Valuation Results	Increase Trend Rates 100 Basis Points
Actuarial Accrued Liability	$ 2,928,353	$ 3,340,709	$ 3,850,814
Actuarial Value of Assets	1,213,918	1,213,918	1,213,918
Unfunded Liability	$ 1,714,435	2,126,791	$ 2,636,896
Funded Ratio	41.45%	36.34%	31.52%
Contributions			
Normal Cost	1.41%	1.78%	2.27%
Accrued Liability	3.26%	4.04%	5.01%
Total	4.67%	5.82%	7.28%
Member	(3.70%)	(3.70%)	(3.70%)
Employer/State	0.97%	2.12%	3.58%
Discount Rate	8.00%	8.00%	8.00%
Payroll Growth	3.50%	3.50%	3.50%
Inflation Rate	3.00%	3.00%	3.00%

Sensitivity Analysis
Life Insurance Fund
as of June 30, 2018

The June 30, 2018 valuation results of the Life Insurance Fund (LIF) are projections based on the actuarial assumptions. Actual experience will differ from these assumptions, either increasing or decreasing cost. The charts on the following pages provide a simple analysis on how the costs are sensitive to changes to the assumed discount rate, the assumed inflation rate, and the assumed rate of payroll growth. The charts show the actuarial accrued liability, the unfunded liability, the funded ratio and the employer contribution rate under the following scenarios:

- The discount rate assumption sensitivity analysis shows the valuation results with the baseline discount rate assumption, and 7.50% together with a decrease in the discount rate to 6.50% and an increase in the discount rate to 8.50%. Under this scenario, the underlying inflation rate assumption is held constant at 3.00% and the payroll growth assumption is held constant at 3.50%.

- The inflation assumption sensitivity analysis shows the valuation results with the baseline underlying inflation rate assumption, 3.00%, together with decreases in the inflation rate to 2.75% and 2.50%. Under this scenario, the decrease in the underlying inflation rate assumption leads to corresponding decreases in the discount rate, the payroll growth assumption, and the assumed rates of salary increase for active members.

- The payroll growth assumption sensitivity analysis shows the valuation results with the baseline underlying payroll growth assumption, 3.50%, together with decreases in the payroll growth assumption to 2.00% and 0.00%. Under this scenario, all other assumptions, including the individual member salary scale, are held constant so that the only impact is in the amortization of the unfunded liability, leading to higher employer contribution rates.

Assumed Discount Rate Sensitivity Analysis
Life Insurance Fund
as of June 30, 2018
(In thousands of dollars)

	Decrease Discount Rate	Valuation Results	Increase Discount Rate
Actuarial Accrued Liability	$ 127,104	$ 112,471	$ 100,452
Actuarial Value of Assets	93,808	93,808	93,808
Unfunded Liability	$ 33,296	$ 18,663	$ 6,644
Funded Ratio	73.80%	83.41%	93.39%
Contributions			
Normal Cost	0.04%	0.03%	0.03%
Accrued Liability	0.05%	0.03%	0.01%
Total	0.09%	0.06%	0.04%
Member	(0.00%)	(0.00%)	(0.00%))
Employer/State	0.09%	0.06%	0.04%
Discount Rate	6.50%	7.50%	8.50%
Payroll Growth	3.50%	3.50%	3.50%
Inflation Rate	3.00%	3.00%	3.00%

Sensitivity Analysis continued ...

Inflation Assumption Sensitivity Analysis
Life Insurance Fund
as of June 30, 2018
(In thousands of dollars)

	Valuation Results	Decrease Inflation Rate 25 Basis Points	Decrease Inflation Rate 50 Basis Points
Actuarial Accrued Liability	$ 112,471	$ 116,035	$ 119,798
Actuarial Value of Assets	93,808	93,808	93,808
Unfunded Liability	$ 18,663	22,227	25,990
Funded Ratio	83.41%	80.85%	78.31%
Contributions			
Normal Cost	0.03%	0.03%	0.04%
Accrued Liability	0.03%	0.04%	0.04%
Total	0.06%	0.07%	0.08%
Member	(0.00%)	(0.00%)	(0.00%)
Employer/State	0.06%	0.07%	0.08%
Discount Rate	7.50%	7.25%	7.00%
Payroll Growth	3.50%	3.25%	3.00%
Inflation Rate	3.00%	2.75%	2.50%

Payroll Growth Assumption Sensitivity Analysis
Life Insurance Fund
as of June 30, 2018
(In thousands of dollars)

