

A large, light blue map of the state of Kentucky is centered on the page. The map shows the boundaries of all 120 counties. The background of the entire page is a dark blue gradient with diagonal lines.

SUMMARY ANNUAL

FINANCIAL REPORT

Prepared by the Accounting, Investment and Communications Divisions

2018

For the Fiscal Year Ended June 30, 2018

Kentucky Retirement Systems
A component unit of the Commonwealth of Kentucky

Kentucky Employees Retirement System (KERS)
County Employees Retirement System (CERS)
State Police Retirement System (SPRS)



Annual Highlights

November 29, 2018

Dear Kentucky Retirement Systems Members, Retirees, Beneficiaries, and Employers:

I am pleased to present the Summary Annual Financial Report (SAFR) of Kentucky Retirement Systems (KRS) for the fiscal year ended June 30, 2018. This report covers the ten (10) plans that form KRS: the Kentucky Employees Retirement System (KERS Hazardous and Non-Hazardous), the County Employees Retirement System (CERS Hazardous and Non-Hazardous), and the State Police Retirement System (SPRS) for both pensions and retiree healthcare. These ten plans include more than 379,000 members representing firefighters, police officers, bus drivers, janitorial staff at local schools, and many who work directly for Kentucky state government and/or Quasi agencies.

We present this information in summary form to assist the Board of Trustees, members, state executive and legislative branch officials, and the general public in understanding KRS' financial and actuarial status.

Fiscal 2018 was an eventful and improved year for KRS. Among other things, we:

- » Had several bills pass the 2018 General Assembly and become law that were significant for KRS;
- » Benefited from improved funding;
- » Improved our Board and KRS' governance;
- » Enhanced our technology;
- » Produced favorable investment returns; and
- » Managed a 17.5% increase in retirements. Total benefit payments for the year exceeded \$2 billion.

Legislation

The 2018 General Assembly produced several pieces of significant KRS-related legislation. Specifically, some of the bills that passed made changes regarding death in the line of duty benefits; established the KERS and SPRS plans' actuarially determined contribution rates for the next two years; froze the employer contribution rate for the Quasi State Agencies at 49.47% for one year (in FY 2020 the rate will increase to the same 83.43% rate as other KERS Non-Hazardous employers currently pay); and provided a phase-in of higher contribution rates for the CERS employers.

Senate Bill 151, the pension reform bill, also passed this Session but the Attorney General of Kentucky filed a suit barring its implementation.

Funding

The funded ratios increased modestly in three of the five pension plans, and meaningfully in all five insurance plans. The two exceptions were the KERS Non-Hazardous and CERS Non-Hazardous pension funds. The KERS Non-Hazardous funded ratio declined from 13.6% as of June 30, 2017 to 12.9% as of June 30, 2018, while the CERS Non-Hazardous funded ratio declined slightly from 52.8% as of June 30, 2017 to 52.7% as of June 30, 2018.

Funding for the five Retiree Health Insurance plans improved dramatically, with increases in funded statuses averaging 8.5%. With over \$5 billion in assets and nearly \$8 billion in liabilities, these insurance plans are a meaningful part of the KRS responsibility to provide members with their benefits.

Barring any major decline in asset values, the funded status for the KERS and SPRS pension plans and all of the insurance funds are expected to go up in Fiscal 2019 as a result of the higher contribution rates. The improvement in the CERS pension plans will be less certain until the higher contribution rates are fully enacted.

Governance

The KRS Board of Trustees also took several steps this past year to strengthen KRS' governance. Among other actions, the Board increased the size of our Investment Committee from five to nine per the requirements of Senate Bill 2 (SB 2, 2017 Regular Session) and formed a seven-member Actuarial Subcommittee of the Investment Committee; re-wrote the Board Bylaws; and established a new Trustee Education Policy and education compliance reporting system.

Technology

KRS continued to invest in applications and infrastructure to improve member services and increase staff productivity. FY 2018 accomplishments included the successful implementation of software modifications to administer pension spiking statutory changes; the increased use of business intelligence software to facilitate reporting and resolve employer reporting errors; the expansion of all software monitoring applications; and improved

internal staff awareness of information security threats. We also successfully tested our Disaster Recovery functionality and replication abilities.

Investments

Investment returns were favorable again this fiscal year, with each plan's returns exceeding its interest rate assumption. In addition, four out of five pension and four out of five insurance plans' returns exceeded their market benchmarks. The Board also adjusted our target asset allocations to make the assets less susceptible to market declines. Please refer to the Comprehensive Annual Financial Report for detailed information about our investment returns.

Looking Forward

Greatly improved funding (contribution rates are up nearly 70% for KERS Non-Hazardous and SPRS) and about 50% for the other three pension plans after a four year phase-in will greatly strengthen the financial health of all of the plans. Projections show that it will take upwards of 25 years or more before all of our funds are fully funded. But, fiscal year 2019 should prove to be the year that all of the pension funds finally begin to improve financially, provided the present level of funding continues and barring a major (i.e. 20% or more) stock market decline.

The insurance plans should also continue their positive trend which began in FY 2006.



David Eager
Executive Director

2018 Board of Trustees

as of November 29, 2018

David L. Harris

Chair

Governor Appointee

Term ends 6/17/22

Keith Percy

Vice Chair

Elected by SPRS

Term ends 3/31/19

GOVERNOR APPOINTED MEMBERS:

W. Joe Brothers

Term ends 7/1/21

John E. Chilton

Term ends 6/17/22

William S. Cook

*Term ends 6/17/19**

Kelly Downard

*Term ends 6/17/19**

John R. Farris

*Term ends 6/17/19**

J.T. Fulkerson

Term ends 7/1/21

David M. Gallagher

Term ends 7/1/21

Matthew Monteiro

*Term ends 6/17/19**

Neil P. Ramsey

*Term ends 6/17/18**

Thomas B. Stephens

*Personnel Secretary
Ex-Officio*

** Term continues until replaced*

ELECTED MEMBERS:

Campbell Connell

Elected by KERS

Term ends 3/31/22

Sherry Lynn Kremer

Elected by KERS

Term ends 3/31/22

Betty Pendergrass

Elected by CERS

Term ends 3/31/21

Jerry W. Powell

Elected by CERS

Term ends 3/31/21

David Rich

Elected by CERS

Term ends 10/31/21

2019 SCHEDULES BOARD MEETINGS

Regular Meetings

February 21

May 16

September 12

November 14

December 5

Annual Meeting

April 18

COMMITTEE MEETINGS

AUDIT

February 7

May 2

August 22

November 7

INVESTMENT

February 5

May 7

August 27

November 6

RETIREE HEALTH PLAN

February 12

May 14

September 5

November 12

ADMINISTRATIVE & DISABILITY APPEALS

Check website

for dates

and times.

**Dates subject to change. Please visit our website for updates. Annual Meeting, Regular Meetings, and Audit Committee begin at 10 am Eastern; all other Committee Meetings begin at 9 am Eastern unless otherwise noted.*

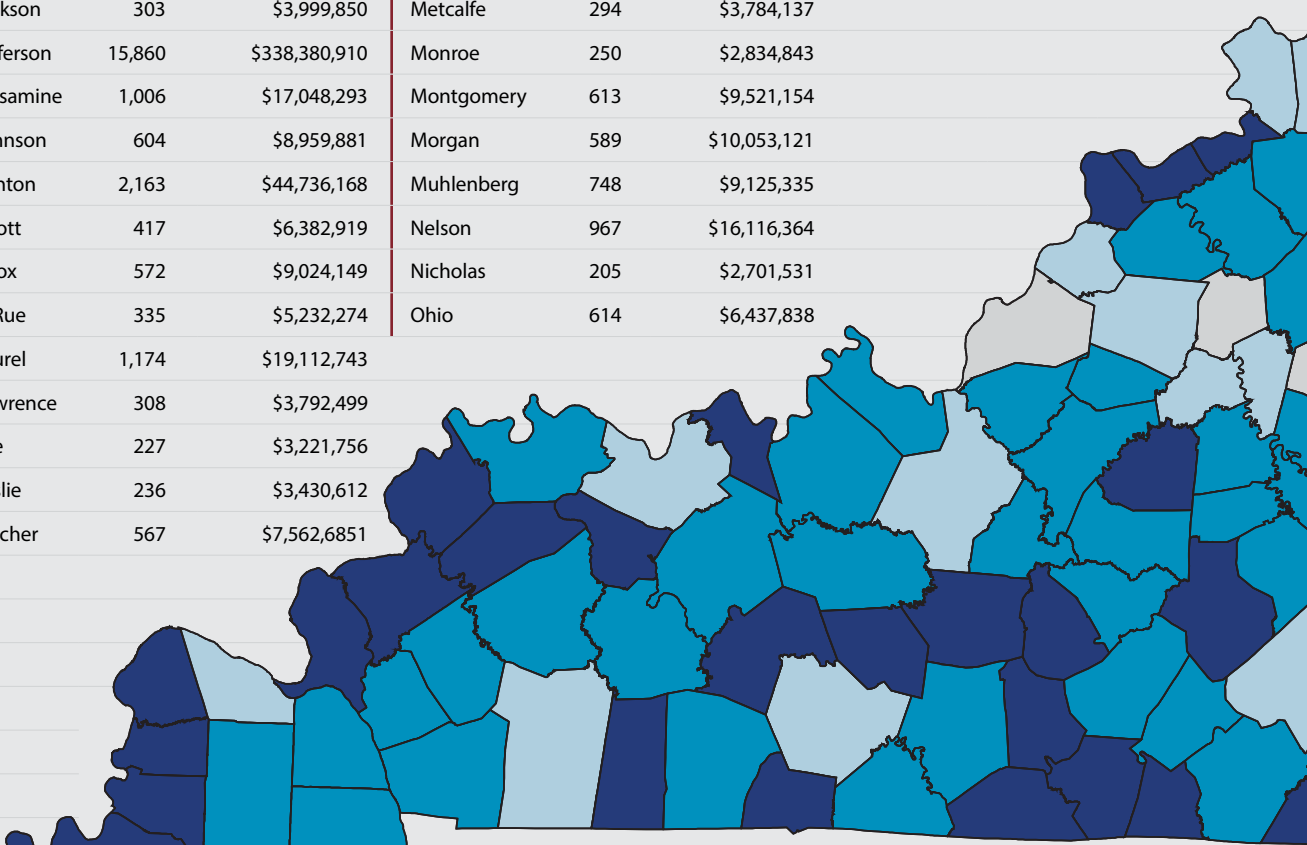
FINDING OUR COMPREHENSIVE ANNUAL REPORT

To view the Comprehensive Annual Financial Report (CAFR) in its entirety, please visit us online.

1. Go to **KYRET.KY.GOV**
2. Select **PUBLICATIONS AND FORMS**
3. Select **COMPREHENSIVE ANNUAL FINANCIAL REPORTS**
4. Click on **2018 CAFR**

