GRS Retirement Consulting

P: 469.524.0000 | F: 469.524.0003 | www.grsconsulting.com

February 27, 2018

Mr. David Eager
Interim Executive Director
Kentucky Retirement Systems
1260 Louisville Road
Frankfort, KY 40601

**Re: BR 427 SB 1**
**AA Statement 1 of 4**
**KERS Hazardous, CERS Hazardous, and SPRS Retirement Systems**

Dear Mr. Eager:

We have reviewed and analyzed the proposed changes in the proposed pension reform legislation SB 1 (BR 427). The purpose of this letter is to communicate the fiscal analysis of this proposed legislation on the retirement and insurance funds maintained by the Kentucky Retirement System (KRS) as it applies to the Hazardous Systems (i.e. KERS Hazardous, CERS Hazardous, and SPRS).

**Provisions of Proposed Legislation**

Exhibit 1 provides a summary of the principle provisions in the pension reform bill that have a fiscal impact on the retirement system. In summary, the current Tier 3 Hybrid Plan Benefit will continue to be provided to future members. The amortization of the unfunded actuarial accrued liability will be determined on a level-dollar basis beginning with the 2019 actuarial valuation, but the funding period will remain unchanged and continue to decrease by one year each future year. Finally, active Tier I members who became participants on or after July 1, 2003 (but prior to September 1, 2008) will contribute the lesser of 3% of pay and their normal cost to the Health Insurance Funds.

**Summary of Cost Impact**

Section 1 includes exhibits that show a comparison of the fiscal impact of the proposed legislation to the current plan over the next 35 years. Specifically, these exhibits show the projected impact on the: (1) unfunded actuarial accrued liability, (2) funded ratio, (3) total employer contribution dollars, and (4) projected composite employer contribution rates, for each of the funds (retirement and health insurance). Section 2 provides additional detail regarding each projection under the current plan and Section 3 provides similar information under the proposed legislation. Below are comments regarding the cost projection for each fund.

KERS Hazardous and SPRS Retirement and Insurance Funds

The change in the benefit provisions had a minimal impact on the change in the actuarial accrued liability (and unfunded actuarial accrued liability) for both retirement and health insurance funds.

The initial savings in the projected employer contributions for the insurance funds is due to the increase in the Tier I member contribution requirement. The slight differences in the projected unfunded liability and projected employer contributions compared to current plan projection are not significant and due to nuances in applying contributions that are determined biannually and as a percentage of expected payroll (i.e. the baseline projection) and applying contributions that are determined annually and as both a percentage of payroll (i.e. the normal cost rate in the proposed legislation projections) and a dollar amount (i.e. the amortization of the unfunded actuarial accrued liability in the proposed legislation projections). *For business making decisions stakeholders should consider the proposed increase to certain Tier I member contributions to result in a cost savings for the participating employers but there are not any changes to the benefits provided by the health insurance funds that have a fiscal impact. Also for business making decisions stakeholders should consider the proposed changes to the retirement benefits to have a minimal fiscal impact.*

CERS Hazardous Retirement and Insurance Funds

Similar to the KERS hazardous and SPRS retirement funds, there is minimal change in the actuarial accrued liability (and unfunded actuarial accrued liability) as of June 30, 2017 due to the provision changes.

The projected employer contribution requirements for the retirement fund under the proposed legislation become larger than the projected cost in baseline projection in fiscal years 2020/2021 through 2028/2029 due to the use of a level-dollar amortization (versus a 2% payroll growth assumption). However, this effect is reversed after fiscal year 2028/2029 because of the difference in the amortization method (i.e. level dollar versus a 2% payroll growth assumption in the current plan). The fiscal impact to the projected cost of the CERS health insurance fund is similar as the retirement fund, but of a different magnitude and different cross-over years. There is also initial savings for the employers for the insurance fund is due to the increase in the Tier I member contribution requirement.

**GRS Comments on Proposed Legislation**

Allocation of Amortization Payment to Participating Employers in CERS, and Agencies Participating in KERS, and SPRS

The employers' (and agencies) allocation percentage will be based on the average covered payroll during the last three fiscal years (FY 14/15, FY 15/16, and FY 16/17) to the average total covered payroll for the system. This allocation percentage would remain unchanged in future years (albeit, minor adjustments if employers cease participating in the system). There are some favorable characteristics with this method as each employer's contribution effort to finance the unfunded actuarial accrued liability will remain relatively constant and eliminates incentives for employers to

pursue the use of "contract" employees to reduce their covered payroll (and required contribution). Employers that are increasing in size will not be burdened to pay a greater share of the unfunded actuarial accrued liability on the covered payroll for those additional employees. Rather, the marginal change in the employer's pension contribution effort will be the normal cost rate on the change in covered payroll.

We have not analyzed the change in covered payroll for the participating employers in the systems or how the average of the fiscal years identified in the proposed legislation compare to the distribution of covered payroll among employers in other years, such as the 12/13 and 13/14 fiscal years. Given the declining covered payroll experienced by some of the systems over the last several years, it is possible that using a 5-year average period or the currently proposed 3-year averaging period using different fiscal years may be more representative of the allocated share of each employer's share of the unfunded actuarial accrued liability. There will not be a fiscal impact to the system if the averaging method is changed, but there would be a cost increase or decrease for individual participating employers. We recommend the Legislative Research Commission seek input from Kentucky Retirement Systems regarding the fiscal years and the averaging period used in the calculation.

Further to this point, using a static allocation may gradually drift from mirroring the employer participation demographics in future years (some employers are growing and other entities are decreasing their workforce). Also, while this proposed method may be appropriate for allocating the existing unfunded liability, it may not be appropriate for allocating unfunded liabilities that may be incurred in a future year. Note, if this issue does occur, then it could be easily addressed by the General Assembly in a future year by using a layered amortization base.

Distribution of the Actuarial Accrued Liability among Membership Status

The proposed legislation would make certain changes to retirement and health insurance benefits to active members after July 1, 2018 as well as future active members in these Hazardous Retirement Systems. For educational and informational purposes, the actuarial accrued liability attributable to the current retirees and inactive members (vested and non-vested) in the KERS Hazardous Retirement System is approximately 66% of the total actuarial accrued liability (Similarly, the retiree and inactive member liability is approximately 63% and 80% of the total actuarial accrued liability for the CERS Hazardous Retirement System and SPRS Retirement System, respectively). As a result, while the proposed changes may have a material impact on the actuarial accrued liability attributable to the current active members in the Retirement System, the changes have a much smaller impact as a percentage of the total actuarial accrued liability attributable of the entire Retirement System.

**Basis of Calculations**

GRS based the calculations and analysis in this letter on the member and financial data provided by KRS and used to perform the actuarial valuation as of June 30, 2017. Except where noted otherwise, the projections assume no actuarial gains or losses will occur in the future, and that members will terminate, retire, become disabled, or die as predicted by the actuarial assumptions documented in the June 30, 2017 actuarial valuation report.

These projections also do not reflect the actual investment experience of the retirement system after the measurement date of June 30, 2017. The projections assume that the participating employers in each Retirement System will maintain the current workforce in each future year and that as current active members terminate or retire from a covered position in the Retirement System, the employer would replace them with a new employee.

Our calculations are based upon assumptions regarding future events, which may or may not materialize. Depending on actual plan experience, actual results could deviate significantly from our projections. They are further based on the interpretation of the legislation that while the level dollar amortization method is effective at the 2019 valuation, the 30-year amortization period that was effective with the 2013 valuation is not re-set at the 2019 valuation.

**General Comments**

We are not attorneys, and we cannot provide a legal opinion regarding the changes in this proposed legislation. Nothing in this letter should be construed as providing legal, investment or tax advice. It may be prudent to consult with the Retirement System's counsel before enacting any such changes. Finally, no statement in this letter is intended to be interpreted as a recommendation in favor of or in opposition to the changes studied herein.

Mr. White and Mr. Newton are Enrolled Actuaries. All the of the undersigned are also members of the American Academy of Actuaries and that we meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. In addition, all of the undersigned are experienced in performing valuations for large public retirement systems. If you have any questions, or require any additional or clarifying information, please do not hesitate to contact us.

Sincerely,

Joseph P. Newton, FSA, MAAA, EA
Senior Consultant

Janie Shaw, ASA, MAAA
Consultant

Daniel J. White, FSA, MAAA, EA
Senior Consultant

K:\3505\2018\Leg\2018-02-21 SB 1\Analysis_KRS_Hazardous_BR427.docx

Enclosures

Exhibit 1. Summary of Proposed Changes

Section 1. Comparison of Fiscal Impact

Section 2. Projected Cost of the Retirement and Insurance – Current Plan

Section 3. Projected Cost of the Retirement and Insurance – Proposed Legislation

# Exhibit 1. Summary of Changes in Benefit Provisions and Employer Funding for the KERS and CERS Hazardous Systems & SPRS

**Retirement Formulas**

Tier 1:

- No change to the basic formula.
- For retirements on or after January 1, 2019, the highest three years of pay used to determine the member's final average compensation must be complete fiscal years and must contain at least 36 months.

Tier 2:

- No change to the basic formula.

Tier 3:

- No change to the interest crediting formula.
- Removal of the $5,000 post-retirement death benefit for all members hired on and after January 1, 2014.