	Valuation Results	Decrease Payroll Growth to 2%	No Payroll Growth
Actuarial Accrued Liability	$ 112,471	$ 112,471	$ 112,471
Actuarial Value of Assets	93,808	93,808	93,808
Unfunded Liability	$ 18,663	$ 18,663	$ 18,663
Funded Ratio	83.41%	83.41%	83.41%
Contributions			
Normal Cost	0.03%	0.03%	0.03%
Accrued Liability	0.03%	0.03%	0.04%
Total	0.06%	0.06%	0.07%
Member	(0.00%)	(0.00%)	(0.00%)
Employer/State	0.06%	0.06%	0.07%
Discount Rate	7.50%	7.50%	7.50%
Payroll Growth	3.50%	2.00%	0.00%
Inflation Rate	3.00%	3.00%	3.00%

Teachers' Retirement System
of the State of Kentucky

2018

Statistical Section

This section of the Teachers' Retirement System of the State of Kentucky's Comprehensive Annual Financial Report presents detailed information as a context for understanding the information in the financial statements, note disclosures and required supplementary information regarding TRS's overall financial health.

CONTENTS

Defined Benefit Plan
Past 10 Fiscal Years

Additions by Source

Year	Employer Contributions	Member Contributions	Net Investment Income (Loss)	Total Additions to Plan Net Position
2018	$ 1,048,671,201	$ 319,127,087	$ 1,953,214,031	$ 3,321,012,319
2017	1,060,719,993	313,625,434	2,475,752,798	3,850,098,225
2016	565,454,590	313,044,226	(245,214,860)	633,283,956
2015	559,579,290	308,159,763	862,178,759	1,729,917,812
2014	563,326,249	304,981,620	2,803,247,956	3,671,555,825
2013	568,233,446	304,738,728	2,039,874,263	2,912,846,437
2012	557,339,552	309,729,924	309,696,252	1,176,765,728
2011	1,037,935,993	302,262,819	2,760,972,224	4,101,171,036
2010	479,805,088	297,613,965	1,509,785,381	2,287,204,434
2009	442,549,935	293,678,564	(2,020,682,522)	(1,284,454,023)

Deductions by Type
(Including Benefits by Type)

Year	Service Retirants	Disability Retirants	Survivors	Total Benefits	Refunds	Administrative Expense	Total Deductions to Plan Net Position
2018	$ 1,901,237,575	$ 84,500,330	$ 18,879,429	$ 2,004,617,334	$ 31,072,421	$ 11,388,493	$ 2,047,078,248
2017	1,817,594,617	82,466,114	18,551,397	1,918,612,128	26,305,240	10,313,715	1,955,231,083
2016	1,735,374,416	79,808,432	18,015,782	1,833,198,630	27,747,742	8,636,438	1,869,582,810
2015	1,647,205,474	76,912,574	17,338,047	1,741,456,095	23,032,624	8,868,971	1,773,357,690
2014	1,563,634,993	73,501,441	17,239,266	1,654,375,700	25,461,843	7,955,972	1,687,793,515
2013	1,484,132,938	69,808,291	16,781,695	1,570,722,924	22,059,094	8,377,003	1,601,159,021
2012	1,401,380,816	65,297,491	16,260,858	1,482,939,165	19,549,073	7,762,880	1,510,251,118
2011	1,326,033,698	60,950,214	15,551,801	1,402,535,713	17,325,387	7,322,739	1,427,183,839
2010	1,249,272,057	57,782,651	14,754,062	1,321,808,770	15,310,680	8,830,054	1,345,949,504
2009	1,184,075,934	54,562,038	14,342,435	1,252,980,407	15,208,419	8,165,757	1,276,354,583

Changes in Plan Net Position

Year	Total Additions to Plan Net Position	Total Deductions to Plan Net Position	Changes in Plan Net Position
2018	$ 3,321,012,319	$ 2,047,078,248	$ 1,273,934,071
2017	3,850,098,225	1,955,231,083	1,894,867,142
2016	633,283,956	1,869,582,810	(1,236,298,854)
2015	1,729,917,812	1,773,357,690	(43,439,878)
2014	3,671,555,825	1,687,793,515	1,983,762,310
2013	2,912,846,437	1,601,159,021	1,311,687,416
2012	1,176,765,728	1,510,251,118	(333,485,390)
2011	4,101,171,036	1,427,183,839	2,673,987,197
2010	2,287,204,434	1,345,949,504	941,254,930
2009	(1,284,454,023)	1,276,354,583	(2,560,808,606)