2018 Total Fiscal Year KRS Pension Benefits Paid by County

| County | Payees | Total | County | Payees | Total | County | Payees | Total | County | Payees | Total |
|--------------|--------|---------------|-----------|--------|---------------|------------|--------|--------------|------------|--------|--------------|
| Adair | 462 | \$7,449,889 | Fulton | 166 | \$2,164,135 | Lewis | 310 | \$3,727,447 | Oldham | 1,246 | \$25,684,018 |
| Allen | 394 | \$5,200,626 | Gallatin | 108 | \$1,872,994 | Lincoln | 640 | \$7,951,228 | Owen | 515 | \$11,716,512 |
| Anderson | 1,322 | \$32,840,147 | Garrard | 433 | \$6,287,475 | Livingston | 243 | \$4,123,938 | Owsley | 205 | \$3,033,893 |
| Ballard | 229 | \$3,107,680 | Grant | 556 | \$10,128,969 | Logan | 580 | \$7,983,274 | Pendleton | 338 | \$5,512,127 |
| Barren | 997 | \$15,508,389 | Graves | 827 | \$12,460,068 | Lyon | 344 | \$6,477,082 | Perry | 743 | \$10,873,665 |
| Bath | 357 | \$5,323,067 | Grayson | 690 | \$10,357,850 | Madison | 2,233 | \$36,881,757 | Pike | 1,196 | \$17,400,119 |
| Bell | 641 | \$10,010,261 | Green | 273 | \$3,710,635 | Magoffin | 328 | \$4,619,282 | Powell | 331 | \$4,271,386 |
| Boone | 1,665 | \$33,492,701 | Greenup | 617 | \$8,235,626 | Marion | 520 | \$7,096,484 | Pulaski | 2,126 | \$35,481,447 |
| Bourbon | 523 | \$8,592,168 | Hancock | 220 | \$2,727,382 | Marshall | 844 | \$12,259,504 | Robertson | 67 | \$1,049,939 |
| Boyd | 1,013 | \$16,478,032 | Hardin | 2,041 | \$33,450,921 | Martin | 261 | \$2,802,998 | Rockcastle | 375 | \$4,963,320 |
| Boyle | 844 | \$14,720,633 | Harlan | 606 | \$9,441,452 | Mason | 393 | \$6,368,023 | Rowan | 831 | \$14,070,484 |
| Bracken | 216 | \$2,710,239 | Harrison | 444 | \$6,577,160 | McCracken | 1,506 | \$27,017,840 | Russell | 544 | \$8,203,026 |
| Breathitt | 468 | \$7,116,755 | Hart | 295 | \$4,303,266 | McCreary | 393 | \$3,931,857 | Scott | 1,175 | \$23,922,577 |
| Breckinridge | 437 | \$6,272,755 | Henderson | 1,010 | \$16,682,005 | McLean | 295 | \$4,273,372 | Shelby | 1,607 | \$39,755,858 |
| Bullitt | 1,440 | \$25,594,316 | Henry | 897 | \$19,761,701 | Meade | 426 | \$5,862,580 | Simpson | 267 | \$3,023,742 |
| Butler | 309 | \$4,202,494 | Hickman | 91 | \$1,711,184 | Menifee | 205 | \$2,807,645 | Spencer | 450 | \$9,672,121 |
| Caldwell | 506 | \$7,586,347 | Hopkins | 1,187 | \$18,108,152 | Mercer | 729 | \$12,944,716 | Taylor | 600 | \$8,560,151 |
| Calloway | 1,028 | \$14,267,469 | Jackson | 303 | \$3,999,850 | Metcalfe | 294 | \$3,784,137 | | | |
| Campbell | 1,464 | \$26,934,689 | Jefferson | 15,860 | \$338,380,910 | Monroe | 250 | \$2,834,843 | | | |
| Carlisle | 112 | \$1,522,938 | Jessamine | 1,006 | \$17,048,293 | Montgomery | 613 | \$9,521,154 | | | |
| Carroll | 304 | \$4,745,742 | Johnson | 604 | \$8,959,881 | Morgan | 589 | \$10,053,121 | | | |
| Carter | 764 | \$9,779,908 | Kenton | 2,163 | \$44,736,168 | Muhlenberg | 748 | \$9,125,335 | | | |
| Casey | 345 | \$4,386,774 | Knott | 417 | \$6,382,919 | Nelson | 967 | \$16,116,364 | | | |
| Christian | 1,492 | \$25,544,533 | Knox | 572 | \$9,024,149 | Nicholas | 205 | \$2,701,531 | | | |
| Clark | 783 | \$13,160,609 | LaRue | 335 | \$5,232,274 | Ohio | 614 | \$6,437,838 | | | |
| Clay | 567 | \$8,093,547 | Laurel | 1,174 | \$19,112,743 | | | | | | |
| Clinton | 240 | \$3,059,773 | Lawrence | 308 | \$3,792,499 | | | | | | |
| Crittenden | 200 | \$2,606,436 | Lee | 227 | \$3,221,756 | | | | | | |
| Cumberland | 179 | \$2,609,053 | Leslie | 236 | \$3,430,612 | | | | | | |
| Daviess | 2,502 | \$43,628,048 | Letcher | 567 | \$7,562,6851 | | | | | | |
| Edmonson | 222 | \$3,054,788 | | | | | | | | | |
| Elliott | 171 | \$2,450,620 | | | | | | | | | |
| Estill | 375 | \$5,176,148 | | | | | | | | | |
| Fayette | 5,293 | \$113,602,031 | | | | | | | | | |
| Fleming | 441 | \$7,521,043 | | | | | | | | | |
| Floyd | 844 | \$12,961,273 | | | | | | | | | |
| Franklin | 6,297 | \$194,114,984 | | | | | | | | | |



NOTE: Members receiving payments from multiple accounts are represented in the Payments by County table as one payee. In previous years each account was represented separately.

FISCAL YEAR 2018 FAST FACTS

Retiree Healthcare Planholders
(covered lives):
93,989

Member Office Visits:
11,198

New Retirements:
8,446

Benefit Estimates:
16,006

Service Purchase Estimates:
8,054

Disability Applications:
627

Call Center Inbound Calls:
299,827

Refunds Processed:
5,104

Account Audits:
22,705

Facebook Likes:
15,229

Website Pageviews:
6,075,609

ECONOMIC IMPACT FOR KENTUCKY

Pension benefits paid to retirees and beneficiaries of Kentucky Retirement Systems have a wide ranging impact on the state's economic health. In fiscal year 2018, KRS saw a 17.5% increase in retirements and paid over **\$2 Billion** in benefit payments. The majority, 93.73%, of these payments are issued to Kentucky residents. Each county in the Commonwealth receives at least \$1 million annually from KRS which provides a stabilizing element for all local economies.

Total Fiscal Year Retirement Benefit Payments

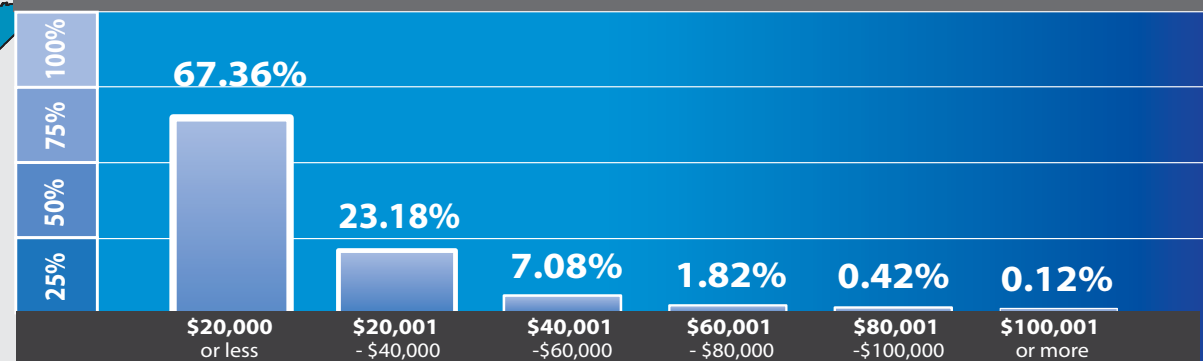
| | Payees | % | Payments |
|--------------------|----------------|----------------|------------------------|
| Kentucky | 104,268 | 93.73% | \$1,914,670,658 |
| Out of State | 7,786 | 6.27% | \$128,003,036 |
| Grand Total | 112,054 | 100.00% | \$2,042,673,694 |

** This table represents all payees receiving a monthly payment during the fiscal year.*

MEMBERSHIP - Active and Retired

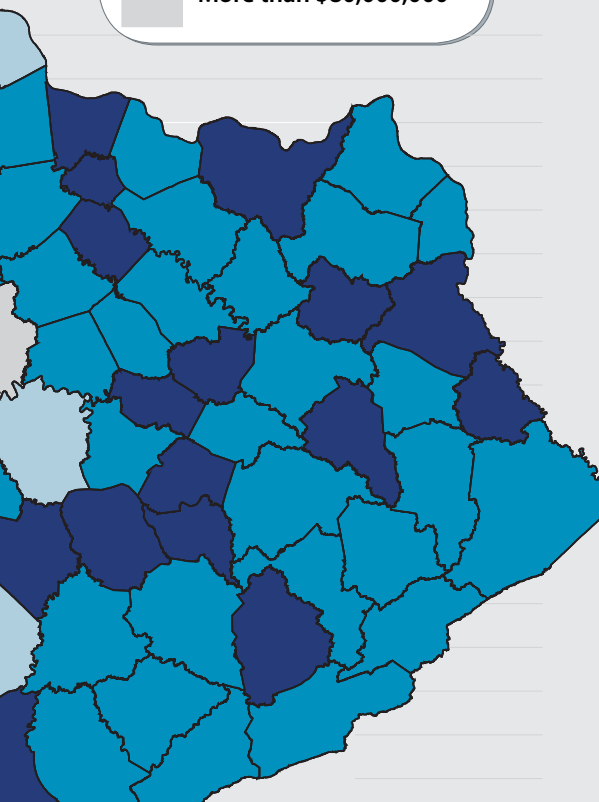
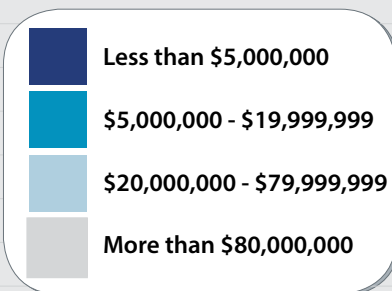
| | ACTIVE MEMBERSHIP | | RETIRED MEMBERSHIP | |
|--------------------|-------------------|-----------------------|--------------------|--------------------------------|
| | Average Age | Average Annual Salary | Average Age | Average Annual Benefit Payment |
| KERS Non-Hazardous | 45.2 | \$41,876 | 69.0 | \$21,587 |
| KERS Hazardous | 39.8 | \$40,268 | 64.5 | \$15,467 |
| CERS Non-Hazardous | 47.7 | \$30,150 | 70.3 | \$11,739 |
| CERS Hazardous | 38.5 | \$57,607 | 61.8 | \$27,771 |
| SPRS | 37.3 | \$55,088 | 62.8 | \$39,686 |

RETIREES ANNUAL BENEFIT RECEIVED



Note: 0.02% difference is due to rounding.

| County | Payees | Total |
|------------|--------|--------------|
| Todd | 250 | \$3,370,725 |
| Trigg | 499 | \$7,914,916 |
| Trimble | 258 | \$3,862,495 |
| Union | 346 | \$3,882,159 |
| Warren | 2,656 | \$46,603,933 |
| Washington | 311 | \$4,868,012 |
| Wayne | 506 | \$7,201,731 |
| Webster | 336 | \$4,337,558 |
| Whitley | 995 | \$14,257,539 |
| Wolfe | 308 | \$5,039,314 |
| Woodford | 978 | \$24,141,926 |



BENEFIT TIERS

KRS currently administers three different pension benefit tiers within our defined benefit plans.



Members participating before September 1, 2008



Members participating on, or after, September 1, 2008 through December 31, 2013



Members participating on, or after, January 1, 2014

Membership Statistics - by Tiers

| | Active | Inactive | Retired | Total |
|---------------------------|----------------|----------------|----------------|----------------|
| KERS Non-Hazardous | | | | |
| Tier 1 | 18,800 | 32,565 | 42,092 | 93,457 |
| Tier 2 | 6,821 | 8,457 | 83 | 15,361 |
| Tier 3 | 9,224 | 4,746 | 0 | 13,970 |
| Total | 34,845 | 45,768 | 42,175 | 122,788 |
| KERS Hazardous | | | | |
| Tier 1 | 1,463 | 1,870 | 2,996 | 6,329 |
| Tier 2 | 847 | 1,287 | 14 | 2,148 |
| Tier 3 | 1,653 | 1,559 | 0 | 3,212 |
| Total | 3,963 | 4,716 | 3,010 | 11,689 |
| CERS Non-Hazardous | | | | |
| Tier 1 | 37,920 | 52,136 | 56,384 | 146,440 |
| Tier 2 | 16,712 | 16,950 | 245 | 33,907 |
| Tier 3 | 29,803 | 12,522 | 0 | 42,325 |
| Total | 84,435 | 81,608 | 56,629 | 222,672 |
| CERS Hazardous | | | | |
| Tier 1 | 4,843 | 1,529 | 7,637 | 14,009 |
| Tier 2 | 2,004 | 533 | 9 | 2,546 |
| Tier 3 | 2,438 | 519 | 1 | 2,958 |
| Total | 9,285 | 2,581 | 7,647 | 19,513 |
| SPRS | | | | |
| Tier 1 | 521 | 174 | 1,444 | 2,139 |
| Tier 2 | 205 | 70 | 1 | 276 |
| Tier 3 | 165 | 46 | 0 | 211 |
| Total | 891 | 290 | 1,445 | 2,626 |
| KRS TOTALS | | | | |
| Tier 1 | 63,547 | 88,274 | 110,553 | 262,374 |
| Tier 2 | 26,589 | 27,297 | 352 | 54,238 |
| Tier 3 | 43,283 | 19,392 | 1 | 62,676 |
| Total | 133,419 | 134,963 | 110,906 | 379,288 |

SYSTEMS

KERS

This system consists of two plans - **Non-Hazardous and Hazardous**. Each plan is a cost-sharing, multiple-employer defined benefit pension plan that covers all regular full-time members employed by any state department, board, or agency directed by Executive Order of the Governor to participate in KERS.