Future Hires:

- Future employees will participate in the hybrid cash balance plan. Participants do not have an option to earn retirement benefits in the defined contribution plan

**Member Contribution Rates**

- Member contribution rates to the retirement fund for Tier 1, Tier 2, and Tier 3 members remain unchanged at 8% of pay. Effective January 1, 2019, contributions to the health insurance funds for Tier 1 members who began participation on or after July 1, 2003 (but prior to September 1, 2008) will increase to the lesser of 3.00% of pay or the normal cost rate, as separately determined for these members based upon the system in which they participate.
  - The 3.00% maximum will be phased in over three years (i.e. from 0% to 3% of pay) and may be adjusted annually after the phase-in by increments of 0.25% of pay, but in no case shall exceed 3% of pay.
- The contributions to the health insurance funds are classified as 401(h) contributions and are not refundable to the member.

**Pension Anti-Spiking Provisions**

Equipment/Uniform Allowances:

- Excluded from creditable compensation earned on or after January 1, 2019.

Sick Leave

- Converted sick service cannot exceed amount for accumulated sick leave as of August 1, 2018.
- Tier 1 sick leave service credit does not count towards retirement eligibility for those retiring on or after August 1, 2018.

# Exhibit 1. Summary of Changes in Benefit Provisions and Employer Funding for the KERS and CERS Hazardous Systems & SPRS (Continued)

**Retiree Health Accessibility**

- No change.

**Line of Duty Death**

- The surviving spouse (if any) shall supersede all previous beneficiary designations for members that die in the line of duty.

**Reemployment After Retirement**

The following reemployment after retirement provisions apply to members who retire on or after January 1, 2019 in order to continue to receive their retirement allowance during their reemployment with a participating employer in KERS, CERS, SPRS, or TRS:

- Must have a one (1) month break in employment and no prearranged reemployment agreement.
- After required employment break, the retired member can return to work in part-time or full-time position, but does not earn additional retirement benefit accruals.
  - Monthly pension will <u>not</u> be suspended for the duration of reemployment and the retiree will not earn additional retirement benefits.
- Employer required to make normal cost contributions (both pension and retiree health) on the payroll of the reemployed retiree.

**Employer Funding**

The Board will continue to have the authority to change the contribution rates for CERS on an annual basis and will have the authority to change contribution rates for KERS and SPRS on an annual basis after the fiscal year ending June 30, 2020.

Actuarially Determined Contributions (ADC) for actuarial valuations performed on and after June 30, 2019 are based on normal cost plus an amortization payment to finance the unfunded actuarial accrued liability:

- Normal cost determined using entry age normal cost method paid as a percentage of payroll.
- Unfunded liability payment determined using a closed amortization period (25 years remaining in the 2018 valuation).
- Allocation of amortization payment for the unfunded liability to participating employers in KERS, CERS, and SPRS is based on a level-dollar amortization
  - The dollar amount of the amortization payment will be allocated to each participating employer in proportion to their average percentage of the total compensation for years (FY 14/15, FY 15/16, and FY 16/17), adjusted for any employers who ceases participation in the System.
  - Each employer's proportionate share of the amortization payment will remain a relatively constant percentage each future year.

DRAFT

# Section 1.
# Comparison of Fiscal Impact
# Current Plan vs. Proposed Changes

**Kentucky Retirement Systems**
**Exhibit 1-1**
**KERS Hazardous Retirement Fund**
**Summary of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 1, | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 514 | $ 514 | $ 0 | 54% | 54% | 0% | $ 35 | $ 35 | $ 0 | 21.4% | 21.4% | 0.0% |
| 2018 | 518 | 518 | 0 | 55% | 55% | 0% | 57 | 57 | - | 34.4% | 34.4% | 0.0% |
| 2019 | 517 | 517 | - | 56% | 56% | 0% | 58 | 58 | - | 34.4% | 34.4% | 0.0% |
| 2020 | 508 | 508 | - | 58% | 58% | 0% | 57 | 56 | (1) | 32.6% | 32.0% | -0.6% |
| 2021 | 490 | 491 | 1 | 61% | 61% | 0% | 58 | 56 | (2) | 32.6% | 31.1% | -1.5% |
| 2022 | 475 | 480 | 5 | 63% | 62% | -1% | 55 | 55 | - | 30.2% | 29.8% | -0.4% |
| 2023 | 464 | 468 | 4 | 64% | 64% | 0% | 57 | 54 | (3) | 30.2% | 28.9% | -1.3% |
| 2024 | 449 | 456 | 7 | 66% | 66% | 0% | 55 | 54 | (1) | 28.3% | 28.1% | -0.2% |
| 2025 | 435 | 443 | 8 | 68% | 67% | -1% | 56 | 54 | (2) | 28.3% | 27.3% | -1.0% |
| 2026 | 419 | 429 | 10 | 70% | 69% | -1% | 53 | 53 | - | 26.5% | 26.5% | 0.0% |
| 2027 | 403 | 414 | 11 | 71% | 71% | 0% | 55 | 53 | (2) | 26.5% | 25.7% | -0.8% |
| 2028 | 386 | 399 | 13 | 73% | 72% | -1% | 52 | 53 | 1 | 24.7% | 24.9% | 0.2% |
| 2029 | 369 | 383 | 14 | 75% | 74% | -1% | 53 | 52 | (1) | 24.7% | 24.1% | -0.6% |
| 2030 | 350 | 365 | 15 | 76% | 75% | -1% | 51 | 52 | 1 | 23.2% | 23.4% | 0.3% |
| 2031 | 331 | 348 | 17 | 78% | 77% | -1% | 53 | 52 | (1) | 23.2% | 22.8% | -0.4% |
| 2032 | 310 | 328 | 18 | 80% | 78% | -2% | 51 | 52 | 1 | 21.8% | 22.2% | 0.4% |
| 2033 | 289 | 307 | 18 | 81% | 80% | -1% | 53 | 52 | (1) | 21.8% | 21.6% | -0.1% |
| 2034 | 266 | 285 | 19 | 83% | 82% | -1% | 51 | 53 | 2 | 20.5% | 21.1% | 0.7% |
| 2035 | 243 | 261 | 18 | 85% | 84% | -1% | 52 | 53 | 1 | 20.5% | 20.7% | 0.2% |
| 2036 | 217 | 237 | 20 | 87% | 85% | -2% | 51 | 53 | 2 | 19.3% | 20.2% | 0.9% |
| 2037 | 192 | 210 | 18 | 88% | 87% | -1% | 52 | 53 | 1 | 19.3% | 19.7% | 0.4% |
| 2038 | 163 | 181 | 18 | 90% | 89% | -1% | 50 | 53 | 3 | 18.2% | 19.3% | 1.2% |
| 2039 | 134 | 150 | 16 | 92% | 91% | -1% | 51 | 53 | 2 | 18.2% | 18.9% | 0.8% |
| 2040 | 103 | 118 | 15 | 94% | 93% | -1% | 49 | 54 | 5 | 17.2% | 18.7% | 1.5% |
| 2041 | 72 | 82 | 10 | 96% | 95% | -1% | 50 | 54 | 4 | 17.2% | 18.5% | 1.4% |
| 2042 | 37 | 44 | 7 | 98% | 98% | 0% | 49 | 56 | 7 | 16.6% | 18.6% | 2.1% |
| 2043 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 4.1% | 4.1% | 0.0% |
| 2044 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 4.1% | 4.1% | 0.0% |
| 2045 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 4.1% | 4.1% | 0.0% |
| 2046 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 4.1% | 4.1% | 0.0% |
| 2047 | - | - | - | 100% | 100% | 0% | 14 | 14 | - | 4.1% | 4.1% | 0.0% |
| 2048 | - | - | - | 100% | 100% | 0% | 14 | 14 | - | 4.1% | 4.1% | 0.0% |
| 2049 | - | - | - | 100% | 100% | 0% | 14 | 14 | - | 4.1% | 4.1% | 0.0% |
| 2050 | - | - | - | 100% | 100% | 0% | 15 | 15 | - | 4.1% | 4.1% | 0.0% |
| 2051 | - | - | - | 100% | 100% | 0% | 15 | 15 | - | 4.1% | 4.1% | 0.0% |