Medical Insurance Plan

Past 10 Fiscal Years

Additions by Source

Year	Employer Contributions	Member Contributions*	Recovery Income*	Net Investment Income (Loss)	Total Additions to Plan Net Position
2018	$ 187,102,413	$ 130,777,471	$	$ 76,840,512	$ 394,720,396
2017	180,375,986	128,819,243		95,452,597	404,647,826
2016	178,638,370	128,068,781		(9,332,490)	297,374,661
2015	145,263,926	157,467,680	22,820,427	7,354,704	332,906,737
2014	157,688,414	135,190,891	4,879,981	67,741,063	365,500,349
2013	166,576,444	119,795,780	34,976	30,718,836	317,126,036
2012	173,966,623	100,346,070	3,781,222	(3,989,202)	274,104,713
2011	188,241,202	84,147,337	493,312	8,334,296	281,216,147
2010	158,761,433	63,805,573	14,618,348	12,312,999	249,498,353
2009	164,408,037	58,688,767	13,683,830	11,296,280	248,076,914

* *Amounts paid by retirees and recovery income is netted against insurance expenses beginning fiscal year 2016.*

Deductions by Type

(Including Benefits by Type)

Year	Insurance Benefit Expense: Under Age 65	Insurance Benefit Expense: Age 65 & Over	Administrative Expense	Total Insurance Benefits Expense	Total Deductions to Plan Net Position
2018	$ 120,519,991	$ 40,561,709	$ 1,747,561	$ 162,829,261	$ 162,829,261
2017	124,079,802	54,420,744	1,538,574	180,039,120	180,039,120
2016	127,673,325	61,196,669	1,686,070	190,556,064	190,556,064
2015	131,396,480	108,998,102	1,545,235	241,939,817	241,939,817
2014	136,963,208	105,107,323	1,100,133	243,170,664	243,170,664
2013	142,170,438	98,761,180	1,275,206	242,206,824	242,206,824
2012	156,228,181	72,746,945	1,201,629	230,176,755	230,176,755
2011	145,544,405	80,890,958	1,186,029	227,621,392	227,621,392
2010	136,702,152	100,675,376		237,377,528	237,377,528
2009	123,819,475	81,037,647		204,857,122	204,857,122

Changes in Plan Net Position

Year	Total Additions to Plan Net Position	Total Deductions to Plan Net Position	Changes in Plan Net Position
2018	$ 394,720,396	$ 162,829,261	$ 231,891,135
2017	404,647,826	180,039,120	224,608,706
2016	297,374,661	190,556,064	106,818,597
2015	332,906,737	241,939,817	90,966,920
2014	365,500,349	243,170,664	122,329,685
2013	317,126,036	242,206,824	74,919,212
2012	274,104,713	230,176,755	43,927,958
2011	281,216,147	227,621,392	53,594,755
2010	249,498,353	237,377,528	12,120,825
2009	248,076,914	204,857,122	43,219,792

Life Insurance Plan
Past 10 Fiscal Years

Additions by Source

Year	Employer Contributions	Net Investment Income (Loss)	Total Additions to Plan Net Position
2018	$ 1,058,329	$ 1,110,421	$ 2,168,750
2017	1,049,683	915,497	1,965,180
2016	1,037,769	4,829,336	5,867,105
2015	1,019,519	1,990,324	3,009,843
2014	1,006,091	4,572,845	5,578,936
2013	1,680,495	674,760	2,355,255
2012	1,684,711	6,450,022	8,134,733
2011	1,668,822	3,094,776	4,763,598
2010	1,966,826	5,383,644	7,350,470
2009	5,455,473	5,282,958	10,738,431

Deductions by Type
(Including Benefits by Type)

Changes in Plan Net Position

Year	Life Insurance	Administrative Expense	Total Deductions to Plan Net Position	Total Additions to Plan Net Position	Total Deductions to Plan Net Position	Changes in Plan Net Position
2018	$ 5,452,920	$ 30,979	$ 5,483,899	$ 2,168,750	$ 5,483,899	$ (3,315,149)
2017	5,151,013	27,690	5,178,703	1,965,180	5,178,703	(3,213,523)
2016	4,595,489	27,195	4,622,684	5,867,105	4,622,684	1,244,421
2015	4,061,000	25,306	4,086,306	3,009,843	4,086,306	(1,076,463)
2014	4,692,000	21,324	4,713,324	5,578,936	4,713,324	865,612
2013	4,614,718	24,425	4,639,143	2,355,255	4,639,143	(2,283,888)
2012	4,397,281	22,886	4,420,167	8,134,733	4,420,167	3,714,566
2011	4,120,000	21,511	4,141,511	4,763,598	4,141,511	622,087
2010	4,148,511		4,148,511	7,350,470	4,148,511	3,201,959
2009	3,694,000		3,694,000	10,738,431	3,694,000	7,044,431