CERS

This system consists of two plans - **Non-Hazardous and Hazardous**. Each plan is a cost-sharing, multiple-employer defined benefit pension plan that covers all regular full-time members employed by each participating county, city, and school board, and any additional eligible local agencies participating in CERS.

SPRS

This system is a single-employer defined benefit pension plan that covers all full-time state troopers employed by the Kentucky State Police.

HOW WE DIFFER FROM OTHER PUBLIC RETIREMENT SYSTEMS

Many other public retirement systems have only one pension plan and do not provide insurance plans. KRS administers both pension and insurance plans for our members. We manage three Systems: two are split into Hazardous and Non-Hazardous plans.

We maintain three different pension benefit tiers within our defined benefit plans. Each tier resulted from legislation enacted by the Kentucky General Assembly.

Medical insurance coverage is provided based on the member's initial participation date and length of service. Members receive either a percentage of costs or dollar amount for insurance coverage.

Medical Insurance Coverage - Non-Medicare and Medicare plans

Participation prior to 7/01/2003

House Bill 290 - Participation 7/01/2003 - 8/31/2008

House Bill 1 - Participation on or after 9/01/2008

HOW MEMBERS' BENEFITS ARE FUNDED

Benefits are funded from three sources.

1 - INVESTMENTS

The Systems' assets are invested to provide for member benefits. Each System has its own assets available to pay benefits. KRS follows a policy of thoughtfully growing our asset base while protecting against undue risk and losses in any particular investment area.

2 - EMPLOYEE CONTRIBUTIONS

The contribution rate is set by State statute. Members' contributions are a percent of their creditable compensation:



Tier 1 Members
5% Non-Hazardous
8% Hazardous



Tier 2 and 3 Members
6% Non-Hazardous
9% Hazardous

3 - EMPLOYER CONTRIBUTIONS

KRS' plan funding is based on an employer contribution rate (%) applied to the reported active employee payroll. This amount is paid by each employer (agency) participating in KRS. The recommended employer contribution rates are determined by the annual actuarial valuation.

The rates consist of the following components:

- » Average normal cost of the benefit tiers including administrative expenses. The cost of the prospective benefit tiers have continued to decline through benefit changes since 2008.
- » Payments of any unfunded liabilities. The largest percentage of the employer contribution rate is due to the accumulated unfunded liabilities.

Recommended - KRS' employer contribution rates have increased over the past ten years due to a number of factors:

- » Lower number of active members = lower employer contribution amounts.
- » More retirees = no contributions.
- » Changes in economic assumptions (lower assumed investment returns, inflation, and payroll growth). The impact of lowering these assumptions increases the statutory contribution rates to improve incoming cash flows. These higher inflows help pay benefits and reduce the need to redeem investment assets.
- » Investment performance during recessionary periods.
- » Differences between the *recommended* contribution rates and the actual statutory contribution rates. If the actual contribution rates are lower, unfunded liabilities increase.

Actual - Actual employer contribution rates are set in the Kentucky General Assembly biennial budget. For fiscal years 2019 and 2020, the KERS and SPRS rates adopted the 2017 actuarially recommended contribution rates for state agencies, but set a 49.47% rate for Quasi agencies. For the CERS plans, House Bill 362 set the FY 2019 rates based on the recommended 2016 actuarial valuation rates and capped increases at 12% annually until the full recommended actuarial contribution rates are reached.

Employer Normal Cost Rates¹ by Tier and Unfunded Liability Costs

(Based on June 30, 2018 Actuarial Valuations by Plan)

| | KERS Non-Hazardous | KERS Hazardous | CERS Non-Hazardous | CERS Hazardous | SPRS |
|--|-----------------------|-------------------|-----------------------|-------------------|----------------|
| NORMAL COST RATES¹ - PENSION (Employer's cost for an employee's retirement benefit) | | | | | |
| Tier 1 Cost Before 7/03 | 9.28% | 12.96% | 7.15% | 8.35% | 18.40% |
| Tier 1 Cost After 7/03 | 9.22% | 12.95% | 6.69% | 8.61% | 18.45% |
| Tier 2 Cost | 6.16% | 8.26% | 4.10% | 3.99% | 12.50% |
| Tier 3 Cost | 2.50% | 3.75% | 1.56% | 1.38% | 5.60% |
| AVERAGE NORMAL COST² | 7.98% | 9.24% | 5.80% | 6.35% | 15.81% |
| NORMAL COST RATES¹ - INSURANCE (Employer's cost for an employee's insurance benefit) | | | | | |
| Tier 1 Cost Before 7/03 | 4.26% | 12.92% | 4.89% | 8.93% | 14.81% |
| Tier 1 Cost After 7/03 | 2.35% | 4.76% | 3.10% | 2.99% | 4.22% |
| Tier 2 Cost | 0.59% | 2.39% | 1.16% | 1.22% | 2.14% |
| Tier 3 Cost | 0.55% | 2.38% | 1.22% | 1.37% | 2.17% |
| AVERAGE NORMAL COST² | 2.48% | 5.22% | 2.89% | 4.40% | 8.07% |
| Total Pension & Insurance | 10.46% | 14.46% | 8.69% | 10.75% | 23.88% |
| UNFUNDED LIABILITY COST % (Employer's cost for the unfunded liability) | | | | | |
| Pension | 66.56% | 25.18% | 16.72% | 30.63% | 104.73% |
| Insurance | 8.17% | -6.09% | 1.87% | 5.12% | 11.43% |
| Total Unfunded Liability Cost | 74.73% | 19.09% | 18.59% | 35.75% | 116.16% |

¹ Normal Cost Rate is the cost of an employee's retirement benefit to the employer net of employee contributions.

² Average Normal Cost Rate is calculated by averaging the actuarially recommended employer contribution rates for all Tiers + administrative expenses.

2018 Financial REPORT

This is an overview of the Pension and Insurance Funds' financial activities for the fiscal year ended June 30, 2018. Please read it in conjunction with the financial section, which begins on page 16 in the CAFR. Find a full version of the CAFR at <https://kyret.ky.gov/Publications/Pages/Comprehensive-Annual-Financial-Reports.aspx> under Comprehensive Annual Financial Report.

2018 Financial Highlights

Fiscal year 2018 financial performance for the Pension and Insurance plans improved from 2017. Net position increased from \$16.7 billion to \$17.6 billion. The 5% improvement was primarily attributable to positive investment returns, higher employer contributions, and General Fund appropriations of \$87.6 million. Additional details are provided below and further detailed in the 2018 CAFR.

Pension

The Total Pension Fiduciary Net Position across the five plans was \$11.9 billion at the beginning of the fiscal year and increased by 4% to \$12.4 billion at June 30, 2018. The \$0.5 billion increase was due to the improvement in the fair value of investments, increased contributions and appropriations, and partially offset by higher retiree payment outflows.

Insurance

The combined Fiduciary Net Position of the five Insurance plans administered by KRS increased by \$381.3 million during fiscal year 2018. Total combined net position for the fiscal year was \$5.2 billion. The net position increase was driven by improved investment performance and higher employer contributions.

Investments

Fiscal year 2018 investment performance was positive, outperforming the benchmarks and the assumed rate of return. The KRS Pension Funds earned a net return of 8.57% (versus the 7.91% benchmark). The KRS Insurance Fund earned a net return of 9.05%, also higher than the benchmark. Although the 2018 Pension and Insurance Funds' investment returns were lower when compared to 2017 (13.47% and 13.72%), all of the plans except the KERS Non-Hazardous Pension plan increased net position at fiscal year end.

Cash Flows

Pension: Cash flows for the KERS and SPRS plans began improving during fiscal year 2017 due to General Fund appropriations and realized investment gains. In fiscal year 2018, the KERS plans and SPRS received additional General Fund appropriations of \$87.6 million. To sustain cash flows and replace General Fund appropriations, employer contribution rates increased across all plans for fiscal year 2019 (beginning July 1, 2018) except KERS Non-Hazardous Quasi agencies.

Insurance: Cash flows for the five plans have continued to stabilize over the last five years with increased employer contribution rates. The plans have also benefited from a benefit formula change starting in 2008, lower expenses, and favorable claims experience.

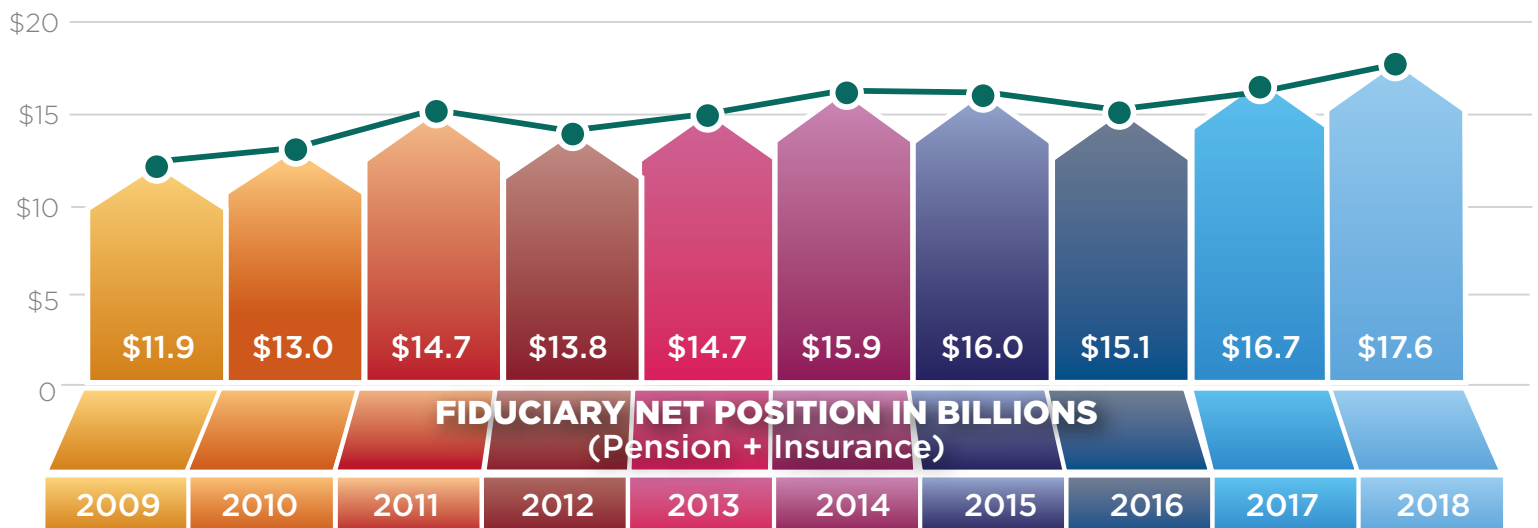


Table 1 - Assets and Liabilities

This table shows the assets and liabilities for the years ending June 30, 2018, 2017, and 2016. The Fiduciary Net Position represents the funds KRS has accumulated thus far to pay pension benefits for retirees, active and inactive members, and health care premiums for current and future retirees.

Table 2 - Income and Expenses

This table shows the annual additions (income) and deductions (expenses) for the plans. Investment earnings and contributions typically make up the majority of the income. Investment returns were positive in 2018 and 2017, but negative in 2016 for both Pension and Insurance plans. The deductions largely represent pension benefits, health insurance expenses, administrative costs, and refunds of contributions to inactive members.