**Kentucky Retirement Systems**
**Exhibit 1-2**
**CERS Hazardous Retirement Fund**
**Summary of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 1, | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 2,411 | $ 2,411 | $ - | 48% | 48% | 0% | $ 120 | $ 120 | $ 0 | 22.2% | 22.2% | 0.0% |
| 2018 | 2,478 | 2,478 | - | 48% | 48% | 0% | 192 | 192 | - | 35.7% | 35.7% | 0.0% |
| 2019 | 2,504 | 2,504 | - | 49% | 49% | 0% | 193 | 193 | - | 36.0% | 36.0% | 0.0% |
| 2020 | 2,500 | 2,500 | - | 50% | 50% | 0% | 197 | 232 | 35 | 36.4% | 42.8% | 6.4% |
| 2021 | 2,456 | 2,421 | (35) | 52% | 52% | 0% | 199 | 230 | 31 | 36.5% | 42.1% | 5.6% |
| 2022 | 2,433 | 2,362 | (71) | 53% | 54% | 1% | 199 | 225 | 26 | 36.1% | 40.9% | 4.8% |
| 2023 | 2,405 | 2,303 | (102) | 54% | 56% | 2% | 201 | 223 | 22 | 36.0% | 40.0% | 4.0% |
| 2024 | 2,372 | 2,240 | (132) | 55% | 58% | 3% | 202 | 221 | 19 | 35.8% | 39.1% | 3.3% |
| 2025 | 2,333 | 2,174 | (159) | 56% | 59% | 3% | 204 | 219 | 15 | 35.7% | 38.2% | 2.6% |
| 2026 | 2,288 | 2,104 | (184) | 57% | 61% | 4% | 207 | 217 | 10 | 35.5% | 37.3% | 1.8% |
| 2027 | 2,236 | 2,030 | (206) | 59% | 62% | 3% | 209 | 216 | 7 | 35.3% | 36.4% | 1.1% |
| 2028 | 2,178 | 1,952 | (226) | 60% | 64% | 4% | 212 | 214 | 2 | 35.1% | 35.5% | 0.4% |
| 2029 | 2,111 | 1,869 | (242) | 61% | 66% | 5% | 215 | 213 | (2) | 35.0% | 34.6% | -0.3% |
| 2030 | 2,037 | 1,781 | (256) | 63% | 67% | 4% | 218 | 212 | (6) | 34.8% | 33.8% | -1.0% |
| 2031 | 1,954 | 1,689 | (265) | 64% | 69% | 5% | 222 | 211 | (11) | 34.5% | 32.9% | -1.6% |
| 2032 | 1,861 | 1,591 | (270) | 66% | 71% | 5% | 225 | 211 | (14) | 34.3% | 32.1% | -2.3% |
| 2033 | 1,759 | 1,487 | (272) | 68% | 73% | 5% | 229 | 210 | (19) | 34.1% | 31.3% | -2.8% |
| 2034 | 1,646 | 1,376 | (270) | 70% | 75% | 5% | 233 | 210 | (23) | 33.9% | 30.5% | -3.4% |
| 2035 | 1,522 | 1,258 | (264) | 72% | 77% | 5% | 238 | 210 | (28) | 33.7% | 29.8% | -3.9% |
| 2036 | 1,385 | 1,133 | (252) | 75% | 79% | 4% | 242 | 210 | (32) | 33.6% | 29.1% | -4.4% |
| 2037 | 1,235 | 1,001 | (234) | 78% | 82% | 4% | 247 | 210 | (37) | 33.4% | 28.5% | -4.9% |
| 2038 | 1,071 | 859 | (212) | 81% | 84% | 3% | 251 | 210 | (41) | 33.3% | 27.9% | -5.4% |
| 2039 | 892 | 709 | (183) | 84% | 87% | 3% | 256 | 211 | (45) | 33.1% | 27.3% | -5.9% |
| 2040 | 697 | 549 | (148) | 87% | 90% | 3% | 261 | 211 | (50) | 33.0% | 26.7% | -6.3% |
| 2041 | 484 | 379 | (105) | 91% | 93% | 2% | 267 | 212 | (55) | 32.9% | 26.2% | -6.7% |
| 2042 | 254 | 198 | (56) | 95% | 96% | 1% | 272 | 214 | (58) | 32.9% | 25.8% | -7.1% |
| 2043 | - | - | - | 100% | 100% | 0% | 12 | 12 | - | 1.4% | 1.4% | 0.0% |
| 2044 | - | - | - | 100% | 100% | 0% | 12 | 12 | - | 1.4% | 1.4% | 0.0% |
| 2045 | - | - | - | 100% | 100% | 0% | 12 | 12 | - | 1.4% | 1.4% | 0.0% |
| 2046 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 1.4% | 1.4% | 0.0% |
| 2047 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 1.4% | 1.4% | 0.0% |
| 2048 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 1.4% | 1.4% | 0.0% |
| 2049 | - | - | - | 100% | 100% | 0% | 14 | 14 | - | 1.4% | 1.4% | 0.0% |
| 2050 | - | - | - | 100% | 100% | 0% | 14 | 14 | - | 1.4% | 1.4% | 0.0% |
| 2051 | - | - | - | 100% | 100% | 0% | 14 | 14 | - | 1.4% | 1.4% | 0.0% |

**Kentucky Retirement Systems**
**Exhibit 1-3**
**SPRS Retirement Fund**
**Summary of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 1, | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 706 | $ 706 | $ 0 | 27% | 27% | 0% | $ 35 | $ 35 | $ 0 | 72.5% | 72.5% | 0.0% |
| 2018 | 706 | 706 | 0 | 27% | 27% | 0% | 58 | 58 | 0 | 119.1% | 119.0% | 0.0% |
| 2019 | 697 | 697 | 0 | 28% | 28% | 0% | 59 | 59 | - | 119.1% | 119.0% | 0.0% |
| 2020 | 682 | 682 | - | 30% | 30% | 0% | 58 | 58 | - | 116.2% | 115.0% | -1.2% |
| 2021 | 664 | 664 | - | 32% | 32% | 0% | 59 | 58 | (1) | 116.2% | 112.9% | -3.3% |
| 2022 | 645 | 647 | 2 | 34% | 33% | -1% | 58 | 57 | (1) | 111.5% | 110.2% | -1.3% |
| 2023 | 626 | 629 | 3 | 35% | 35% | 0% | 59 | 57 | (2) | 111.5% | 107.8% | -3.7% |
| 2024 | 606 | 611 | 5 | 37% | 37% | 0% | 57 | 57 | - | 106.3% | 105.4% | -0.9% |
| 2025 | 586 | 592 | 6 | 39% | 38% | -1% | 58 | 56 | (2) | 106.3% | 103.2% | -3.2% |
| 2026 | 563 | 570 | 7 | 41% | 40% | -1% | 56 | 56 | - | 101.1% | 100.5% | -0.7% |
| 2027 | 541 | 550 | 9 | 43% | 42% | -1% | 58 | 56 | (2) | 101.1% | 97.6% | -3.5% |
| 2028 | 515 | 527 | 12 | 45% | 44% | -1% | 56 | 56 | - | 95.2% | 95.0% | -0.3% |
| 2029 | 490 | 503 | 13 | 47% | 46% | -1% | 57 | 56 | (1) | 95.2% | 92.3% | -2.9% |
| 2030 | 463 | 478 | 15 | 50% | 48% | -2% | 55 | 56 | 1 | 89.4% | 89.6% | 0.3% |
| 2031 | 437 | 452 | 15 | 52% | 51% | -1% | 57 | 56 | (1) | 89.4% | 87.1% | -2.3% |
| 2032 | 406 | 424 | 18 | 55% | 53% | -2% | 55 | 55 | - | 83.5% | 84.8% | 1.3% |
| 2033 | 378 | 394 | 16 | 58% | 56% | -2% | 56 | 55 | (1) | 83.5% | 82.4% | -1.1% |
| 2034 | 344 | 364 | 20 | 61% | 59% | -2% | 54 | 55 | 1 | 78.2% | 80.2% | 1.9% |
| 2035 | 313 | 332 | 19 | 64% | 62% | -2% | 55 | 55 | - | 78.2% | 78.2% | 0.0% |
| 2036 | 277 | 298 | 21 | 68% | 66% | -2% | 53 | 55 | 2 | 73.3% | 76.3% | 3.0% |
| 2037 | 243 | 261 | 18 | 72% | 70% | -2% | 55 | 56 | 1 | 73.3% | 74.4% | 1.1% |
| 2038 | 205 | 224 | 19 | 76% | 74% | -2% | 52 | 56 | 4 | 68.6% | 72.8% | 4.1% |
| 2039 | 168 | 184 | 16 | 80% | 78% | -2% | 54 | 56 | 2 | 68.6% | 71.0% | 2.4% |
| 2040 | 126 | 142 | 16 | 85% | 83% | -2% | 51 | 56 | 5 | 64.0% | 69.7% | 5.7% |
| 2041 | 86 | 97 | 11 | 90% | 88% | -2% | 52 | 56 | 4 | 64.0% | 68.5% | 4.5% |
| 2042 | 42 | 51 | 9 | 95% | 94% | -1% | 49 | 57 | 8 | 58.3% | 67.4% | 9.1% |
| 2043 | - | - | - | 100% | 100% | 0% | 5 | 5 | - | 5.9% | 5.9% | 0.0% |
| 2044 | - | - | - | 100% | 100% | 0% | 5 | 5 | - | 5.9% | 5.9% | 0.0% |
| 2045 | - | - | - | 100% | 100% | 0% | 5 | 5 | - | 5.9% | 5.9% | 0.0% |
| 2046 | - | - | - | 100% | 100% | 0% | 5 | 5 | - | 5.8% | 5.8% | 0.0% |
| 2047 | - | - | - | 100% | 100% | 0% | 5 | 5 | - | 5.8% | 5.8% | 0.0% |
| 2048 | - | - | - | 100% | 100% | 0% | 6 | 6 | - | 5.8% | 5.8% | 0.0% |
| 2049 | - | - | - | 100% | 100% | 0% | 6 | 6 | - | 5.8% | 5.8% | 0.0% |
| 2050 | - | - | - | 100% | 100% | 0% | 6 | 6 | - | 5.8% | 5.8% | 0.0% |
| 2051 | - | - | - | 100% | 100% | 0% | 6 | 6 | - | 5.8% | 5.8% | 0.0% |