Distribution of Active Contributing Members as of June 30, 2018

By Age

Age	Male	Female
20-24	649	2,762
25-29	1,730	5,733
30-34	2,132	6,799
35-39	2,545	8,055
40-44	2,623	7,833
45-49	2,648	8,344
50-54	1,970	6,304
55-59	1,510	4,606
60-64	1,086	3,193
65 & over	1,202	2,834
Total	**18,095**	**56,463**

By Service

Years of Service	Male	Female
Less than 1	2,453	7,653
1-4	4,070	12,750
5-9	3,085	9,618
10-14	2,817	8,979
15-19	2,365	7,894
20-24	1,934	5,585
25-29	1,069	3,219
30-34	262	683
35 or more	40	82
Total	**18,095**	**56,463**

Principal Participating Employers
Current Year and Nine Years Ago

Employer	2018 Covered Employees	2018 Rank	2018 Percentage of Total System	2009 Covered Employees	2009 Rank	2009 Percentage of Total System
Jefferson County	10,743	1	14.41%	9,999	1	13.02%
Fayette County Public	4,764	2	6.39	4,272	2	5.56
Boone County	2,012	3	2.70	1,802	3	2.35
Warren County	1,425	4	1.91	1,206	8	1.57
Hardin County	1,392	5	1.87	1,348	4	1.75
Bullitt County	1,270	6	1.70	1,216	7	1.58
Kenton County	1,260	7	1.69	1,280	5	1.67
Oldham County	1,220	8	1.64	1,217	6	1.58
Daviess County	1,105	9	1.48	1,165	10	1.52
Madison County	1,105	10	1.48	1,180	9	1.54
All Other*	48,262		64.73	52,141		67.86
Total (207 Employers)	**74,558**		**100.00%**	**76,826**		**100.00%**

* In 2018, All Other consisted of:

Type	Number	Employees
Local School Districts	163	43,119
Higher Education	6	3,270
State Agencies	14	1,416
Educational Cooperatives	8	335
Other	6	122
Total	**197**	**48,262**

TRS Schedule of Participating Employers
School Districts: County Schools

1. Adair
2. Allen
3. Anderson
4. Ballard
5. Barren
6. Bath
7. Bell
8. Boone
9. Bourbon
10. Boyd
11. Boyle
12. Bracken
13. Breathitt
14. Breckinridge
15. Bullitt
16. Butler
17. Caldwell
18. Calloway
19. Campbell
20. Carlisle
21. Carroll
22. Carter
23. Casey
24. Christian
25. Clark
26. Clay
27. Clinton
28. Crittenden
29. Cumberland
30. Daviess
31. Edmonson
32. Elliott
33. Estill
34. Fayette
35. Fleming
36. Floyd
37. Franklin
38. Fulton
39. Gallatin
40. Garrard
41. Grant
42. Graves
43. Grayson
44. Green
45. Greenup
46. Hancock
47. Hardin
48. Harlan
49. Harrison
50. Hart
51. Henderson
52. Henry
53. Hickman
54. Hopkins
55. Jackson
56. Jefferson
57. Jessamine
58. Johnson
59. Kenton
60. Knott
61. Knox
62. Larue
63. Laurel
64. Lawrence
65. Lee
66. Leslie
67. Letcher
68. Lewis
69. Lincoln
70. Livingston
71. Logan
72. Lyon
73. Madison
74. Magoffin
75. Marion
76. Marshall
77. Martin
78. Mason
79. McCracken
80. McCreary
81. McLean
82. Meade
83. Menifee
84. Mercer
85. Metcalfe
86. Monroe
87. Montgomery
88. Morgan
89. Muhlenberg
90. Nelson
91. Nicholas
92. Ohio
93. Oldham
94. Owen
95. Owsley
96. Pendleton
97. Perry
98. Pike
99. Powell
100. Pulaski
101. Robertson
102. Rockcastle
103. Rowan
104. Russell
105. Scott
106. Shelby
107. Simpson
108. Spencer
109. Taylor
110. Todd
111. Trigg
112. Trimble
113. Union
114. Warren
115. Washington
116. Wayne
117. Webster
118. Whitley
119. Wolfe
120. Woodford

continued on next page ...