Table 1. Fiduciary Net Position (\$ in Millions)

| Assets | Pension Funds | | | Insurance Fund | | | Total | | |
|-------------------------------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| | 2018 | 2017 | 2016 | 2018 | 2017 | 2016 | 2018 | 2017 | 2016 |
| Cash & Investments | \$12,859 | \$12,169 | \$11,411 | \$5,367 | \$4,936 | \$4,401 | \$18,227 | \$17,105 | \$15,812 |
| Receivables | 349 | 348 | 442 | 149 | 104 | 171 | 498 | 451 | 613 |
| Equip/Int Assets, net of dep/amort. | 4 | 6 | 8 | - | - | - | 4 | 6 | 8 |
| Total Assets | 13,213 | 12,523 | 11,861 | 5,516 | 5,040 | 4,572 | 18,729 | 17,563 | 16,433 |
| Total Liabilities | (797) | (601) | (983) | (351) | (256) | (341) | (1,148) | (857) | (1,324) |
| Fiduciary Net Position | \$12,416 | \$11,922 | \$10,878 | \$5,165 | \$4,784 | \$4,231 | \$17,581 | \$16,706 | \$15,109 |

Table 2. Changes in Fiduciary Net Position (\$ in Millions)

| Additions | Pension Funds | | | Insurance Fund | | | Total | | |
|--|----------------|----------------|----------------|----------------|--------------|---------------|----------------|----------------|----------------|
| | 2018 | 2017 | 2016 | 2018 | 2017 | 2016 | 2018 | 2017 | 2016 |
| Member Cont. | \$350 | \$334 | \$307 | \$- | \$- | \$- | \$350 | \$334 | \$307 |
| Employer Cont. | 1,170 | 1,167 | 950 | 322 | 315 | 333 | 1,492 | 1,482 | 1,283 |
| Health Ins. Cont. | 20 | 17 | 15 | - | - | - | 20 | 17 | 15 |
| Pension Spiking Cont. | 8 | 5 | 3 | - | - | - | 8 | 5 | 3 |
| Northern Trust Settlement | - | - | - | - | - | - | 1 | - | - |
| General Fund Appro. | 88 | 98 | - | - | - | - | 88 | 98 | - |
| Employer Cessation Cont. | - | 53 | - | - | 16 | - | - | 69 | - |
| Premiums Ret Re-emp | - | - | - | 10 | 9 | 9 | 10 | 9 | 9 |
| Invest. Inc. (Net)(Loss) | 988 | 1,415 | (76) | 427 | 574 | (5) | 1,415 | 1,989 | (81) |
| Total Additions | \$2,624 | \$3,089 | \$1,199 | \$759 | \$914 | \$338 | \$3,384 | \$4,003 | \$1,536 |
| Deductions: | | | | | | | | | |
| Benefit payments | \$2,062 | \$1,981 | \$1,904 | \$- | \$- | \$- | \$2,062 | \$1,981 | \$1,904 |
| Refunds | 35 | 31 | 31 | - | - | - | 35 | 31 | 31 |
| Admin/Cap. Proj. | 33 | 33 | 33 | 2 | 2 | 2 | 35 | 35 | 34 |
| Healthcare Costs | - | - | - | 376 | 359 | 351 | 376 | 359 | 351 |
| Total Deductions | 2,130 | 2,045 | 1,967 | 378 | 362 | 353 | 2,508 | 2,407 | 2,321 |
| Inc. (Decrease) in Fiduciary Net Position | \$494 | \$1,044 | \$(769) | \$381 | \$553 | \$(16) | \$875 | \$1,597 | \$(784) |

Investment Income (Loss) for Pension Funds

(\$ in Millions)

| Asset | 2018 | 2017 | 2016 |
|--|--------------|----------------|---------------|
| Increase (Decrease) in fair value of investments | \$(142) | \$604 | \$(270) |
| Investment income net of investment expense | 182 | 251 | 137 |
| Gain on sale of investments | 948 | 560 | 57 |
| Net Investment Income (Loss) | \$988 | \$1,415 | \$(76) |

Investment Income (Loss) for Insurance Fund

(\$ in Millions)

| Asset | 2018 | 2017 | 2016 |
|--|--------------|--------------|--------------|
| Increase (Decrease) in fair value of investments | \$26 | \$257 | \$(47) |
| Investment income net of investment expense | 61 | 94 | 49 |
| Gain on sale of investments (Loss) | 341 | 223 | (8) |
| Net Investment Income (Loss) | \$427 | \$574 | \$(5) |

KRS Administrative Expenses

(\$ in Millions)

| | |
|---------------------------|---------------|
| KRS staff = 247 employees | |
| Salaries | \$13.9 |
| Pension & Benefits | 9.8 |
| Contractual Services | 3.2 |
| Communications | 0.7 |
| Rent/Utilities/Misc | 1.5 |
| Technology | 1.9 |
| Healthcare Retiree Fees | 2.1 |
| Depreciation | 1.9 |
| Total | \$35.0 |

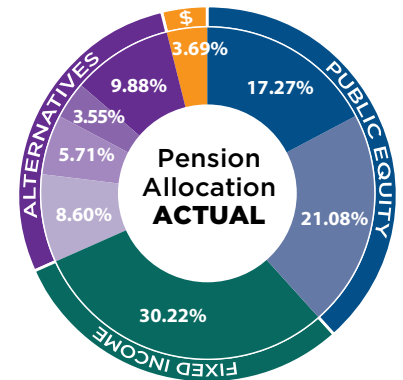
2018 Investment REPORT

This is an overview of the Pension and Insurance Funds' financial activities for the fiscal year ended June 30, 2018. Please read it in conjunction with the investment section, which begins on page 115 in the CAFR. Find a full version of the CAFR at <https://kyret.ky.gov/Publications/Pages/Comprehensive-Annual-Financial-Reports.aspx> under Comprehensive Annual Financial Report.

2018 Pension Results

As of June 30, 2018, the KRS Pension Funds earned net returns of 8.57% and outpaced the benchmark of 7.91%. The Pension Funds' returns also exceeded the actuarial assumed rates of return of 5.25% for KERS Non-Hazardous and SPRS and 6.25% for CERS Non-Hazardous, CERS Hazardous, and KERS Hazardous. All asset classes netted positive returns for fiscal year 2018. Total Public Equity comprised 38.35%

of all of assets in the Pension Funds and produced a total return of 12.43%. U.S. Equity accounted for 17.27% of all assets, and Non-U.S. Equity accounted for 21.08% of all assets; the two asset classes returned 14.52% and 10.86%, respectively. Private Equity and Real Estate also added value with returns of 14.52% and 11.22%, respectively, for the fiscal year.



For Policy charts, please look on page 120 in the CAFR.

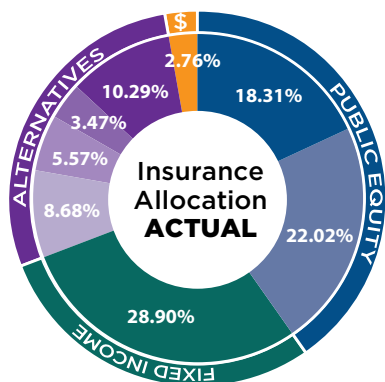
Net Returns By System - Pension Funds (\$ in Millions)

| Plan | Fair Value (\$ in Millions) | % of Total Fair Value | 1 Year (%) | | 3 Years (%) | | 5 Years (%) | | 10 Years (%) | | Inception (%) | |
|--------------------|--------------------------------|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|---------------|-------------|
| | | | KRS | Index | KRS | Index | KRS | Index | KRS | Index | KRS | Index |
| KERS Non-Hazardous | \$2,007 | 16.33% | 7.50 | 7.15 | 6.17 | 6.50 | 7.19 | 7.24 | 5.96 | 6.31 | 9.07 | 9.20 |
| KERS Hazardous | 648 | 5.27% | 8.68 | 8.22 | 7.14 | 6.91 | 7.70 | 7.52 | 6.21 | 6.45 | 9.15 | 9.24 |
| CERS Non-Hazardous | 7,034 | 57.22% | 8.75 | 8.22 | 7.18 | 6.91 | 7.71 | 7.52 | 6.22 | 6.45 | 9.15 | 9.24 |
| CERS Hazardous | 2,346 | 19.09% | 8.77 | 8.22 | 7.21 | 6.90 | 7.73 | 7.52 | 6.23 | 6.45 | 9.15 | 9.24 |
| SPRS | 257 | 2.09% | 7.65 | 7.68 | 6.06 | 6.54 | 7.04 | 7.28 | 5.89 | 6.34 | 9.05 | 9.20 |
| Total | \$12,292 | 100.00% | 8.57 | 7.91 | 7.01 | 6.86 | 7.63 | 7.57 | 6.18 | 6.48 | 9.14 | 9.25 |

Pension Funds - Net Returns By Allocation *Note: Fair values are adjusted for accruals and expenses*

| Structure | Inception | Fair Value (\$ in Millions) | % of Total | 1 Year (%) | | 3 Years (%) | | 5 Years (%) | | 10 Years (%) | | Inception To Date | | External FEES (\$ in Millions) |
|----------------------------------|---------------|--------------------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|----------------------|-------------|--------------------------------------|
| | | | | KRS | Index | KRS | Index | KRS | Index | KRS | Index | KRS | Index | |
| Total Fund | 4/1/84 | \$12,292 | 100.00% | 8.57 | 7.91 | 7.01 | 6.86 | 7.63 | 7.57 | 6.18 | 6.48 | 9.14 | 9.25 | \$97.7 |
| Total Public Equity ¹ | 4/1/84 | 4,714 | 38.35% | 12.43 | 11.34 | 8.65 | 8.21 | 9.60 | 9.41 | 6.77 | 6.44 | 10.60 | 10.42 | 14.6 |
| US Equity | 4/1/84 | 2,123 | 17.27% | 14.52 | 14.78 | 11.08 | 11.58 | 12.66 | 13.29 | 9.97 | 10.34 | 11.36 | 11.39 | 6.5 |
| International ¹ | 7/1/00 | 2,591 | 21.08% | 10.86 | 7.84 | 6.85 | 5.60 | 7.24 | 6.50 | 3.74 | 3.26 | 3.28 | 3.54 | 8.1 |
| Fixed Income | 4/1/84 | 3,715 | 30.22% | 1.41 | 1.17 | 4.22 | 5.08 | 4.21 | 4.40 | 4.90 | 4.79 | 7.50 | 7.32 | 15.0 |
| Real Return | 7/1/11 | 1,057 | 8.60% | 1.96 | 1.23 | 3.49 | 2.40 | 3.01 | 1.72 | - | - | 3.70 | 2.52 | 6.9 |
| Absolute Return | 4/1/10 | 702 | 5.71% | 5.52 | 5.39 | 1.40 | 1.58 | 3.59 | 3.15 | - | - | 4.15 | 3.09 | 13.1 |
| Real Estate | 7/1/84 | 436 | 3.55% | 11.22 | 7.11 | 10.09 | 9.00 | 9.23 | 10.42 | 8.34 | 4.16 | 6.10 | 6.46 | 9.6 |
| Private Equity | 7/1/02 | 1,215 | 9.88% | 14.52 | 14.52 | 10.84 | 10.84 | 12.87 | 12.87 | 8.80 | 13.38 | 11.17 | 11.31 | 35.1 |
| Cash Account ² | 1/1/88 | \$454 | 3.69% | 1.90 | 1.33 | 1.12 | 0.64 | 0.82 | 0.39 | 0.77 | 0.31 | 3.59 | 3.14 | 2.0 |
| | | | | | | | | | | | | Consulting/Other | | \$1.4 |

¹Equities include trade commissions. ²Cash accounts include custodial fees.



2018 Insurance Results

As of June 30, 2018, the KRS Insurance Fund earned a net return of 9.05% compared to the benchmark return of 8.48%. The Insurance Fund achieved rates of return of 7.71% over the five year period and 5.55% over the 10 year period. In fiscal year 2018, the Insurance Fund gained from the same favorable market conditions as the

Pension Funds. Total Public Equity made up 40.33% of all assets in the Insurance Fund and provided value with a total return of 12.26%. U.S. Equity, which accounted for 18.31% of all assets, and Non-U.S. Equity, which accounted for 22.02% of all assets, returned 14.42% and 10.63%, respectively. Private Equity and Real Estate added value with returns of 18.34% and 11.14%, respectively.

For Policy charts, please look on page 121 in the CAFR.