**Kentucky Retirement Systems**
**Exhibit 1-4**
**KERS Hazardous Insurance Fund**
**Summary of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ (74) | $ (74) | $ - | 118% | 118% | 0% | $ 4 | $ 4 | $ 0 | 2.3% | 2.3% | 0.0% |
| 2018 | (71) | (71) | - | 116% | 116% | 0% | 4 | 4 | 0 | 2.5% | 2.5% | 0.0% |
| 2019 | (63) | (64) | (1) | 114% | 114% | 0% | 4 | 4 | 0 | 2.5% | 2.5% | 0.0% |
| 2020 | (61) | (63) | (2) | 113% | 113% | 0% | 4 | 3 | (1) | 2.1% | 1.7% | -0.4% |
| 2021 | (66) | (67) | (1) | 114% | 114% | 0% | 4 | 2 | (2) | 2.1% | 1.1% | -1.0% |
| 2022 | (65) | (67) | (2) | 113% | 114% | 1% | 2 | 1 | (1) | 1.2% | 0.6% | -0.7% |
| 2023 | (64) | (66) | (2) | 113% | 113% | 0% | 2 | 1 | (1) | 1.2% | 0.5% | -0.7% |
| 2024 | (62) | (63) | (1) | 112% | 112% | 0% | 1 | 0 | (1) | 0.7% | 0.0% | -0.7% |
| 2025 | (61) | (62) | (1) | 112% | 112% | 0% | 1 | 0 | (1) | 0.7% | 0.0% | -0.7% |
| 2026 | (60) | (61) | (1) | 111% | 112% | 1% | 1 | 0 | (1) | 0.4% | 0.0% | -0.4% |
| 2027 | (57) | (58) | (1) | 111% | 111% | 0% | 1 | 0 | (1) | 0.4% | 0.0% | -0.4% |
| 2028 | (55) | (56) | (1) | 110% | 110% | 0% | - | 0 | 0 | 0.1% | 0.0% | -0.1% |
| 2029 | (53) | (53) | - | 110% | 110% | 0% | - | 0 | 0 | 0.1% | 0.0% | -0.1% |
| 2030 | (50) | (51) | (1) | 109% | 109% | 0% | - | 0 | 0 | 0.1% | 0.0% | -0.1% |
| 2031 | (47) | (47) | - | 109% | 109% | 0% | - | 0 | 0 | 0.1% | 0.0% | -0.1% |
| 2032 | (44) | (45) | (1) | 108% | 108% | 0% | - | 0 | 0 | 0.2% | 0.0% | -0.2% |
| 2033 | (40) | (41) | (1) | 107% | 107% | 0% | - | 0 | 0 | 0.2% | 0.0% | -0.2% |
| 2034 | (37) | (38) | (1) | 107% | 107% | 0% | 1 | 1 | 0 | 0.3% | 0.4% | 0.2% |
| 2035 | (33) | (35) | (2) | 106% | 106% | 0% | 1 | 1 | 0 | 0.3% | 0.4% | 0.1% |
| 2036 | (29) | (31) | (2) | 105% | 105% | 0% | 1 | 1 | 0 | 0.4% | 0.4% | 0.0% |
| 2037 | (25) | (27) | (2) | 104% | 105% | 1% | 1 | 1 | 0 | 0.4% | 0.4% | 0.0% |
| 2038 | (21) | (22) | (1) | 104% | 104% | 0% | 1 | 1 | 0 | 0.5% | 0.4% | -0.1% |
| 2039 | (17) | (19) | (2) | 103% | 103% | 0% | 1 | 1 | 0 | 0.5% | 0.4% | -0.1% |
| 2040 | (12) | (14) | (2) | 102% | 102% | 0% | 2 | 1 | (1) | 0.6% | 0.4% | -0.3% |
| 2041 | (8) | (9) | (1) | 101% | 101% | 0% | 2 | 2 | 0 | 0.6% | 0.7% | 0.1% |
| 2042 | (4) | (5) | (1) | 101% | 101% | 0% | 3 | 2 | (1) | 0.9% | 0.7% | -0.2% |
| 2043 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 2.1% | 2.1% | 0.0% |
| 2044 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 2.1% | 2.1% | 0.0% |
| 2045 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 2.1% | 2.1% | 0.0% |
| 2046 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 2.1% | 2.1% | 0.0% |
| 2047 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 2.0% | 2.0% | 0.0% |
| 2048 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 2.0% | 2.0% | 0.0% |
| 2049 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 2.0% | 2.0% | 0.0% |
| 2050 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 2.0% | 2.0% | 0.0% |
| 2051 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 1.9% | 1.9% | 0.0% |

**Kentucky Retirement Systems**
**Exhibit 1-5**
**CERS Hazardous Insurance Fund**
**Summary of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 1, | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 591 | $ 591 | $ - | 67% | 67% | 0% | $ 51 | $ 51 | $ 0 | 9.4% | 9.4% | 0.0% |
| 2018 | 610 | 610 | - | 67% | 67% | 0% | 65 | 65 | - | 12.2% | 12.2% | 0.0% |
| 2019 | 622 | 619 | (3) | 67% | 68% | 1% | 64 | 62 | (2) | 12.0% | 11.5% | -0.5% |
| 2020 | 619 | 615 | (4) | 68% | 69% | 1% | 64 | 69 | 5 | 11.8% | 12.8% | 0.9% |
| 2021 | 600 | 587 | (13) | 70% | 71% | 1% | 63 | 67 | 4 | 11.5% | 12.3% | 0.8% |
| 2022 | 592 | 571 | (21) | 71% | 72% | 1% | 61 | 63 | 2 | 11.0% | 11.4% | 0.4% |
| 2023 | 583 | 555 | (28) | 72% | 73% | 1% | 59 | 61 | 2 | 10.7% | 10.9% | 0.3% |
| 2024 | 574 | 539 | (35) | 72% | 74% | 2% | 59 | 60 | 1 | 10.4% | 10.6% | 0.3% |
| 2025 | 564 | 523 | (41) | 73% | 75% | 2% | 58 | 58 | - | 10.1% | 10.1% | 0.0% |
| 2026 | 552 | 505 | (47) | 73% | 76% | 3% | 58 | 57 | (1) | 9.9% | 9.8% | -0.1% |
| 2027 | 540 | 488 | (52) | 74% | 76% | 2% | 57 | 57 | - | 9.7% | 9.6% | -0.1% |
| 2028 | 525 | 469 | (56) | 74% | 77% | 3% | 58 | 56 | (2) | 9.6% | 9.3% | -0.3% |
| 2029 | 509 | 449 | (60) | 75% | 78% | 3% | 58 | 56 | (2) | 9.4% | 9.1% | -0.3% |
| 2030 | 491 | 428 | (63) | 76% | 79% | 3% | 59 | 56 | (3) | 9.3% | 8.9% | -0.4% |
| 2031 | 471 | 406 | (65) | 76% | 80% | 4% | 59 | 56 | (3) | 9.2% | 8.7% | -0.5% |
| 2032 | 448 | 383 | (65) | 77% | 80% | 3% | 60 | 56 | (4) | 9.2% | 8.5% | -0.6% |
| 2033 | 424 | 358 | (66) | 78% | 81% | 3% | 61 | 56 | (5) | 9.1% | 8.3% | -0.8% |
| 2034 | 397 | 331 | (66) | 79% | 83% | 4% | 62 | 56 | (6) | 9.0% | 8.1% | -0.9% |
| 2035 | 367 | 303 | (64) | 80% | 84% | 4% | 63 | 56 | (7) | 9.0% | 8.0% | -1.0% |
| 2036 | 334 | 274 | (60) | 82% | 85% | 3% | 64 | 57 | (7) | 8.9% | 7.9% | -1.0% |
| 2037 | 298 | 241 | (57) | 84% | 87% | 3% | 66 | 57 | (9) | 8.9% | 7.7% | -1.2% |
| 2038 | 259 | 208 | (51) | 86% | 89% | 3% | 67 | 57 | (10) | 8.9% | 7.6% | -1.3% |
| 2039 | 216 | 172 | (44) | 88% | 90% | 2% | 68 | 57 | (11) | 8.8% | 7.4% | -1.4% |
| 2040 | 168 | 133 | (35) | 91% | 93% | 2% | 69 | 57 | (12) | 8.8% | 7.2% | -1.6% |
| 2041 | 118 | 92 | (26) | 93% | 95% | 2% | 71 | 58 | (13) | 8.8% | 7.2% | -1.6% |
| 2042 | 62 | 48 | (14) | 97% | 97% | 0% | 72 | 58 | (14) | 8.8% | 7.0% | -1.8% |
| 2043 | - | - | - | 100% | 100% | 0% | 10 | 10 | - | 1.1% | 1.1% | 0.0% |
| 2044 | - | - | - | 100% | 100% | 0% | 10 | 10 | - | 1.1% | 1.1% | 0.0% |
| 2045 | - | - | - | 100% | 100% | 0% | 10 | 10 | - | 1.1% | 1.1% | 0.0% |
| 2046 | - | - | - | 100% | 100% | 0% | 10 | 10 | - | 1.1% | 1.1% | 0.0% |
| 2047 | - | - | - | 100% | 100% | 0% | 10 | 10 | - | 1.1% | 1.1% | 0.0% |
| 2048 | - | - | - | 100% | 100% | 0% | 10 | 10 | - | 1.1% | 1.1% | 0.0% |
| 2049 | - | - | - | 100% | 100% | 0% | 10 | 10 | - | 1.0% | 1.0% | 0.0% |
| 2050 | - | - | - | 100% | 100% | 0% | 10 | 10 | - | 1.0% | 1.0% | 0.0% |
| 2051 | - | - | - | 100% | 100% | 0% | 10 | 10 | - | 1.0% | 1.0% | 0.0% |