TRS Schedule of Participating Employers *(continued)*
School Districts: Independent Schools

1. Anchorage
2. Ashland
3. Augusta
4. Barbourville
5. Bardstown
6. Beechwood
7. Bellevue
8. Berea
9. Bowling Green
10. Burgin
11. Campbellsville
12. Caverna
13. Cloverport
14. Corbin
15. Covington
16. Danville
17. Dawson Springs
18. Dayton
19. East Bernstadt
20. Elizabethtown
21. Eminence
22. Erlanger-Elsmere
23. Fairview
24. Fort Thomas
25. Frankfort
26. Fulton
27. Glasgow
28. Harlan
29. Hazard
30. Jackson
31. Jenkins
32. Ludlow
33. Mayfield
34. Middlesboro
35. Murray
36. Newport
37. Owensboro
38. Paducah
39. Paintsville
40. Paris
41. Pikeville
42. Pineville
43. Raceland
44. Russell
45. Russellville
46. Science Hill
47. Silver Grove
48. Somerset
48\. Southgate
50\. Walton-Verona
51\. West Point
52\. Williamsburg
53\. Williamstown

Universities & Community/ Technical Colleges

1. Eastern Kentucky
2. Kentucky State
3. Morehead State
4. Murray State
5. Western Kentucky
6. Kentucky Community & Technical College System

State of Kentucky/ Other Organizations

1. Education and Workforce Development Cabinet
2. Department of Corrections

Other Organizations

1. Education Professional Standards Board
2. Kentucky Education Association
3. Kentucky Academic Association
4. Kentucky Educational Development Cooperative
5. Kentucky High School Athletic Association
6. Kentucky School Boards Association
7. Kentucky Valley Educational Cooperative
8. Northern Kentucky Cooperative for Educational Services
9. Ohio Valley Educational Cooperative
10. West Kentucky Education Cooperative
11. Green River Regional Education Cooperative
12. Central Kentucky Special Education Cooperative
13. Southeast South-Central Educational Cooperative

Distribution of Retirement and Medical Payments Worldwide
as of June 30, 2018

Number of Recipients in United States Outside Kentucky

149	Alabama
4	Alaska
86	Arizona
39	Arkansas
98	California
64	Colorado
10	Connecticut
13	Delaware
8	District of Columbia
1,333	Florida
272	Georgia
7	Hawaii
9	Idaho
119	Illinois
787	Indiana
20	Iowa
31	Kansas
40	Louisiana
18	Maine
41	Maryland
30	Massachusetts
55	Michigan
31	Minnesota
57	Mississippi
92	Missouri
8	Montana
9	Nebraska
24	Nevada
7	New Hampshire
9	New Jersey
15	New Mexico
39	New York
297	North Carolina
1	North Dakota
669	Ohio
31	Oklahoma
34	Oregon
67	Pennsylvania
1	Rhode Island
240	South Carolina
6	South Dakota
1,003	Tennessee
220	Texas
30	Utah
3	Vermont
178	Virginia
42	Washington
114	West Virginia
31	Wisconsin
6	Wyoming

Number of Recipients Outside United States

3	Military APO
2	Australia
1	Barbados
5	Canada
1	Mexico
1	New Zealand
1	Philippines
1	Poland
1	Spain
1	Sweden
1	Switzerland

	Number of Recipients	Amount of Payments
Inside Kentucky	**49,575**	**$ 1,975,398,180**
Outside Kentucky	**6,515**	**190,300,854**
TOTAL	**56,090**	**$ 2,165,699,034**

Distribution of Retirement and Medical Payments Statewide
Fiscal Year Ended June 30, 2018