Net Returns By System - Insurance Fund (\$ in Millions)

| Plan | Fair Value (\$ in Millions) | % of Total Fair Value | 1 Year (%) | | 3 Years (%) | | 5 Years (%) | | 10 Years (%) | | Inception (%) | |
|--------------------|-----------------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|---------------|-------------|
| | | | KRS | Index | KRS | Index | KRS | Index | KRS | Index | KRS | Index |
| KERS Non-Hazardous | \$834 | 16.25% | 7.96 | 8.43 | 6.92 | 7.09 | 7.23 | 7.66 | 5.31 | 5.95 | 7.39 | 7.79 |
| KERS Hazardous | 513 | 10.00% | 8.88 | 8.60 | 7.31 | 7.16 | 7.69 | 7.73 | 5.54 | 5.98 | 7.46 | 7.80 |
| CERS Non-Hazardous | 2,333 | 45.45% | 9.21 | 8.60 | 7.46 | 7.18 | 7.79 | 7.76 | 5.59 | 5.99 | 7.48 | 7.80 |
| CERS Hazardous | 1,264 | 24.62% | 9.32 | 8.60 | 7.55 | 7.18 | 7.84 | 7.76 | 5.61 | 5.99 | 7.49 | 7.80 |
| SPRS | 189 | 3.68% | 9.34 | 8.60 | 7.53 | 7.19 | 7.82 | 7.77 | 5.60 | 6.00 | 7.49 | 7.80 |
| Total | \$5,133 | 100.00% | 9.05 | 8.48 | 7.40 | 7.22 | 7.71 | 7.90 | 5.55 | 6.06 | 7.47 | 7.83 |

Insurance Fund - Net Returns By Allocation *Note: Fair values are adjusted for accruals and expenses*

| Structure | Inception | Fair Value (\$ in Millions) | % of Total | 1 Year (%) | | 3 Years (%) | | 5 Years (%) | | 10 Years (%) | | Inception To Date | | External FEES (\$ in Millions) |
|----------------------------------|---------------|-----------------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-------------|-------------------|-------------|--------------------------------|
| | | | | KRS | Index | KRS | Index | KRS | Index | KRS | Index | KRS | Index | |
| Total Fund | 4/1/84 | \$5,133 | 100.00% | 9.05 | 8.48 | 7.40 | 7.22 | 7.71 | 7.90 | 5.55 | 6.06 | 7.47 | 7.83 | \$47.9 |
| Total Public Equity ¹ | 4/1/84 | 2,070 | 40.32% | 12.26 | 11.31 | 8.83 | 8.25 | 9.72 | 9.46 | 6.54 | 6.24 | 8.77 | 8.54 | \$14.6 |
| US Equity | 4/1/84 | 940 | 18.31% | 14.42 | 14.78 | 11.40 | 11.58 | 12.83 | 13.29 | 9.91 | 10.19 | 9.74 | 9.61 | 2.8 |
| International ¹ | 4/1/84 | 1,130 | 22.01% | 10.63 | 7.84 | 6.77 | 5.60 | 7.13 | 6.50 | 3.34 | 2.91 | 3.25 | 2.69 | 3.5 |
| Fixed Income | 7/1/00 | 1,491 | 28.91% | 1.34 | 1.17 | 4.10 | 5.08 | 3.78 | 4.40 | 4.42 | 4.49 | 6.32 | 6.30 | 5.5 |
| Real Return | 4/1/84 | 445 | 8.68% | 1.87 | 1.33 | 3.31 | 2.28 | 2.84 | 1.83 | - | - | 3.42 | 2.60 | 2.9 |
| Absolute Return | 7/1/11 | 286 | 5.57% | 5.54 | 5.39 | 1.41 | 1.58 | 3.59 | 3.15 | - | - | 4.08 | 3.09 | 5.4 |
| Real Estate | 4/1/10 | 172 | 3.47% | 11.14 | 7.11 | 10.44 | 9.00 | 9.23 | 10.42 | - | - | 9.22 | 5.98 | 6.0 |
| Private Equity | 7/1/84 | 528 | 10.29% | 18.34 | 18.34 | 13.85 | 13.85 | 15.59 | 15.59 | 11.02 | 12.80 | 10.26 | 10.73 | 20.1 |
| Cash Account ² | 7/1/02 | \$141 | 2.76% | 1.57 | 1.33 | 0.83 | 0.64 | 0.59 | 0.39 | 0.49 | 0.31 | 2.64 | 2.51 | 1.1 |
| | | | | | | | | | | | | Consulting/Other | | \$0.6 |

¹Equities include trade commissions. ²Cash accounts include custodial fees.

KRS Does NOT “Comingle” Plan Investments

KRS investments by plan (KERS, CERS, SPRS) are NOT “commingled” to support the other systems or to pay benefits. Each fund (Pension and Insurance) consists of five plans, each having its own investment strategy based upon their individual liquidity needs. All plan assets are maintained through separate financial accounts and are reported individually in audited financial statements.

Like many of our pension peers, KRS maintains “unitized funds” with BNY Mellon, KRS’ custodian bank. A unitized fund is similar to a mutual fund you might own for your personal investment portfolio. This is a structure that allows the plans to benefit from investment to buy or sell at economies of scale and to gain diversification while retaining individual asset values for each plan.

2018 Actuarial REPORT

This is an overview of the Pension and Insurance Funds' financial activities for the fiscal year ended June 30, 2018. Please read it in conjunction with the actuarial section, which begins on page 154 in the CAFR. Find a full version of the CAFR at <https://kyret.ky.gov/Publications/Pages/Comprehensive-Annual-Financial-Reports.aspx> under Comprehensive Annual Financial Report.

2018 Actuarial Valuation Results

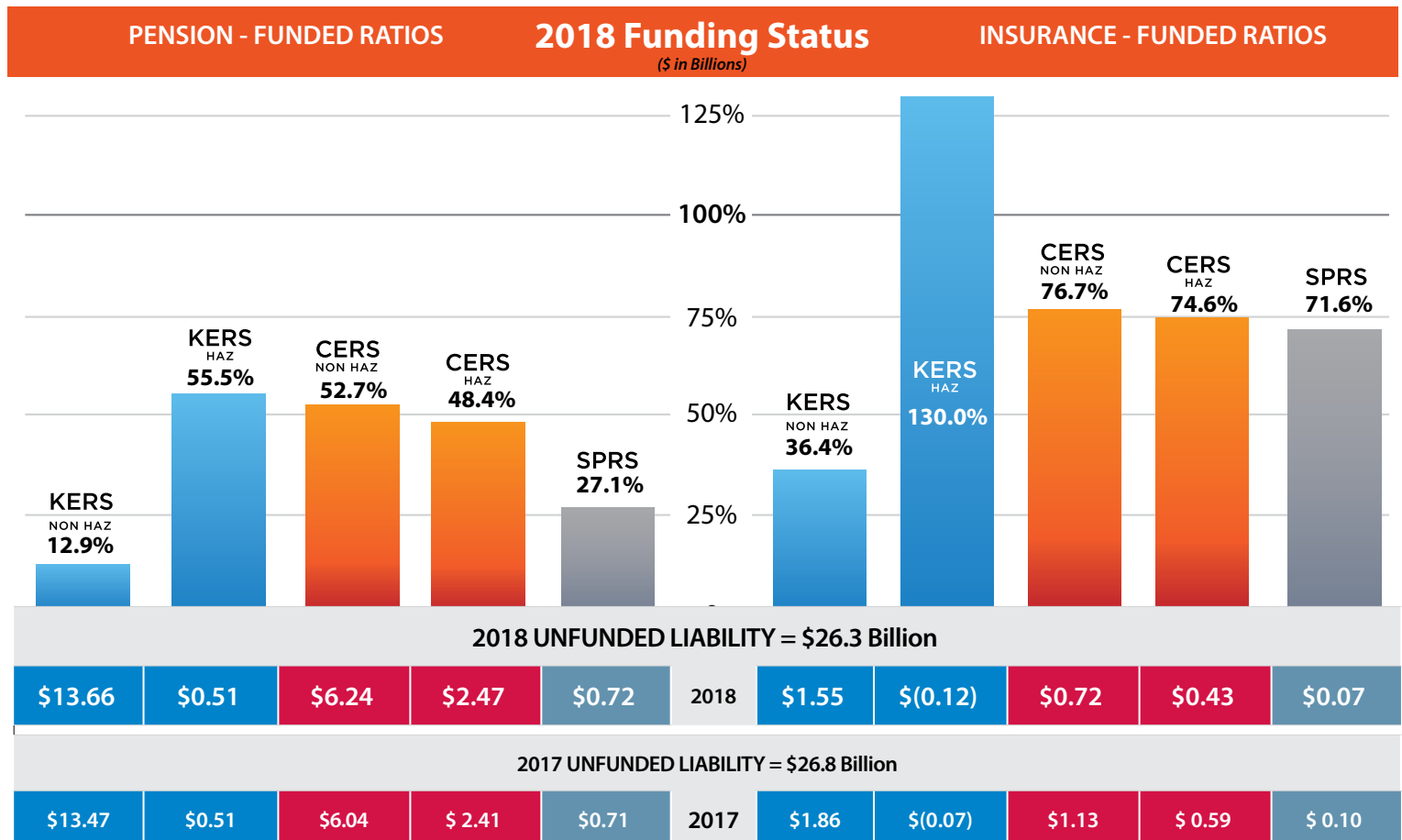
Each year the funding levels of the KRS Pension and Insurance plans are determined by the annual actuarial valuation based on assumptions set by the KRS Board of Trustees for the fiscal year ending June 30 (which were unchanged from fiscal year 2017). In summary, total pension unfunded liabilities increased by \$0.46 billion which was caused by lower payroll and higher retirements. However, all insurance plans showed funded ratio improvement as unfunded liabilities declined by \$0.91 billion. Total KRS unfunded liabilities decreased by \$0.45 billion.

Pension Plans:

Investment returns were 7.4% to 9.3% (returns varied by funds) which improved pension assets by \$279 million. The actuarial unfunded liability for the Pension plans was \$23.60 billion, a slight increase over fiscal year 2017. Most of the change was in the KERS and CERS Non-Hazardous plans due to lower reported active member payroll and increased retirements. The KERS and SPRS Hazardous pension plans were more stable, benefiting from both 2017 and 2018 additional general fund appropriations and membership growth.

Insurance Plans:

The Insurance Plans unfunded actuarial liability as of June 30, 2018, was \$2.70 billion compared to \$3.61 billion in the last fiscal year. Favorable premium experience and asset growth contributed to the improvement. Total KRS Insurance funded ratios were 66.3%. The KERS Non-Hazardous plan had the lowest funded ratio of 36.4%, while the remaining plan ratios ranged from 71.6% to 130.0%.



Summary of Actuarial Valuation Results as of June 30, 2018 (\$ in millions)

| | KERS | | CERS | | SPRS | | TOTAL KRS |
|---|---------------|-----------|---------------|-----------|------|---------|-----------|
| | Non-Hazardous | Hazardous | Non-Hazardous | Hazardous | | | |
| RECOMMENDED CONTRIBUTION RATES | | | | | | | |
| Pension Fund | 74.54% | 34.42% | 22.52% | 36.98% | | 120.54% | |
| Insurance Fund | 10.65% | 0.00% | 4.76% | 9.52% | | 19.50% | |
| Recommended Employer Contribution | 85.19% | 34.42% | 27.28% | 46.50% | | 140.04% | |
| FUNDED STATUS AS OF VALUATION DATE | | | | | | | |
| PENSION FUND | | | | | | | |
| Actuarial Liability | \$15,675 | \$1,152 | \$13,192 | \$4,793 | | \$990 | \$35,801 |
| Actuarial Value of Assets | \$2,019 | \$639 | \$6,950 | \$2,322 | | \$268 | \$12,199 |
| Unfunded Liability on Actuarial Value of Assets | \$13,656 | \$513 | \$6,241 | \$2,471 | | \$721 | \$23,602 |
| Funding Ratio on Actuarial Value of Assets | 12.88% | 55.50% | 52.69% | 48.44% | | 27.11% | 34.07% |
| Market Value of Assets | \$2,004 | \$645 | \$7,019 | \$2,348 | | \$268 | \$12,285 |
| Unfunded Liability on Market Value of Assets | \$13,671 | \$506 | \$6,173 | \$2,444 | | \$722 | \$23,516 |
| Funding Ratio on Market Value of Assets | 12.79% | 56.04% | 53.21% | 49.00% | | 27.04% | 34.31% |
| INSURANCE FUND | | | | | | | |
| Actuarial Liability | \$2,436 | \$393 | \$3,093 | \$1,684 | | \$262 | \$7,868 |
| Actuarial Value of Assets | \$887 | \$511 | \$2,371 | \$1,256 | | \$188 | \$5,214 |
| Unfunded Liability on Actuarial Value of Assets | \$1,548 | (\$118) | \$721 | \$428 | | \$75 | \$2,654 |
| Funding Ratio on Actuarial Value of Assets | 36.42% | 129.98% | 76.68% | 74.60% | | 71.55% | 66.27% |
| Market Value of Assets | \$891 | \$519 | \$2,414 | \$1,281 | | \$191 | \$5,296 |
| Unfunded Liability on Market Value of Assets | \$1,544 | (\$126) | \$678 | \$403 | | \$71 | \$2,571 |
| Funding Ratio on Market Value of Assets | 36.59% | 131.92% | 78.06% | 76.07% | | 72.82% | 67.32% |

Economic Assumptions as of June 30, 2018

| | KERS | | KERS | | CERS | | CERS | | SPRS | | |
|---------------------------------------|---------------|-------|-----------|-------|---------------|-------|-----------|-------|-------|-------|--|
| | Non-Hazardous | | Hazardous | | Non-Hazardous | | Hazardous | | | | |
| | 2018 | 2017 | 2018 | 2017 | 2018 | 2017 | 2018 | 2017 | 2018 | 2017 | |
| Assumed Investment Return - Pension | 5.25% | 5.25% | 6.25% | 6.25% | 6.25% | 6.25% | 6.25% | 6.25% | 5.25% | 5.25% | |
| Assumed Investment Return - Insurance | 6.25% | 6.25% | 6.25% | 6.25% | 6.25% | 6.25% | 6.25% | 6.25% | 6.25% | 6.25% | |
| Inflation Factor | 2.30% | 2.30% | 2.30% | 2.30% | 2.30% | 2.30% | 2.30% | 2.30% | 2.30% | 2.30% | |
| Payroll Growth | 0.00% | 0.00% | 0.00% | 0.00% | 2.00% | 2.00% | 2.00% | 2.00% | 0.00% | 0.00% | |



Kentucky Employees Retirement System was established July 1, 1956, by the state legislature.