**Kentucky Retirement Systems**
**Exhibit 1-6**
**SPRS Insurance Fund**
**Summary of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 1, | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 97 | $ 97 | $ - | 65% | 65% | 0% | $ 9 | $ 9 | $ 0 | 18.8% | 18.8% | 0.0% |
| 2018 | 100 | 100 | - | 65% | 65% | 0% | 13 | 13 | - | 27.2% | 27.2% | 0.0% |
| 2019 | 100 | 100 | - | 66% | 66% | 0% | 13 | 13 | - | 27.2% | 27.2% | 0.0% |
| 2020 | 97 | 97 | - | 68% | 68% | 0% | 13 | 12 | (1) | 25.6% | 24.5% | -1.2% |
| 2021 | 93 | 93 | - | 70% | 70% | 0% | 13 | 12 | (1) | 25.6% | 24.0% | -1.6% |
| 2022 | 90 | 90 | - | 71% | 71% | 0% | 12 | 11 | (1) | 22.9% | 21.6% | -1.4% |
| 2023 | 88 | 88 | - | 72% | 72% | 0% | 12 | 11 | (1) | 22.9% | 21.2% | -1.8% |
| 2024 | 84 | 85 | 1 | 74% | 74% | 0% | 11 | 10 | (1) | 20.4% | 18.9% | -1.5% |
| 2025 | 81 | 82 | 1 | 75% | 75% | 0% | 11 | 10 | (1) | 20.4% | 18.5% | -1.8% |
| 2026 | 78 | 80 | 2 | 76% | 75% | -1% | 10 | 10 | - | 18.2% | 18.2% | 0.0% |
| 2027 | 74 | 76 | 2 | 77% | 76% | -1% | 10 | 9 | (1) | 18.2% | 16.1% | -2.1% |
| 2028 | 71 | 74 | 3 | 78% | 77% | -1% | 9 | 9 | - | 16.4% | 15.8% | -0.6% |
| 2029 | 67 | 70 | 3 | 79% | 78% | -1% | 10 | 9 | (1) | 16.4% | 15.3% | -1.1% |
| 2030 | 64 | 67 | 3 | 79% | 78% | -1% | 9 | 9 | - | 14.9% | 14.8% | -0.2% |
| 2031 | 60 | 63 | 3 | 80% | 79% | -1% | 9 | 9 | - | 14.9% | 14.5% | -0.4% |
| 2032 | 56 | 60 | 4 | 81% | 80% | -1% | 9 | 9 | - | 13.6% | 14.1% | 0.4% |
| 2033 | 52 | 56 | 4 | 82% | 81% | -1% | 9 | 9 | - | 13.6% | 13.6% | 0.0% |
| 2034 | 47 | 51 | 4 | 84% | 82% | -2% | 9 | 9 | - | 12.6% | 13.2% | 0.7% |
| 2035 | 44 | 48 | 4 | 84% | 83% | -1% | 9 | 9 | - | 12.6% | 13.0% | 0.5% |
| 2036 | 39 | 43 | 4 | 86% | 84% | -2% | 8 | 9 | 1 | 11.8% | 12.7% | 0.9% |
| 2037 | 34 | 38 | 4 | 88% | 86% | -2% | 9 | 9 | - | 11.8% | 12.3% | 0.6% |
| 2038 | 29 | 32 | 3 | 89% | 88% | -1% | 8 | 9 | 1 | 11.1% | 12.0% | 0.9% |
| 2039 | 24 | 27 | 3 | 91% | 90% | -1% | 8 | 9 | 1 | 11.1% | 11.7% | 0.6% |
| 2040 | 18 | 21 | 3 | 93% | 92% | -1% | 8 | 9 | 1 | 10.4% | 11.5% | 1.2% |
| 2041 | 12 | 14 | 2 | 95% | 95% | 0% | 8 | 9 | 1 | 10.4% | 11.3% | 0.9% |
| 2042 | 6 | 7 | 1 | 98% | 97% | -1% | 8 | 9 | 1 | 9.6% | 11.0% | 1.4% |
| 2043 | - | - | - | 100% | 100% | 0% | 2 | 2 | - | 1.8% | 1.8% | 0.0% |
| 2044 | - | - | - | 100% | 100% | 0% | 2 | 2 | - | 1.8% | 1.8% | 0.0% |
| 2045 | - | - | - | 100% | 100% | 0% | 2 | 2 | - | 1.8% | 1.8% | 0.0% |
| 2046 | - | - | - | 100% | 100% | 0% | 2 | 2 | - | 1.8% | 1.8% | 0.0% |
| 2047 | - | - | - | 100% | 100% | 0% | 2 | 2 | - | 1.8% | 1.8% | 0.0% |
| 2048 | - | - | - | 100% | 100% | 0% | 2 | 2 | - | 1.7% | 1.7% | 0.0% |
| 2049 | - | - | - | 100% | 100% | 0% | 2 | 2 | - | 1.7% | 1.7% | 0.0% |
| 2050 | - | - | - | 100% | 100% | 0% | 2 | 2 | - | 1.7% | 1.7% | 0.0% |
| 2051 | - | - | - | 100% | 100% | 0% | 2 | 2 | - | 1.7% | 1.7% | 0.0% |

# Section 2.
# Projected Cost of the Retirement and Insurance Current Plan

**Kentucky Retirement Systems**
**Exhibit 2-1**
**KERS Hazardous Retirement Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 1,121 | $ 607 | $ 514 | 54% | $ 35 | $ 13 | $ 162 | 21.44% | 21.44% |
| 2018 | 1,155 | 637 | 518 | 55% | 57 | 13 | 166 | 34.39% | 34.39% |
| 2019 | 1,186 | 669 | 517 | 56% | 58 | 14 | 170 | 34.39% | 33.30% |
| 2020 | 1,217 | 709 | 508 | 58% | 57 | 14 | 174 | 32.60% | 32.60% |
| 2021 | 1,247 | 757 | 490 | 61% | 58 | 14 | 179 | 32.60% | 31.64% |
| 2022 | 1,276 | 801 | 475 | 63% | 55 | 15 | 183 | 30.23% | 30.23% |
| 2023 | 1,305 | 841 | 464 | 64% | 57 | 15 | 188 | 30.23% | 29.28% |
| 2024 | 1,333 | 884 | 449 | 66% | 55 | 15 | 193 | 28.30% | 28.30% |
| 2025 | 1,360 | 925 | 435 | 68% | 56 | 16 | 197 | 28.30% | 27.39% |
| 2026 | 1,386 | 967 | 419 | 70% | 53 | 16 | 202 | 26.47% | 26.47% |
| 2027 | 1,410 | 1,007 | 403 | 71% | 55 | 16 | 206 | 26.47% | 25.63% |
| 2028 | 1,434 | 1,048 | 386 | 73% | 52 | 17 | 211 | 24.72% | 24.72% |
| 2029 | 1,456 | 1,087 | 369 | 75% | 53 | 17 | 216 | 24.72% | 23.96% |
| 2030 | 1,478 | 1,128 | 350 | 76% | 51 | 18 | 222 | 23.16% | 23.16% |
| 2031 | 1,500 | 1,169 | 331 | 78% | 53 | 18 | 229 | 23.16% | 22.48% |
| 2032 | 1,524 | 1,214 | 310 | 80% | 51 | 19 | 236 | 21.75% | 21.75% |
| 2033 | 1,549 | 1,260 | 289 | 81% | 53 | 19 | 242 | 21.75% | 21.14% |
| 2034 | 1,576 | 1,310 | 266 | 83% | 51 | 20 | 249 | 20.47% | 20.47% |
| 2035 | 1,605 | 1,362 | 243 | 85% | 52 | 20 | 256 | 20.47% | 19.91% |
| 2036 | 1,634 | 1,417 | 217 | 87% | 51 | 21 | 263 | 19.29% | 19.29% |
| 2037 | 1,665 | 1,473 | 192 | 88% | 52 | 22 | 269 | 19.29% | 18.78% |
| 2038 | 1,695 | 1,532 | 163 | 90% | 50 | 22 | 276 | 18.16% | 18.16% |
| 2039 | 1,725 | 1,591 | 134 | 92% | 51 | 23 | 282 | 18.16% | 17.71% |
| 2040 | 1,755 | 1,652 | 103 | 94% | 49 | 23 | 288 | 17.15% | 17.15% |
| 2041 | 1,785 | 1,713 | 72 | 96% | 50 | 23 | 293 | 17.15% | 16.91% |
| 2042 | 1,813 | 1,776 | 37 | 98% | 49 | 24 | 299 | 16.55% | 16.55% |
| 2043 | 1,841 | 1,841 | 0 | 100% | 13 | 24 | 305 | 4.10% | 4.10% |
| 2044 | 1,869 | 1,869 | 0 | 100% | 13 | 25 | 311 | 4.10% | 4.10% |
| 2045 | 1,897 | 1,897 | 0 | 100% | 13 | 25 | 318 | 4.10% | 4.10% |
| 2046 | 1,925 | 1,925 | 0 | 100% | 13 | 26 | 325 | 4.10% | 4.10% |
| 2047 | 1,953 | 1,953 | 0 | 100% | 14 | 27 | 333 | 4.10% | 4.10% |
| 2048 | 1,982 | 1,982 | 0 | 100% | 14 | 27 | 340 | 4.10% | 4.10% |
| 2049 | 2,011 | 2,011 | 0 | 100% | 14 | 28 | 348 | 4.10% | 4.10% |
| 2050 | 2,040 | 2,040 | 0 | 100% | 15 | 28 | 356 | 4.10% | 4.10% |
| 2051 | 2,070 | 2,070 | 0 | 100% | 15 | 29 | 364 | 4.10% | 4.10% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the $10 million additional contribution budgeted to be paid in fiscal year beginning 2017.