County Name	Total Payments	Number of Recipients
Adair	$ 8,397,232	235
Allen	7,563,988	190
Anderson	8,728,901	253
Ballard	4,824,851	132
Barren	17,671,108	463
Bath	5,105,946	149
Bell	14,891,893	386
Boone	44,595,929	1,060
Bourbon	8,302,269	219
Boyd	22,947,479	564
Boyle	19,592,920	482
Bracken	4,435,412	115
Breathitt	9,725,194	261
Breckinridge	7,689,703	193
Bullitt	19,559,652	454
Butler	4,200,203	106
Caldwell	7,673,801	201
Calloway	27,908,432	715
Campbell	31,749,006	749
Carlisle	1,856,113	56
Carroll	4,117,298	99
Carter	15,740,483	429
Casey	6,418,356	165
Christian	22,398,455	585
Clark	14,994,318	384
Clay	12,598,956	322
Clinton	5,797,643	159
Crittenden	2,460,042	73
Cumberland	3,761,493	93
Daviess	47,790,837	1,202
Edmonson	4,358,845	117
Elliott	2,326,421	68
Estill	6,413,637	171
Fayette	129,883,528	3,322
Fleming	7,282,589	199
Floyd	21,962,016	591
Franklin	30,877,091	958
Fulton	2,945,005	81
Gallatin	1,369,824	38
Garrard	8,798,106	229
Grant	8,308,775	187
Graves	16,918,210	435
Grayson	11,258,751	294
Green	5,147,321	133
Greenup	16,359,610	418
Hancock	2,821,491	73
Hardin	39,944,857	977
Harlan	16,355,100	432
Harrison	7,955,517	210
Hart	5,765,334	145
Henderson	18,499,526	478
Henry	7,594,755	203
Hickman	1,501,048	36
Hopkins	20,104,428	503
Jackson	5,728,597	158
Jefferson	335,714,774	7,408
Jessamine	18,469,992	477
Johnson	14,616,967	367
Kenton	41,837,061	1,024
Knott	10,236,698	268
Knox	11,286,539	308
Larue	7,308,975	172

County Name	Total Payments	Number of Recipients
Laurel	27,149,115	702
Lawrence	5,577,998	150
Lee	3,235,217	89
Leslie	6,536,833	158
Letcher	13,233,643	358
Lewis	7,391,563	201
Lincoln	12,150,359	306
Livingston	3,279,640	86
Logan	11,849,914	303
Lyon	4,676,157	116
Madison	59,630,569	1,490
Magoffin	7,840,827	202
Marion	7,622,622	207
Marshall	15,524,995	390
Martin	5,427,668	140
Mason	8,508,178	229
McCracken	29,165,674	762
McCreary	8,567,016	229
McLean	4,957,985	128
Meade	8,132,182	189
Menifee	2,526,749	75
Mercer	10,533,828	292
Metcalfe	3,836,292	103
Monroe	6,322,307	164
Montgomery	13,809,497	355
Morgan	7,455,626	204
Muhlenberg	15,110,234	371
Nelson	17,506,179	450
Nicholas	2,414,142	65
Ohio	8,192,940	226
Oldham	22,250,065	524
Owen	4,289,920	106
Owsley	4,437,831	118
Pendleton	5,595,662	140
Perry	16,524,408	424
Pike	31,422,919	837
Powell	5,528,039	138
Pulaski	29,382,626	776
Robertson	1,016,037	26
Rockcastle	8,040,737	194
Rowan	20,324,537	548
Russell	9,853,006	251
Scott	19,970,715	511
Shelby	21,777,836	515
Simpson	6,637,318	174
Spencer	6,788,619	159
Taylor	13,358,300	351
Todd	3,504,479	97
Trigg	7,248,438	193
Trimble	2,756,010	64
Union	4,676,140	129
Warren	73,213,205	1,856
Washington	4,984,498	133
Wayne	9,223,565	244
Webster	5,201,363	141
Whitley	27,301,418	731
Wolfe	4,838,053	131
Woodford	13,637,185	350
Total in Kentucky	**$ 1,975,398,180**	**49,575**

Growth in Annuitants
as of June 30, 2018

Fiscal Year	Service Retirees	Disability Retirees	Beneficiaries of Retired Members	Beneficiaries of Deceased Members Eligible to Retire	Survivors	Disabled Adult Child
2009	36,684	2,209	1,837	559	448	283
2010	37,607	2,284	1,915	567	435	291
2011	38,705	2,379	2,003	584	430	296
2012	40,107	2,478	2,126	596	444	304
2013	41,255	2,582	2,207	601	432	303
2014	42,265	2,641	2,304	596	429	316
2015	43,634	2,691	2,442	653	349	328
2016	45,096	2,762	2,544	652	370	327
2017	46,356	2,806	2,675	655	349	333
2018	47,606	2,831	2,757	648	353	339

Schedule of Annuitants by Type of Benefit
as of June 30, 2018

Amount of Monthly Benefit ($)	Number of Annuitants	Type of Benefit*					
		1	2	3	4	5	6
1 - 500	3,976	3,059	11	187	29	351	339
501 - 1,000	2,903	2,388	153	281	81	0	0
1,001 - 1,500	2,967	2,090	290	479	106	2	0
1,501 - 2,000	3,471	2,570	393	431	77	0	0
2,001 - 2,500	4,594	3,631	534	334	95	0	0
2,501 - 3,000	7,681	6,531	714	342	94	0	0
3,001 - 3,500	8,839	8,101	424	249	65	0	0
3,501 - 4,000	6,779	6,408	170	169	32	0	0
4,001 - 4,500	4,526	4,297	85	114	30	0	0
4,501 - 5,000	3,185	3,079	27	66	13	0	0
5,001 & OVER	5,613	5,452	30	105	26	0	0
Total	**54,534**	**47,606**	**2,831**	**2,757**	**648**	**353**	**339**