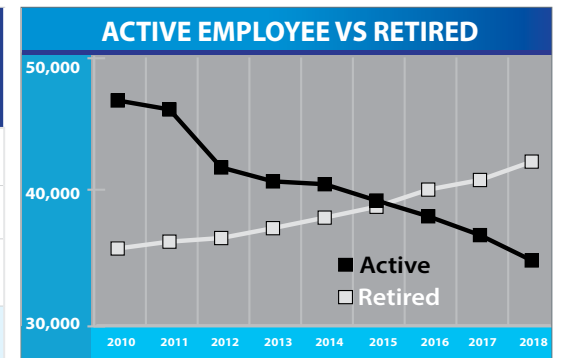
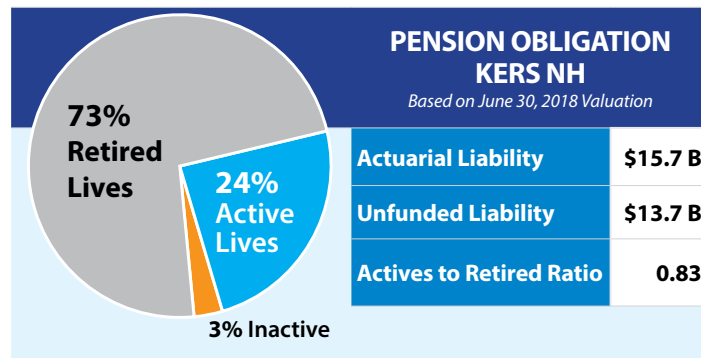
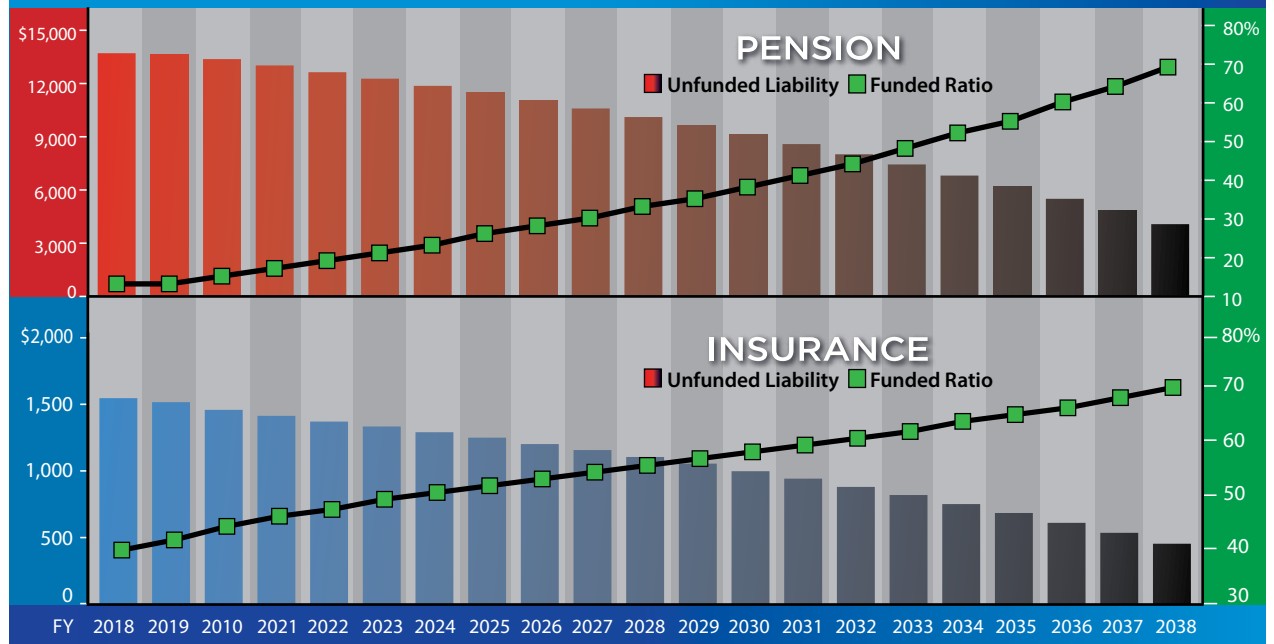
KEY INFORMATION

• KRS actuaries provide 20-year Pension and Insurance projections by plan. Using fiscal year 2018 valuation assumptions and member data, the KERS Non-Hazardous Pension plan has a funded ratio of 12.9%. Based on current assumptions, the plan would have a 69% funded ratio and an unfunded liability of \$4.0 billion by year 2038. For Insurance, the funded ratio is projected to be 84%. Premium costs have declined and favorable claims experience have helped to stabilize the fund.

• Active employees have continued to decrease over the last 10 years. There are more retirees drawing benefits than active employees paying into the plan (active to retired ratio of 0.83). Active member payroll in 2018 declined by 3.9% compared to 2017. However, higher fiscal year 2019 employer contribution rates will improve cash inflows to cover benefit payments.

• Combined Pension and Insurance Fiduciary Net Plan Position was \$2.9 billion as of June 30, 2018 – a slight improvement over 2017. The increase was due to improved investment returns, higher contributions, and additional General Fund appropriations funding.

20 YEAR FUNDING PROJECTION *Based on June 30, 2018 Actuarial Valuation (\$ in Millions)*

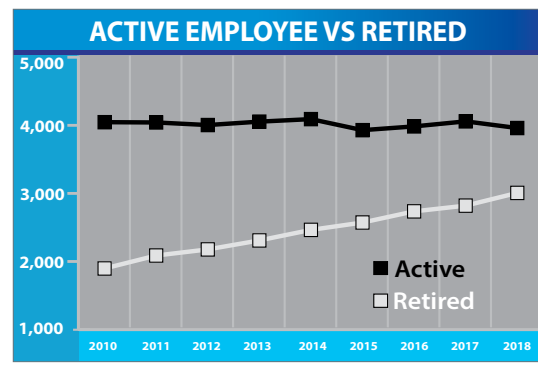
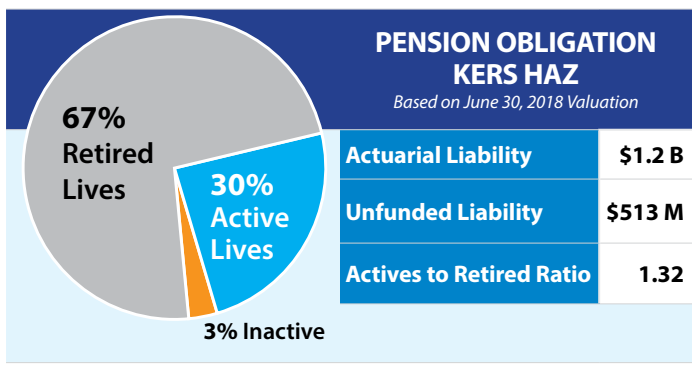
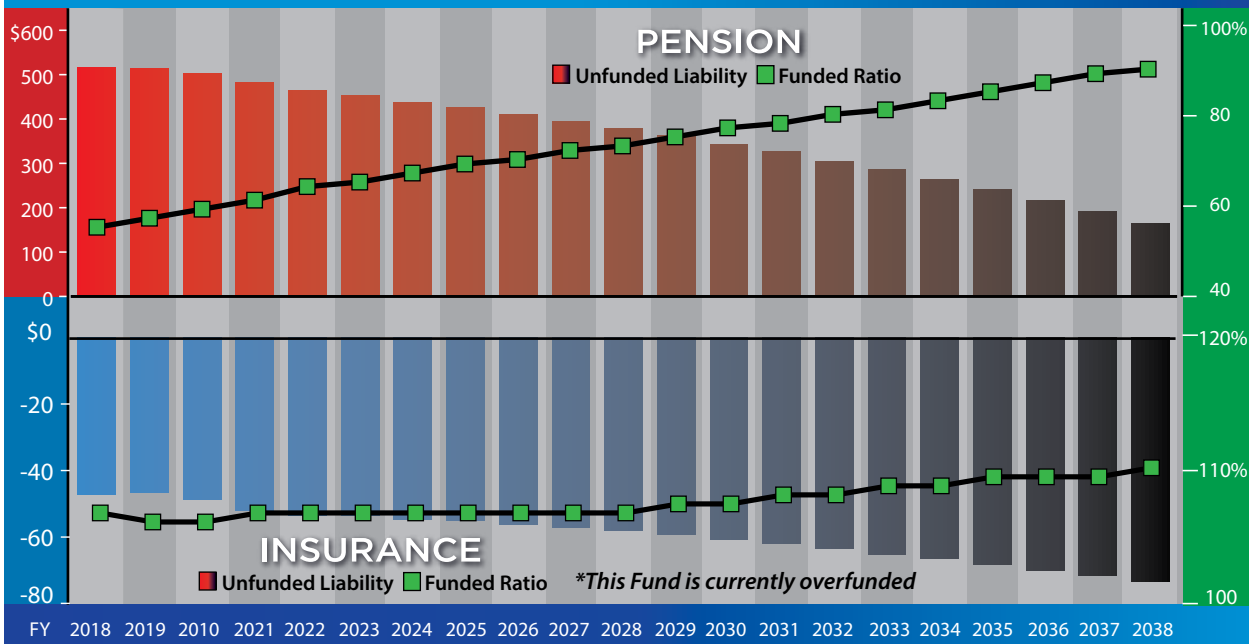


Employer Contribution Rates

| | Pension | | Insurance | | Total | |
|------|-------------|--------|-------------|--------|---------------|----------------|
| | Recommended | Actual | Recommended | Actual | Recommended | Actual |
| 2009 | 16.54% | 5.79% | 12.06% | 4.22% | 28.60% | 10.01% |
| 2010 | 18.96% | 6.65% | 12.33% | 4.96% | 31.29% | 11.61% |
| 2011 | 21.77% | 9.58% | 16.81% | 7.40% | 38.58% | 16.98% |
| 2012 | 24.30% | 11.59% | 16.41% | 8.23% | 40.71% | 19.82% |
| 2013 | 28.03% | 14.86% | 16.52% | 8.75% | 44.55% | 23.61% |
| 2014 | 32.57% | 17.29% | 12.71% | 9.50% | 45.28% | 26.79% |
| 2015 | 30.84% | 30.84% | 7.93% | 7.93% | 38.77% | 38.77% |
| 2016 | 30.84% | 30.84% | 7.93% | 7.93% | 38.77% | 38.77% |
| 2017 | 40.24% | 40.24% | 8.35% | 8.35% | 48.59% | 48.59% |
| 2018 | 41.06% | 41.06% | 8.41% | 8.41% | 49.47% | 49.47% |
| 2019 | 71.03% | 71.03% | 12.40% | 12.40% | 83.43% | 83.43%* |

* Quasi agencies (i.e. health departments, regional mental healths, universities, and certain non-state agencies) maintained the 2018 contribution rate.

20 YEAR FUNDING PROJECTION *Based on June 30, 2018 Actuarial Valuation (\$ in Millions)*



| | Pension | | Insurance | | Total | |
|------|-------------|--------|-------------|--------|---------------|---------------|
| | Recommended | Actual | Recommended | Actual | Recommended | Actual |
| 2009 | 10.84% | 9.79% | 23.94% | 14.56% | 34.78% | 24.35% |
| 2010 | 11.98% | 9.89% | 23.56% | 14.80% | 35.54% | 24.69% |
| 2011 | 14.11% | 10.72% | 20.26% | 15.40% | 34.37% | 26.12% |
| 2012 | 14.11% | 12.33% | 19.73% | 16.65% | 33.84% | 28.98% |
| 2013 | 16.16% | 13.41% | 19.73% | 16.38% | 35.89% | 29.79% |
| 2014 | 17.00% | 14.89% | 11.84% | 17.32% | 28.84% | 32.21% |
| 2015 | 16.37% | 16.37% | 9.97% | 9.97% | 26.34% | 26.34% |
| 2016 | 16.37% | 16.37% | 9.97% | 9.97% | 26.34% | 26.34% |
| 2017 | 21.08% | 21.08% | 2.74% | 2.74% | 23.82% | 23.82% |
| 2018 | 21.44% | 21.44% | 2.26% | 2.26% | 23.70% | 23.70% |
| 2019 | 34.39% | 34.39% | 2.46% | 2.46% | 36.85% | 36.85% |



KEY INFORMATION

- KERS Hazardous participating employers are state agencies and universities.
- KERS Hazardous ended the fiscal year with \$651 million in pension assets; \$513 million for insurance - a combined 7% increase in Fiduciary Net Position from 2017.
- KRS' actuaries provide a 20-year pension and insurance projection view. Using fiscal year 2018 valuation assumptions and member data, the KERS Hazardous Pension plan has a funded ratio of 55%. By 2038, the pension plan would have a funded ratio of 90% and an unfunded liability of \$161 million. The Insurance plan is currently overfunded at 130%. Unlike the other plans, the goal is to reduce the funded status over time.