**Kentucky Retirement Systems**
**Exhibit 2-2**
**CERS Hazardous Retirement Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 4,649 | $ 2,238 | $ 2,411 | 48% | $ 120 | $ 43 | $ 542 | 22.20% | 22.20% |
| 2018 | 4,771 | 2,293 | 2,478 | 48% | 192 | 43 | 537 | 35.69% | 35.69% |
| 2019 | 4,880 | 2,376 | 2,504 | 49% | 193 | 43 | 538 | 35.95% | 35.95% |
| 2020 | 4,978 | 2,478 | 2,500 | 50% | 197 | 43 | 542 | 36.42% | 36.42% |
| 2021 | 5,066 | 2,610 | 2,456 | 52% | 199 | 44 | 546 | 36.48% | 36.48% |
| 2022 | 5,145 | 2,712 | 2,433 | 53% | 199 | 44 | 551 | 36.06% | 36.06% |
| 2023 | 5,214 | 2,809 | 2,405 | 54% | 201 | 45 | 558 | 35.95% | 35.95% |
| 2024 | 5,274 | 2,902 | 2,372 | 55% | 202 | 45 | 565 | 35.81% | 35.81% |
| 2025 | 5,325 | 2,992 | 2,333 | 56% | 204 | 46 | 573 | 35.66% | 35.66% |
| 2026 | 5,367 | 3,079 | 2,288 | 57% | 207 | 47 | 582 | 35.49% | 35.49% |
| 2027 | 5,400 | 3,164 | 2,236 | 59% | 209 | 47 | 592 | 35.32% | 35.32% |
| 2028 | 5,426 | 3,248 | 2,178 | 60% | 212 | 48 | 602 | 35.14% | 35.14% |
| 2029 | 5,444 | 3,333 | 2,111 | 61% | 215 | 49 | 614 | 34.96% | 34.96% |
| 2030 | 5,457 | 3,420 | 2,037 | 63% | 218 | 50 | 628 | 34.75% | 34.75% |
| 2031 | 5,466 | 3,512 | 1,954 | 64% | 222 | 51 | 642 | 34.54% | 34.54% |
| 2032 | 5,472 | 3,611 | 1,861 | 66% | 225 | 53 | 657 | 34.33% | 34.33% |
| 2033 | 5,478 | 3,719 | 1,759 | 68% | 229 | 54 | 672 | 34.12% | 34.12% |
| 2034 | 5,483 | 3,837 | 1,646 | 70% | 233 | 55 | 688 | 33.92% | 33.92% |
| 2035 | 5,489 | 3,967 | 1,522 | 72% | 238 | 56 | 705 | 33.73% | 33.73% |
| 2036 | 5,495 | 4,110 | 1,385 | 75% | 242 | 58 | 721 | 33.56% | 33.56% |
| 2037 | 5,502 | 4,267 | 1,235 | 78% | 247 | 59 | 738 | 33.40% | 33.40% |
| 2038 | 5,510 | 4,439 | 1,071 | 81% | 251 | 60 | 755 | 33.26% | 33.26% |
| 2039 | 5,519 | 4,627 | 892 | 84% | 256 | 62 | 773 | 33.13% | 33.13% |
| 2040 | 5,528 | 4,831 | 697 | 87% | 261 | 63 | 791 | 33.02% | 33.02% |
| 2041 | 5,540 | 5,056 | 484 | 91% | 267 | 65 | 809 | 32.94% | 32.94% |
| 2042 | 5,555 | 5,301 | 254 | 95% | 272 | 66 | 828 | 32.89% | 32.89% |
| 2043 | 5,573 | 5,573 | 0 | 100% | 12 | 68 | 848 | 1.41% | 1.41% |
| 2044 | 5,595 | 5,595 | 0 | 100% | 12 | 69 | 867 | 1.40% | 1.40% |
| 2045 | 5,619 | 5,619 | 0 | 100% | 12 | 71 | 887 | 1.40% | 1.40% |
| 2046 | 5,646 | 5,646 | 0 | 100% | 13 | 73 | 907 | 1.40% | 1.40% |
| 2047 | 5,674 | 5,674 | 0 | 100% | 13 | 74 | 927 | 1.40% | 1.40% |
| 2048 | 5,704 | 5,704 | 0 | 100% | 13 | 76 | 948 | 1.40% | 1.40% |
| 2049 | 5,736 | 5,736 | 0 | 100% | 14 | 78 | 970 | 1.40% | 1.40% |
| 2050 | 5,769 | 5,769 | 0 | 100% | 14 | 79 | 992 | 1.40% | 1.40% |
| 2051 | 5,803 | 5,803 | 0 | 100% | 14 | 81 | 1,014 | 1.40% | 1.40% |

Notes and assumptions:
The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.
The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

**Kentucky Retirement Systems**
**Exhibit 2-3**
**SPRS Retirement Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 967 | $ 261 | $ 706 | 27% | $ 35 | $ 4 | $ 49 | 72.47% | 71.57% |
| 2018 | 970 | 264 | 706 | 27% | 58 | 4 | 49 | 119.05% | 119.05% |
| 2019 | 972 | 275 | 697 | 28% | 59 | 4 | 50 | 119.05% | 117.69% |
| 2020 | 972 | 290 | 682 | 30% | 58 | 4 | 50 | 116.24% | 116.24% |
| 2021 | 972 | 308 | 664 | 32% | 59 | 4 | 51 | 116.24% | 114.50% |
| 2022 | 970 | 325 | 645 | 34% | 58 | 4 | 52 | 111.48% | 111.48% |
| 2023 | 967 | 341 | 626 | 35% | 59 | 4 | 53 | 111.48% | 109.03% |
| 2024 | 964 | 358 | 606 | 37% | 57 | 4 | 54 | 106.31% | 106.31% |
| 2025 | 959 | 373 | 586 | 39% | 58 | 4 | 55 | 106.31% | 103.75% |
| 2026 | 953 | 390 | 563 | 41% | 56 | 4 | 56 | 101.12% | 101.12% |
| 2027 | 946 | 405 | 541 | 43% | 58 | 5 | 57 | 101.12% | 98.44% |
| 2028 | 938 | 423 | 515 | 45% | 56 | 5 | 59 | 95.24% | 95.24% |
| 2029 | 930 | 440 | 490 | 47% | 57 | 5 | 60 | 95.24% | 92.43% |
| 2030 | 922 | 459 | 463 | 50% | 55 | 5 | 62 | 89.36% | 89.36% |
| 2031 | 914 | 477 | 437 | 52% | 57 | 5 | 64 | 89.36% | 86.61% |
| 2032 | 905 | 499 | 406 | 55% | 55 | 5 | 65 | 83.53% | 83.53% |
| 2033 | 897 | 519 | 378 | 58% | 56 | 5 | 67 | 83.53% | 81.10% |
| 2034 | 888 | 544 | 344 | 61% | 54 | 6 | 69 | 78.24% | 78.24% |
| 2035 | 880 | 567 | 313 | 64% | 55 | 6 | 71 | 78.24% | 75.87% |
| 2036 | 872 | 595 | 277 | 68% | 53 | 6 | 73 | 73.29% | 73.29% |
| 2037 | 865 | 622 | 243 | 72% | 55 | 6 | 75 | 73.29% | 71.26% |
| 2038 | 857 | 652 | 205 | 76% | 52 | 6 | 76 | 68.64% | 68.64% |
| 2039 | 851 | 683 | 168 | 80% | 54 | 6 | 78 | 68.64% | 66.76% |
| 2040 | 844 | 718 | 126 | 85% | 51 | 6 | 80 | 63.97% | 63.97% |
| 2041 | 839 | 753 | 86 | 90% | 52 | 7 | 82 | 63.97% | 62.25% |
| 2042 | 833 | 791 | 42 | 95% | 49 | 7 | 84 | 58.27% | 58.27% |
| 2043 | 829 | 829 | 0 | 100% | 5 | 7 | 86 | 5.93% | 5.93% |
| 2044 | 825 | 825 | 0 | 100% | 5 | 7 | 88 | 5.88% | 5.88% |
| 2045 | 821 | 821 | 0 | 100% | 5 | 7 | 90 | 5.85% | 5.85% |
| 2046 | 818 | 818 | 0 | 100% | 5 | 7 | 92 | 5.83% | 5.83% |
| 2047 | 815 | 815 | 0 | 100% | 5 | 7 | 94 | 5.81% | 5.81% |
| 2048 | 813 | 813 | 0 | 100% | 6 | 8 | 96 | 5.80% | 5.80% |
| 2049 | 811 | 811 | 0 | 100% | 6 | 8 | 98 | 5.79% | 5.79% |
| 2050 | 810 | 810 | 0 | 100% | 6 | 8 | 100 | 5.79% | 5.79% |
| 2051 | 809 | 809 | 0 | 100% | 6 | 8 | 102 | 5.79% | 5.79% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the $10 million additional contribution budgeted to be paid in fiscal year beginning 2017.