*** Type of Benefit**
1-*Normal Retirement for Age & Service*
2-*Disability Retirement*
3-*Beneficiaries of Retired Members*
4-*Beneficiaries of Deceased Member Eligible to Retire*
5-*Survivor Payments*
6-*Disabled Adult Child*

Schedule of Annuitants by Option Selected
as of June 30, 2018

Amount of Monthly Benefit ($)	Option Selected*							
	1	2	3	4	5	6	7	8
1 - 500	1,989	445	299	49	2	405	97	690
501 - 1,000	1,638	400	227	96	8	362	165	7
1,001 - 1,500	1,459	333	289	146	18	387	319	16
1,501 - 2,000	1,772	384	320	144	6	494	326	25
2,001 - 2,500	2,303	485	418	155	2	708	423	100
2,501 - 3,000	3,661	768	633	227	11	1,396	734	251
3,001 - 3,500	4,597	1,040	637	214	8	1,381	870	92
3,501 - 4,000	3,529	769	480	194	7	1,041	710	49
4,001 - 4,500	2,336	469	363	124	9	671	536	18
4,501 - 5,000	1,653	349	262	106	8	463	343	1
5,001 & OVER	2,872	554	534	237	16	755	640	5
TOTAL	**27,809**	**5,996**	**4,462**	**1,692**	**95**	**8,063**	**5,163**	**1,254**

***Option selected:**
1 - Straight-life annuity with refundable balance
2 - Period certain benefit and life thereafter
3 - Joint-survivor annuity
4 - Joint-survivor annuity, one-half benefit to beneficiary
5 - Other payment - special option
6 - Joint-survivor annuity with pop-up option
7 - Joint-survivor annuity, one-half benefit to beneficiary with pop-up option
8 - Disability, survivors and disabled adult children - set by statute

Defined Benefit Plan
Average Initial Benefit Payments for the Past 10 Years
By Years of Service Credit

Retirement Effective Dates	0-4.99	5-9.99	10-14.99	15-19.99	20-24.99	25-29.99	≥30	TOTAL
07/01/2008 TO 06/30/2009								
Average monthly benefit	$200	$573	$1,005	$1,725	$2,427	$3,368	$4,496	**$2,941**
Average final average salary	$4,617	$3,942	$3,873	$4,686	$4,974	$5,278	$5,960	**$5,164**
Number of retired members	72	168	137	115	242	505	585	**1,824**
07/01/2009 TO 06/30/2010								
Average monthly benefit	$185	$525	$1,104	$1,700	$2,513	$3,468	$4,670	**$3,222**
Average final average salary	$3,654	$3,637	$4,124	$4,508	$5,184	$5,383	$6,102	**$5,316**
Number of retired members	28	133	98	103	242	442	601	**1,647**
07/01/2010 TO 06/30/2011								
Average monthly benefit	$149	$519	$1,225	$1,781	$2,529	$3,621	$4,827	**$3,240**
Average final average salary	$3,570	$3,640	$4,423	$4,825	$5,143	$5,574	$6,235	**$5,392**
Number of retired members	45	157	144	112	235	544	617	**1,854**
07/01/2011 TO 06/30/2012								
Average monthly benefit	$175	$507	$1,170	$1,897	$2,613	$3,674	$4,726	**$3,148**
Average final average salary	$3,292	$3,759	$4,307	$4,898	$5,219	$5,605	$6,109	**$5,331**
Number of retired members	45	197	146	162	303	778	569	**2,200**
07/01/2012 TO 06/30/2013								
Average monthly benefit	$161	$475	$1,186	$1,963	$2,781	$3,811	$5,162	**$3,149**
Average final average salary	$3,362	$3,660	$4,498	$4,956	$5,518	$5,799	$6,632	**$5,476**
Number of retired members	44	234	156	154	294	685	447	**2,014**
07/01/2013 TO 06/30/2014								
Average monthly benefit	$192	$484	$1,270	$2,068	$2,797	$3,847	$5,362	**$3,126**
Average final average salary	$4,148	$3,677	$4,751	$5,364	$5,600	$5,902	$6,860	**$5,589**
Number of retired members	56	211	161	145	258	678	344	**1,853**
07/01/2014 TO 06/30/2015								
Average monthly benefit	$157	$472	$1,282	$2,038	$2,890	$3,898	$5,124	**$3,173**
Average final average salary	$3,331	$3,577	$4,892	$5,266	$5,709	$5,948	$6,552	**$5,577**
Number of retired members	60	231	183	206	314	806	456	**2,256**
07/01/2015 TO 06/30/2016								
Average monthly benefit	$177	$519	$1,316	$1,998	$2,934	$3,935	$5,389	**$3,195**
Average final average salary	$3,642	$3,791	$4,847	$5,188	$5,777	$6,019	$6,858	**$5,664**
Number of retired members	61	254	194	217	356	807	448	**2,337**
07/01/2016 TO 06/30/2017								
Average monthly benefit	$176	$473	$1,235	$2,039	$2,902	$3,935	$5,179	**$3,040**
Average final average salary	$3,691	$3,506	$4,588	$5,208	$5,722	$6,024	$6,666	**$5,514**
Number of retired members	53	259	162	212	346	766	320	**2,118**
07/01/2017 TO 06/30/2018								
Average monthly benefit	$152	$486	$1,254	$2,098	$2,990	$4,002	$5,412	**$3,175**
Average final average salary	$3,760	$3,668	$4,702	$5,397	$5,883	$6,068	$6,980	**$5,677**
Number of retired members	64	255	147	193	356	844	330	**2,189**
Ten Years Ended June 30, 2018								
Average monthly benefit	**$173**	**$499**	**$1,215**	**$1,960**	**$2,764**	**$3,791**	**$4,971**	**$3,142**
Average final average salary	**$3,754**	**$3,679**	**$4,540**	**$5,086**	**$5,512**	**$5,806**	**$6,423**	**$5,481**
Number of retired members	**528**	**2,099**	**1,528**	**1,619**	**2,946**	**6,855**	**4,717**	**20,292**