County Employees Retirement System was established July 1, 1958, by the state legislature.

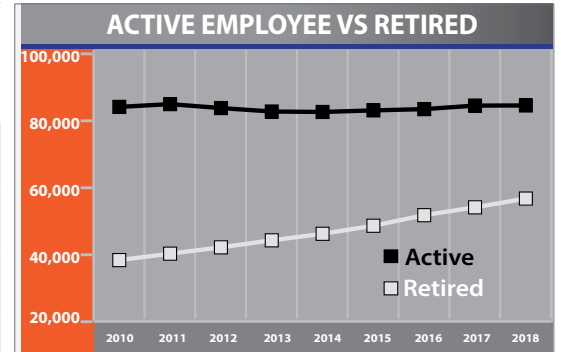
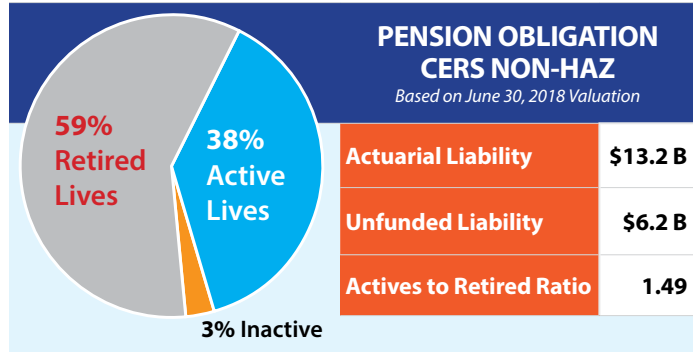
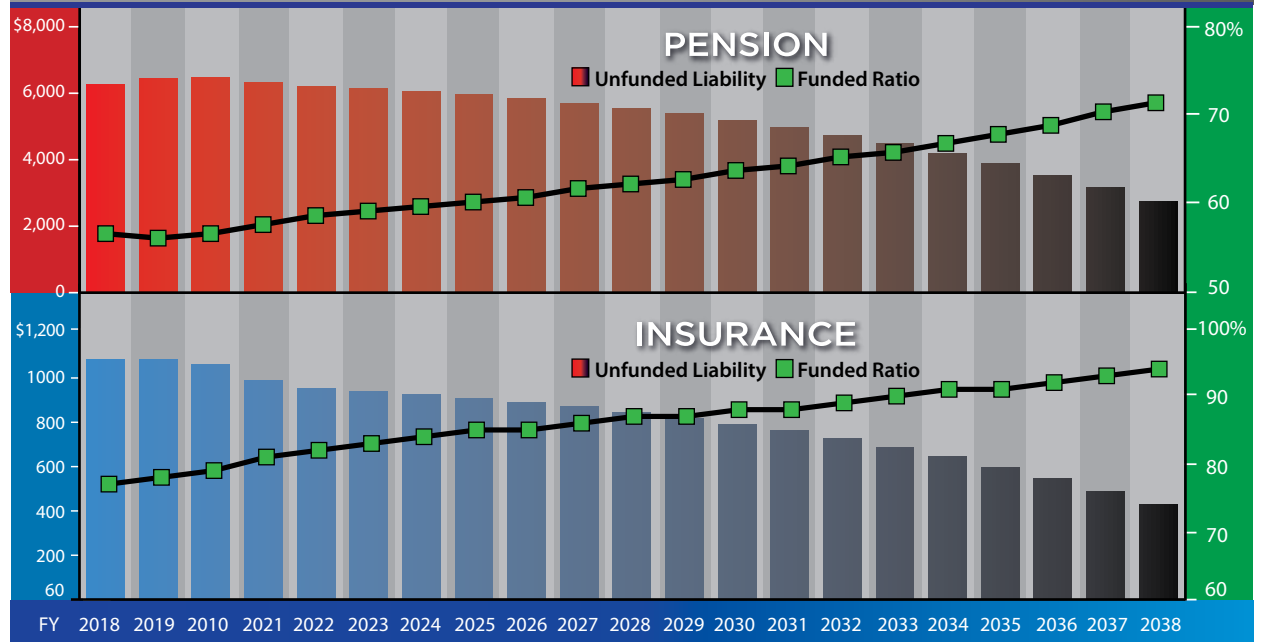
KEY INFORMATION

- CERS Non-Hazardous has the highest membership and, with combined pension and insurance assets of \$9.4 billion, is the largest system in KRS. Fiduciary Net Position increased by \$500 million in 2018 compared to 2017.

- Active members increased slightly to 84,435 in 2018 vs. 2017, while retired members increased by 4.8% to 56,629.

- Using fiscal year 2018 valuation assumptions and member data, the CERS Non-Hazardous Pension plan had a 53% funded ratio and an unfunded liability of \$6.2 billion as of June 30. Based on the actuarial 20-year projection, the unfunded liability would be \$2.7 billion in 2038 with a funded ratio of 82%. The funded ratio for the Insurance plan is projected to be 94% with an unfunded liability of \$284 million at the 20-year mark.

20 YEAR FUNDING PROJECTION *Based on June 30, 2018 Actuarial Valuation (\$ in Millions)*

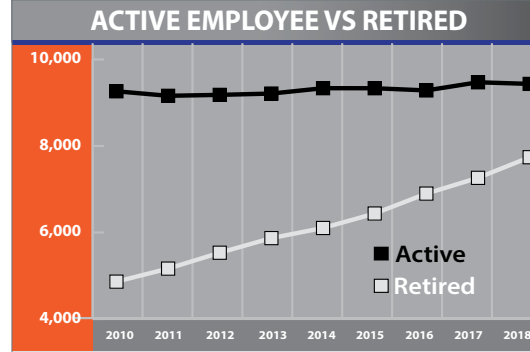
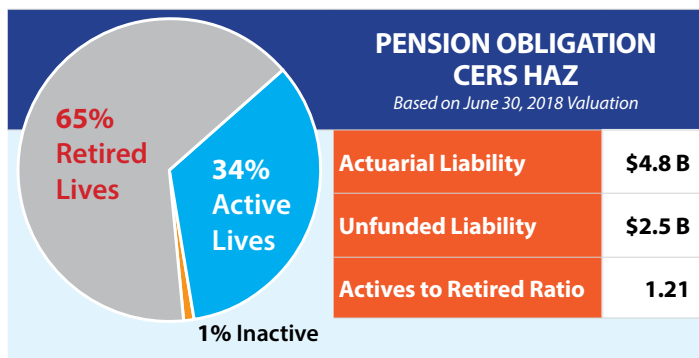
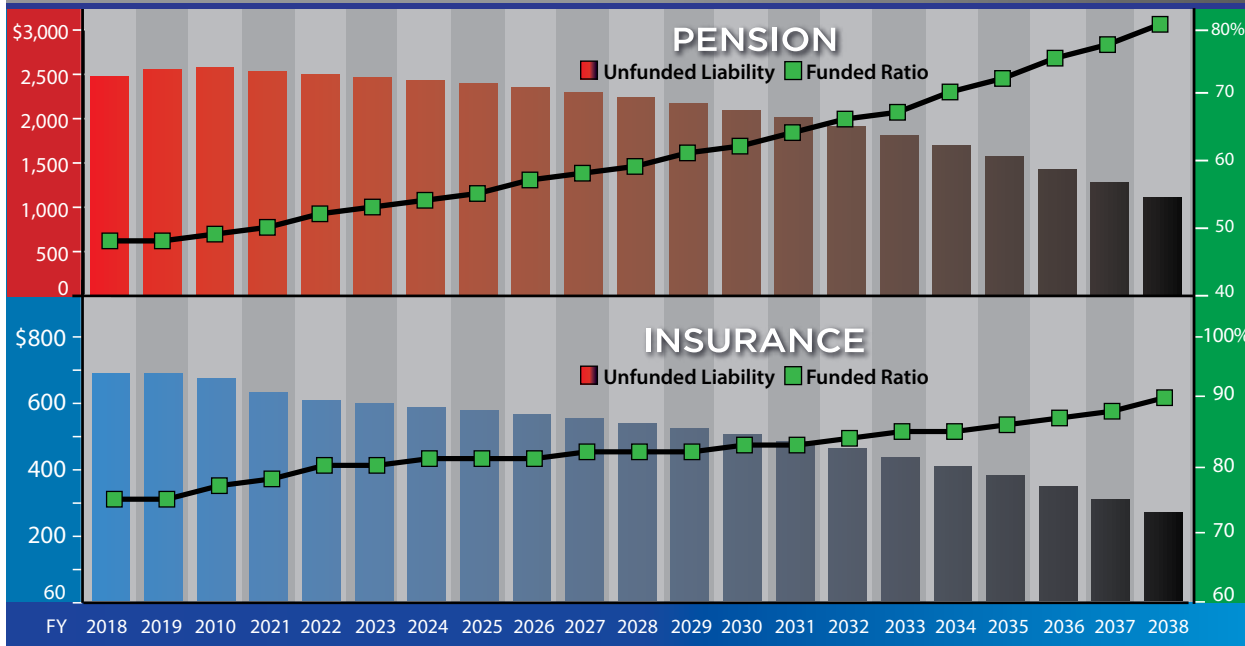


Employer Contribution Rates

| | Pension | | Insurance | | Total | |
|------|-------------|--------|-------------|--------|---------------|----------------|
| | Recommended | Actual | Recommended | Actual | Recommended | Actual |
| 2009 | 5.68% | 5.68% | 7.82% | 7.82% | 13.50% | 13.50% |
| 2010 | 7.41% | 7.41% | 8.75% | 8.75% | 16.16% | 16.16% |
| 2011 | 10.03% | 10.03% | 6.90% | 6.90% | 16.93% | 16.93% |
| 2012 | 11.70% | 11.70% | 7.26% | 7.26% | 18.96% | 18.96% |
| 2013 | 12.62% | 12.62% | 6.93% | 6.93% | 19.55% | 19.55% |
| 2014 | 13.74% | 13.74% | 5.15% | 5.15% | 18.89% | 18.89% |
| 2015 | 12.75% | 12.75% | 4.92% | 4.92% | 17.67% | 17.67% |
| 2016 | 12.42% | 12.42% | 4.64% | 4.64% | 17.06% | 17.06% |
| 2017 | 13.95% | 13.95% | 4.73% | 4.73% | 18.68% | 18.68% |
| 2018 | 14.48% | 14.48% | 4.70% | 4.70% | 19.18% | 19.18% |
| 2019 | 21.84% | 16.22% | 6.21% | 5.26% | 28.05% | 21.48%* |

* House Bill 362, passed in the 2018 Legislative session, capped employers contribution increases at 12% annually until full contribution rate is achieved.

20 YEAR FUNDING PROJECTION *Based on June 30, 2018 Actuarial Valuation (\$ in Millions)*



Employer Contribution Rates

| | Pension | | Insurance | | Total | |
|------|-------------|--------|-------------|--------|---------------|----------------|
| | Recommended | Actual | Recommended | Actual | Recommended | Actual |
| 2009 | 12.55% | 12.55% | 16.95% | 16.95% | 29.50% | 29.50% |
| 2010 | 13.47% | 13.47% | 19.50% | 19.50% | 32.97% | 32.97% |
| 2011 | 16.79% | 16.79% | 16.46% | 16.46% | 33.25% | 33.25% |
| 2012 | 17.91% | 17.91% | 17.85% | 17.85% | 35.76% | 35.76% |
| 2013 | 20.10% | 20.10% | 17.50% | 17.50% | 37.60% | 37.60% |
| 2014 | 21.77% | 21.77% | 13.93% | 13.93% | 35.70% | 35.70% |
| 2015 | 20.73% | 20.73% | 13.58% | 13.58% | 34.31% | 34.31% |
| 2016 | 20.26% | 20.26% | 12.69% | 12.69% | 32.95% | 32.95% |
| 2017 | 21.71% | 21.71% | 9.35% | 9.35% | 31.06% | 31.06% |
| 2018 | 22.20% | 22.20% | 9.35% | 9.35% | 31.55% | 31.55% |
| 2019 | 35.69% | 24.87% | 12.17% | 10.47% | 47.86% | 35.34%* |

* House Bill 362, passed in the 2018 Legislative session, capped employers contribution increases at 12% annually until full contribution rate is achieved.



County Employees Retirement System was established July 1, 1958, by the state legislature.