**Kentucky Retirement Systems**
**Exhibit 2-4**
**KERS Hazardous Insurance Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarial Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 419 | $ 493 | $ (74) | 118% | $ 4 | $ 1 | $ 162 | 2.26% | 1.34% |
| 2018 | 436 | 507 | (71) | 116% | 4 | 1 | 165 | 2.46% | 2.46% |
| 2019 | 453 | 516 | (63) | 114% | 4 | 1 | 169 | 2.46% | 2.15% |
| 2020 | 468 | 529 | (61) | 113% | 4 | 1 | 174 | 2.11% | 2.11% |
| 2021 | 482 | 548 | (66) | 114% | 4 | 1 | 178 | 2.11% | 1.84% |
| 2022 | 494 | 559 | (65) | 113% | 2 | 1 | 183 | 1.21% | 1.21% |
| 2023 | 504 | 568 | (64) | 113% | 2 | 1 | 187 | 1.21% | 0.91% |
| 2024 | 513 | 575 | (62) | 112% | 1 | 1 | 192 | 0.65% | 0.65% |
| 2025 | 520 | 581 | (61) | 112% | 1 | 2 | 197 | 0.65% | 0.50% |
| 2026 | 525 | 585 | (60) | 111% | 1 | 2 | 201 | 0.35% | 0.35% |
| 2027 | 530 | 587 | (57) | 111% | 1 | 2 | 206 | 0.35% | 0.25% |
| 2028 | 534 | 589 | (55) | 110% | 0 | 2 | 210 | 0.14% | 0.14% |
| 2029 | 537 | 590 | (53) | 110% | 0 | 2 | 216 | 0.14% | 0.09% |
| 2030 | 540 | 590 | (50) | 109% | 0 | 2 | 222 | 0.07% | 0.07% |
| 2031 | 543 | 590 | (47) | 109% | 0 | 2 | 228 | 0.07% | 0.10% |
| 2032 | 546 | 590 | (44) | 108% | 0 | 2 | 235 | 0.15% | 0.15% |
| 2033 | 550 | 590 | (40) | 107% | 0 | 2 | 242 | 0.15% | 0.20% |
| 2034 | 554 | 591 | (37) | 107% | 1 | 2 | 249 | 0.25% | 0.25% |
| 2035 | 559 | 592 | (33) | 106% | 1 | 3 | 255 | 0.25% | 0.31% |
| 2036 | 565 | 594 | (29) | 105% | 1 | 3 | 262 | 0.39% | 0.39% |
| 2037 | 572 | 597 | (25) | 104% | 1 | 3 | 269 | 0.39% | 0.43% |
| 2038 | 580 | 601 | (21) | 104% | 1 | 3 | 275 | 0.49% | 0.49% |
| 2039 | 588 | 605 | (17) | 103% | 1 | 3 | 281 | 0.49% | 0.54% |
| 2040 | 598 | 610 | (12) | 102% | 2 | 3 | 287 | 0.63% | 0.63% |
| 2041 | 608 | 616 | (8) | 101% | 2 | 3 | 292 | 0.63% | 0.68% |
| 2042 | 618 | 622 | (4) | 101% | 3 | 3 | 298 | 0.86% | 0.86% |
| 2043 | 629 | 629 | 0 | 100% | 7 | 3 | 304 | 2.14% | 2.14% |
| 2044 | 640 | 640 | 0 | 100% | 7 | 3 | 311 | 2.11% | 2.11% |
| 2045 | 651 | 651 | 0 | 100% | 7 | 3 | 318 | 2.07% | 2.07% |
| 2046 | 662 | 662 | 0 | 100% | 7 | 3 | 325 | 2.05% | 2.05% |
| 2047 | 673 | 673 | 0 | 100% | 7 | 3 | 332 | 2.02% | 2.02% |
| 2048 | 685 | 685 | 0 | 100% | 7 | 3 | 340 | 1.99% | 1.99% |
| 2049 | 696 | 696 | 0 | 100% | 7 | 3 | 348 | 1.97% | 1.97% |
| 2050 | 707 | 707 | 0 | 100% | 7 | 4 | 355 | 1.95% | 1.95% |
| 2051 | 718 | 718 | 0 | 100% | 7 | 4 | 364 | 1.92% | 1.92% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.
The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

**Kentucky Retirement Systems**
**Exhibit 2-5**
**CERS Hazardous Insurance Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 1,788 | $ 1,197 | $ 591 | 67% | $ 51 | $ 2 | $ 541 | 9.35% | 9.35% |
| 2018 | 1,853 | 1,243 | 610 | 67% | 65 | 2 | 536 | 12.17% | 12.17% |
| 2019 | 1,912 | 1,290 | 622 | 67% | 64 | 3 | 538 | 11.97% | 11.97% |
| 2020 | 1,962 | 1,343 | 619 | 68% | 64 | 3 | 541 | 11.83% | 11.83% |
| 2021 | 2,005 | 1,405 | 600 | 70% | 63 | 3 | 546 | 11.52% | 11.52% |
| 2022 | 2,038 | 1,446 | 592 | 71% | 61 | 4 | 551 | 11.00% | 11.00% |
| 2023 | 2,061 | 1,478 | 583 | 72% | 59 | 4 | 558 | 10.66% | 10.66% |
| 2024 | 2,075 | 1,501 | 574 | 72% | 59 | 4 | 565 | 10.37% | 10.37% |
| 2025 | 2,081 | 1,517 | 564 | 73% | 58 | 5 | 573 | 10.12% | 10.12% |
| 2026 | 2,078 | 1,526 | 552 | 73% | 58 | 5 | 582 | 9.89% | 9.89% |
| 2027 | 2,068 | 1,528 | 540 | 74% | 57 | 5 | 591 | 9.71% | 9.71% |
| 2028 | 2,052 | 1,527 | 525 | 74% | 58 | 5 | 602 | 9.57% | 9.57% |
| 2029 | 2,031 | 1,522 | 509 | 75% | 58 | 6 | 614 | 9.43% | 9.43% |
| 2030 | 2,008 | 1,517 | 491 | 76% | 59 | 6 | 627 | 9.33% | 9.33% |
| 2031 | 1,982 | 1,511 | 471 | 76% | 59 | 6 | 641 | 9.24% | 9.24% |
| 2032 | 1,954 | 1,506 | 448 | 77% | 60 | 6 | 656 | 9.16% | 9.16% |
| 2033 | 1,927 | 1,503 | 424 | 78% | 61 | 7 | 672 | 9.09% | 9.09% |
| 2034 | 1,899 | 1,502 | 397 | 79% | 62 | 7 | 688 | 9.03% | 9.03% |
| 2035 | 1,873 | 1,506 | 367 | 80% | 63 | 7 | 704 | 8.98% | 8.98% |
| 2036 | 1,849 | 1,515 | 334 | 82% | 64 | 7 | 721 | 8.93% | 8.93% |
| 2037 | 1,828 | 1,530 | 298 | 84% | 66 | 7 | 738 | 8.89% | 8.89% |
| 2038 | 1,811 | 1,552 | 259 | 86% | 67 | 8 | 755 | 8.85% | 8.85% |
| 2039 | 1,796 | 1,580 | 216 | 88% | 68 | 8 | 772 | 8.82% | 8.82% |
| 2040 | 1,785 | 1,617 | 168 | 91% | 69 | 8 | 790 | 8.79% | 8.79% |
| 2041 | 1,779 | 1,661 | 118 | 93% | 71 | 8 | 809 | 8.77% | 8.77% |
| 2042 | 1,776 | 1,714 | 62 | 97% | 72 | 8 | 828 | 8.75% | 8.75% |
| 2043 | 1,777 | 1,777 | 0 | 100% | 10 | 8 | 847 | 1.13% | 1.13% |
| 2044 | 1,782 | 1,782 | 0 | 100% | 10 | 9 | 866 | 1.11% | 1.11% |
| 2045 | 1,789 | 1,789 | 0 | 100% | 10 | 9 | 886 | 1.10% | 1.10% |
| 2046 | 1,799 | 1,799 | 0 | 100% | 10 | 9 | 906 | 1.08% | 1.08% |
| 2047 | 1,811 | 1,811 | 0 | 100% | 10 | 9 | 926 | 1.07% | 1.07% |
| 2048 | 1,823 | 1,823 | 0 | 100% | 10 | 9 | 947 | 1.06% | 1.06% |
| 2049 | 1,836 | 1,836 | 0 | 100% | 10 | 10 | 969 | 1.04% | 1.04% |
| 2050 | 1,847 | 1,847 | 0 | 100% | 10 | 10 | 991 | 1.03% | 1.03% |
| 2051 | 1,859 | 1,859 | 0 | 100% | 10 | 10 | 1,013 | 1.01% | 1.01% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.
The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

**Kentucky Retirement Systems**
**Exhibit 2-6**
**SPRS Insurance Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 277 | $ 180 | $ 97 | 65% | $ 9 | $ 0 | $ 48 | 18.77% | 18.10% |
| 2018 | 286 | 186 | 100 | 65% | 13 | 0 | 48 | 27.23% | 27.23% |
| 2019 | 295 | 195 | 100 | 66% | 13 | 0 | 49 | 27.23% | 26.34% |
| 2020 | 302 | 205 | 97 | 68% | 13 | 0 | 49 | 25.64% | 25.64% |
| 2021 | 309 | 216 | 93 | 70% | 13 | 0 | 50 | 25.64% | 24.57% |
| 2022 | 314 | 224 | 90 | 71% | 12 | 0 | 51 | 22.92% | 22.92% |
| 2023 | 319 | 231 | 88 | 72% | 12 | 0 | 52 | 22.92% | 21.70% |
| 2024 | 321 | 237 | 84 | 74% | 11 | 0 | 53 | 20.35% | 20.35% |
| 2025 | 322 | 241 | 81 | 75% | 11 | 0 | 54 | 20.35% | 19.25% |
| 2026 | 322 | 244 | 78 | 76% | 10 | 0 | 55 | 18.17% | 18.17% |
| 2027 | 320 | 246 | 74 | 77% | 10 | 0 | 56 | 18.17% | 17.28% |
| 2028 | 318 | 247 | 71 | 78% | 9 | 0 | 57 | 16.37% | 16.37% |
| 2029 | 314 | 247 | 67 | 79% | 10 | 1 | 59 | 16.37% | 15.65% |
| 2030 | 310 | 246 | 64 | 79% | 9 | 1 | 61 | 14.90% | 14.90% |
| 2031 | 305 | 245 | 60 | 80% | 9 | 1 | 62 | 14.90% | 14.30% |
| 2032 | 300 | 244 | 56 | 81% | 9 | 1 | 64 | 13.64% | 13.64% |
| 2033 | 294 | 242 | 52 | 82% | 9 | 1 | 66 | 13.64% | 13.13% |
| 2034 | 288 | 241 | 47 | 84% | 9 | 1 | 68 | 12.58% | 12.58% |
| 2035 | 283 | 239 | 44 | 84% | 9 | 1 | 69 | 12.58% | 12.18% |
| 2036 | 277 | 238 | 39 | 86% | 8 | 1 | 71 | 11.77% | 11.77% |
| 2037 | 272 | 238 | 34 | 88% | 9 | 1 | 73 | 11.77% | 11.45% |
| 2038 | 267 | 238 | 29 | 89% | 8 | 1 | 75 | 11.06% | 11.06% |
| 2039 | 263 | 239 | 24 | 91% | 8 | 1 | 77 | 11.06% | 10.79% |
| 2040 | 259 | 241 | 18 | 93% | 8 | 1 | 78 | 10.39% | 10.39% |
| 2041 | 255 | 243 | 12 | 95% | 8 | 1 | 80 | 10.39% | 10.15% |
| 2042 | 252 | 246 | 6 | 98% | 8 | 1 | 82 | 9.59% | 9.59% |
| 2043 | 250 | 250 | 0 | 100% | 2 | 1 | 84 | 1.84% | 1.84% |
| 2044 | 249 | 249 | 0 | 100% | 2 | 1 | 85 | 1.82% | 1.82% |
| 2045 | 248 | 248 | 0 | 100% | 2 | 1 | 87 | 1.80% | 1.80% |
| 2046 | 248 | 248 | 0 | 100% | 2 | 1 | 89 | 1.78% | 1.78% |
| 2047 | 248 | 248 | 0 | 100% | 2 | 1 | 91 | 1.75% | 1.75% |
| 2048 | 249 | 249 | 0 | 100% | 2 | 1 | 93 | 1.73% | 1.73% |
| 2049 | 249 | 249 | 0 | 100% | 2 | 1 | 95 | 1.71% | 1.71% |
| 2050 | 250 | 250 | 0 | 100% | 2 | 1 | 97 | 1.69% | 1.69% |
| 2051 | 251 | 251 | 0 | 100% | 2 | 1 | 99 | 1.66% | 1.66% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.
The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