The annuity for most TRS retirees is in lieu of Social Security.

Medical Insurance Plan
Average Insurance Premium Supplements for the Last Five Years
By Years of Service Credit

Retirement Effective Dates	0-9.99	10-14.99	15-19.99	≥20	TOTAL
07/01/2013 to 06/30/2014					
Average monthly supplement	$ 51.99	$ 189.59	$ 335.34	$ 483.65	
Number of retired members	15	82	100	1,227	1,424
07/01/2014 to 06/30/2015					
Average monthly supplement	$ 78.48	$ 204.26	$ 369.27	$ 492.30	
Number of retired members	24	101	176	1,411	1,712
07/01/2015 to 06/30/2016					
Average monthly supplement	$ 86.82	$ 182.41	$ 323.14	$ 483.93	
Number of retired members	68	98	178	1,407	1,751
07/01/2016 to 06/30/2017					
Average monthly supplement	$ 74.65	$ 192.30	$ 333.08	$ 476.86	
Number of retired members	62	71	194	1,291	1,618
07/01/2017 to 06/30/2018					
Average monthly supplement	$ 85.14	$ 122.23	$ 299.1	$ 464.17	
Number of retired members	59	71	169	1,375	1,674

Retiree Sick Leave Payments
Summary of Fiscal Year Ended June 30, 2018

Total members retiring		2,398
Total members receiving sick leave payments		1,646
Total amount of sick leave payments at 12.855% contribution rate	$	21,981,330
Average sick leave payment per retiree	$	13,354
Total increase in final three or five year average salary base	$	5,821,290
Average increase in final average salary	$	3,537
Total service credit of 1,646 retirees		42,325
Average service credit of 1,646 retirees		25.71

ANTICIPATED LIFETIME PAYOUT OF ADDITIONAL ANNUITY

Actuarial cost of sick leave as salary credit	$	47,717,321

Funding of Additional Payments

Member Contributions ($21,981,330 x 9.105%) =	$ 2,001,400
Employer Contributions ($21,981,330 x 12.325%) =	2,709,199
TOTAL CONTRIBUTIONS	$ 4,710,599
DEFICIT:	
Anticipated additional payout	$ 47,717,321
Less: total member and state contributions	4,710,599
Subtotal unfunded debt	$ 43,006,722
Less: current year appropriation	6,036,700
TOTAL UNFUNDED COST OF SICK LEAVE PAYMENTS*	$ 36,970,022

* *This amount will be amortized over a 20-year period per KRS 161.553.*

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