KEY INFORMATION

- CERS Hazardous membership includes firefighters, EMT/EMS, local police, and sheriffs' departments.

- CERS Hazardous employees contribute 8% of their salary for Tier 1 and 9% of their salary for Tiers 2 and 3. The average annual pension benefit is \$27,771.

- CERS Hazardous has had steady asset growth since 2012 and ended the 2018 fiscal year with \$3.6 billion in pension and insurance assets.

- Based on fiscal year 2018 valuation assumptions and member data, the CERS Hazardous Pension plan would grow from a current funded ratio of 48% to 80% by year 2038. The Insurance Fund would decrease its unfunded liability from \$428 million to \$166 million during this 20-year period, reaching a 90% funded ratio.



State Police Retirement System
was established
July 1, 1958,
by the state legislature.

KEY INFORMATION

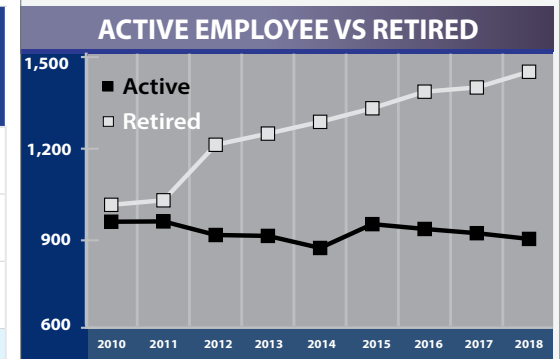
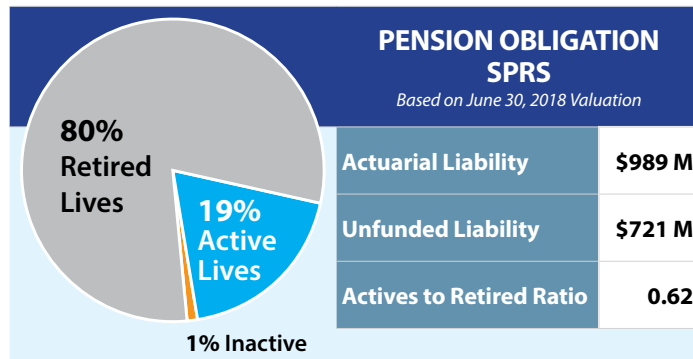
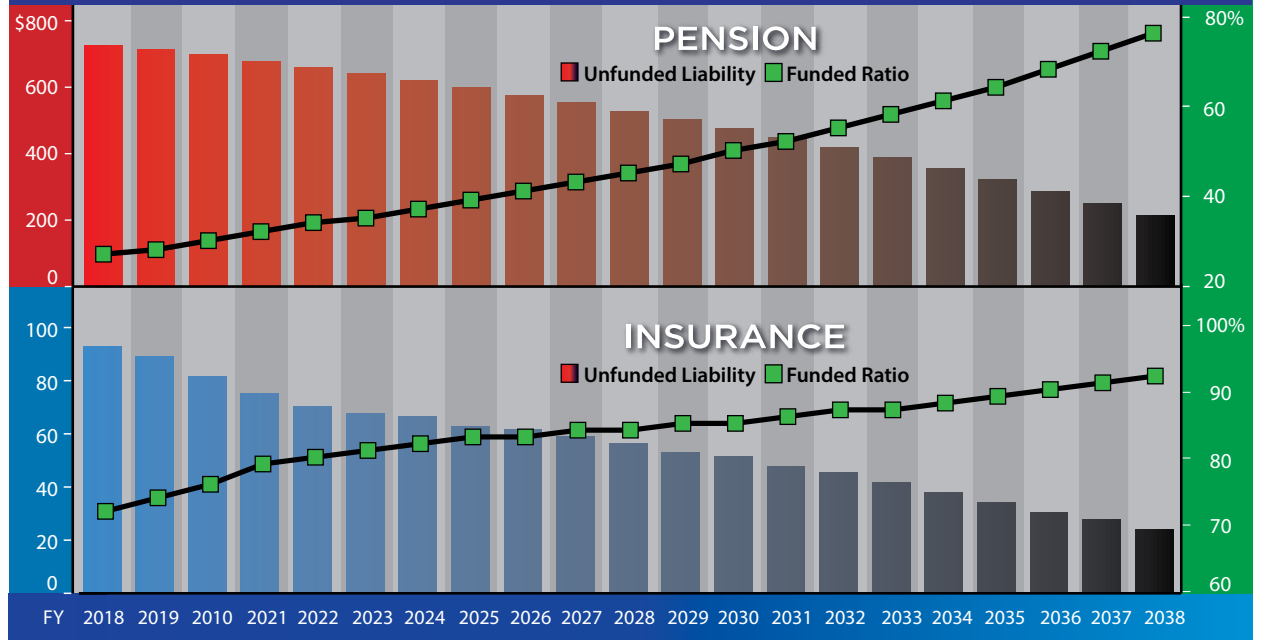
- SPRS is a relatively small plan with 2018 assets of \$458 million (up by 5.49% compared to 2017) and approximately 2,600 members. Active employees contribute 8% of their salary for Tier 1 and 9% of their salary for Tiers 2 and 3 for a pension and insurance benefit.

- SPRS has the highest employer contribution rates of all the KRS plans. Approximately 55% of their members are retired with an average pension benefit of \$39,686.

- Because of the small asset size and membership, SPRS financials benefited from the \$35 million of additional biennial General Fund appropriations in 2017 and 2018 and higher 2018 employer contributions.

- Using fiscal year 2018 valuation assumptions and member data, the SPRS Hazardous Pension plan is only 27% funded with an unfunded liability of \$722 million. Based on the actuary's 20-year projections, the Pension funded ratio would increase to 76% and the Insurance funded ratio to 92% by year 2038.

20 YEAR FUNDING PROJECTION *Based on June 30, 2018 Actuarial Valuation (\$ in Millions)*

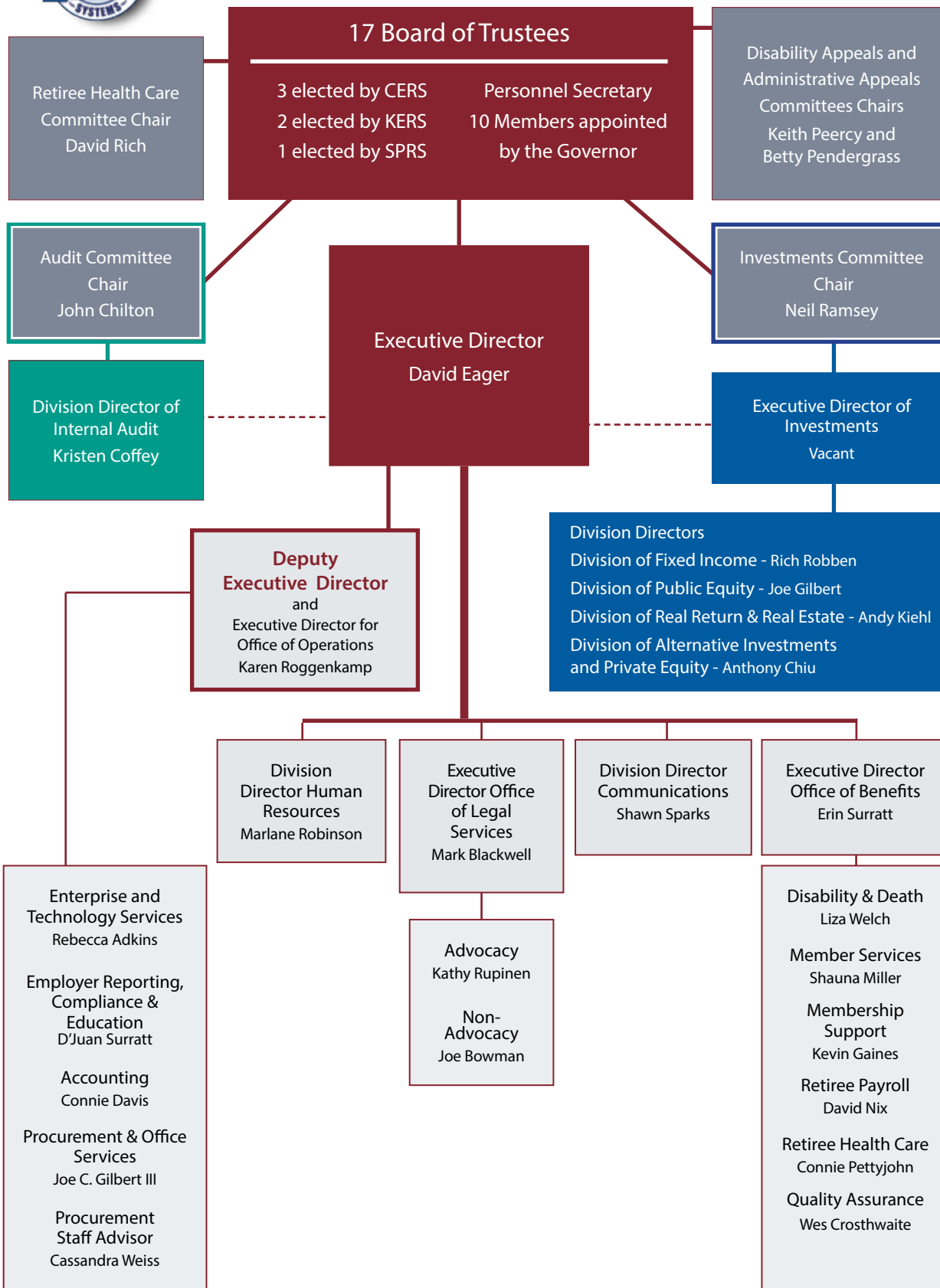


Employer Contribution Rates

| | Pension | | Insurance | | Total | |
|------|-------------|---------|-------------|--------|----------------|----------------|
| | Recommended | Actual | Recommended | Actual | Recommended | Actual |
| 2009 | 32.39% | 15.28% | 27.75% | 14.79% | 60.14% | 30.07% |
| 2010 | 35.23% | 16.81% | 26.64% | 16.27% | 61.87% | 33.08% |
| 2011 | 35.74% | 21.44% | 49.89% | 24.10% | 85.63% | 45.54% |
| 2012 | 39.80% | 26.55% | 54.83% | 25.58% | 94.63% | 52.13% |
| 2013 | 47.48% | 33.24% | 55.93% | 30.43% | 103.41% | 63.67% |
| 2014 | 53.35% | 39.50% | 43.17% | 31.65% | 96.52% | 71.15% |
| 2015 | 53.90% | 53.90% | 21.86% | 21.86% | 75.76% | 75.76% |
| 2016 | 53.90% | 53.90% | 21.86% | 21.86% | 75.76% | 75.76% |
| 2017 | 70.34% | 70.34% | 18.87% | 18.87% | 89.21% | 89.21% |
| 2018 | 72.47% | 72.47% | 18.77% | 18.77% | 91.24% | 91.24% |
| 2019 | 119.05% | 119.05% | 27.23% | 27.23% | 146.28% | 146.28% |



Agency Structure *as of November 29, 2018*



| PARTICIPATING EMPLOYERS <i>in Agency Classification</i> | Number of Agencies |
|--|-----------------------|
| KERS | |
| County Attorneys | 61 |
| Health Departments | 60 |
| Master Commissioner | 34 |
| Non-P1 State Agencies | 36 |
| Other Retirement Systems | 1 |
| P1 State Agencies | 137 |
| Regional Mental Health Units | 12 |
| Universities | 7 |
| Total | 348 |
| CERS | |
| Airport Boards | 5 |
| Ambulance Services | 19 |
| Area Development Districts | 14 |
| Boards of Education | 173 |
| Cities | 221 |
| Community Action Agencies | 21 |
| Conservation Districts | 49 |
| County Attorneys | 77 |
| County Clerks | 16 |
| Development Authorities | 6 |
| Fire Departments | 38 |
| Fiscal Courts | 118 |
| Health Departments | 1 |
| Housing Authorities | 42 |
| Jailers | 2 |
| Libraries | 85 |
| Other Retirement Systems | 2 |
| P1 State Agencies | 4 |
| Parks and Recreation | 7 |
| Planning Commissions | 16 |
| Police Departments | 2 |
| Riverport Authorities | 5 |
| Sanitation Districts | 9 |
| Sheriff Departments | 12 |
| Special Districts & Boards | 49 |
| Tourist Commissions | 23 |
| Urban Government Agencies | 2 |
| Utility Boards | 120 |
| Total | 1,138 |
| SPRS | |
| Kentucky State Police Uniformed Officers | 1 |
| TOTAL EMPLOYERS | 1,487 |



Kentucky Retirement Systems

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Hours of Operation:

8:00 AM - 4:30 PM (EST) Monday-Friday

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