# Section 3.
# Projected Cost of the Retirement and Insurance Proposed Legislation

**Kentucky Retirement Systems**
**Exhibit 3-1**
**KERS Hazardous Retirement Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 1,121 | $ 607 | $ 514 | 54% | $ 35 | $ 13 | $ 162 | 21.44% | 20.48% |
| 2018 | 1,155 | 637 | 518 | 55% | 57 | 13 | 166 | 34.37% | 34.37% |
| 2019 | 1,186 | 669 | 517 | 56% | 58 | 14 | 170 | 34.37% | 33.26% |
| 2020 | 1,217 | 709 | 508 | 58% | 56 | 14 | 174 | 31.95% | 31.95% |
| 2021 | 1,247 | 756 | 491 | 61% | 56 | 14 | 179 | 31.09% | 31.09% |
| 2022 | 1,276 | 796 | 480 | 62% | 55 | 15 | 183 | 29.82% | 29.82% |
| 2023 | 1,304 | 836 | 468 | 64% | 54 | 15 | 188 | 28.94% | 28.94% |
| 2024 | 1,332 | 876 | 456 | 66% | 54 | 15 | 193 | 28.06% | 28.06% |
| 2025 | 1,359 | 916 | 443 | 67% | 54 | 16 | 197 | 27.30% | 27.30% |
| 2026 | 1,385 | 956 | 429 | 69% | 53 | 16 | 202 | 26.50% | 26.50% |
| 2027 | 1,409 | 995 | 414 | 71% | 53 | 16 | 206 | 25.72% | 25.72% |
| 2028 | 1,433 | 1,034 | 399 | 72% | 53 | 17 | 211 | 24.92% | 24.92% |
| 2029 | 1,455 | 1,072 | 383 | 74% | 52 | 17 | 216 | 24.14% | 24.14% |
| 2030 | 1,476 | 1,111 | 365 | 75% | 52 | 18 | 222 | 23.44% | 23.44% |
| 2031 | 1,499 | 1,151 | 348 | 77% | 52 | 18 | 229 | 22.80% | 22.80% |
| 2032 | 1,522 | 1,194 | 328 | 78% | 52 | 19 | 236 | 22.19% | 22.19% |
| 2033 | 1,547 | 1,240 | 307 | 80% | 52 | 19 | 242 | 21.64% | 21.64% |
| 2034 | 1,574 | 1,289 | 285 | 82% | 53 | 20 | 249 | 21.12% | 21.12% |
| 2035 | 1,602 | 1,341 | 261 | 84% | 53 | 20 | 256 | 20.65% | 20.65% |
| 2036 | 1,632 | 1,395 | 237 | 85% | 53 | 21 | 263 | 20.17% | 20.17% |
| 2037 | 1,662 | 1,452 | 210 | 87% | 53 | 22 | 269 | 19.74% | 19.74% |
| 2038 | 1,692 | 1,511 | 181 | 89% | 53 | 22 | 276 | 19.31% | 19.31% |
| 2039 | 1,722 | 1,572 | 150 | 91% | 53 | 23 | 282 | 18.94% | 18.94% |
| 2040 | 1,752 | 1,634 | 118 | 93% | 54 | 23 | 288 | 18.65% | 18.65% |
| 2041 | 1,780 | 1,698 | 82 | 95% | 54 | 23 | 293 | 18.54% | 18.54% |
| 2042 | 1,809 | 1,765 | 44 | 98% | 56 | 24 | 299 | 18.63% | 18.63% |
| 2043 | 1,836 | 1,836 | - | 100% | 13 | 24 | 305 | 4.10% | 4.10% |
| 2044 | 1,864 | 1,864 | - | 100% | 13 | 25 | 311 | 4.10% | 4.10% |
| 2045 | 1,891 | 1,891 | - | 100% | 13 | 25 | 318 | 4.10% | 4.10% |
| 2046 | 1,918 | 1,918 | - | 100% | 13 | 26 | 325 | 4.10% | 4.10% |
| 2047 | 1,946 | 1,946 | - | 100% | 14 | 27 | 333 | 4.10% | 4.10% |
| 2048 | 1,974 | 1,974 | - | 100% | 14 | 27 | 340 | 4.10% | 4.10% |
| 2049 | 2,003 | 2,003 | - | 100% | 14 | 28 | 348 | 4.10% | 4.10% |
| 2050 | 2,032 | 2,032 | - | 100% | 15 | 28 | 356 | 4.10% | 4.10% |
| 2051 | 2,061 | 2,061 | - | 100% | 15 | 29 | 364 | 4.10% | 4.10% |

Notes and assumptions:
The projection is based on the results of the June 30, 2017 actuarial valuation.
The actuarial determined contribution is determined by the prior year's actuarial valuation.
The employer contribution amount shown does not include the $10 million additional contribution budgeted to be paid in fiscal year beginning 2017.

**Kentucky Retirement Systems**
**Exhibit 3-2**
**CERS Hazardous Retirement Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 4,649 | $ 2,238 | $ 2,411 | 48% | $ 120 | $ 43 | $ 542 | 22.20% | 22.20% |
| 2018 | 4,771 | 2,293 | 2,478 | 48% | 192 | 43 | 537 | 35.68% | 35.68% |
| 2019 | 4,880 | 2,376 | 2,504 | 49% | 193 | 43 | 538 | 35.95% | 35.95% |
| 2020 | 4,978 | 2,478 | 2,500 | 50% | 232 | 43 | 542 | 42.80% | 42.80% |
| 2021 | 5,066 | 2,645 | 2,421 | 52% | 230 | 44 | 546 | 42.10% | 42.10% |
| 2022 | 5,144 | 2,782 | 2,362 | 54% | 225 | 44 | 551 | 40.85% | 40.85% |
| 2023 | 5,213 | 2,910 | 2,303 | 56% | 223 | 45 | 558 | 39.97% | 39.97% |
| 2024 | 5,273 | 3,033 | 2,240 | 58% | 221 | 45 | 565 | 39.09% | 39.09% |
| 2025 | 5,324 | 3,150 | 2,174 | 59% | 219 | 46 | 573 | 38.22% | 38.22% |
| 2026 | 5,366 | 3,262 | 2,104 | 61% | 217 | 47 | 582 | 37.33% | 37.33% |
| 2027 | 5,399 | 3,369 | 2,030 | 62% | 216 | 47 | 592 | 36.43% | 36.43% |
| 2028 | 5,425 | 3,473 | 1,952 | 64% | 214 | 48 | 602 | 35.54% | 35.54% |
| 2029 | 5,443 | 3,574 | 1,869 | 66% | 213 | 49 | 614 | 34.64% | 34.64% |
| 2030 | 5,455 | 3,674 | 1,781 | 67% | 212 | 50 | 628 | 33.75% | 33.75% |
| 2031 | 5,464 | 3,775 | 1,689 | 69% | 211 | 51 | 642 | 32.91% | 32.91% |
| 2032 | 5,471 | 3,880 | 1,591 | 71% | 211 | 53 | 657 | 32.08% | 32.08% |
| 2033 | 5,476 | 3,989 | 1,487 | 73% | 210 | 54 | 672 | 31.28% | 31.28% |
| 2034 | 5,481 | 4,105 | 1,376 | 75% | 210 | 55 | 688 | 30.53% | 30.53% |
| 2035 | 5,486 | 4,228 | 1,258 | 77% | 210 | 56 | 705 | 29.82% | 29.82% |
| 2036 | 5,492 | 4,359 | 1,133 | 79% | 210 | 58 | 721 | 29.13% | 29.13% |
| 2037 | 5,499 | 4,498 | 1,001 | 82% | 210 | 59 | 738 | 28.48% | 28.48% |
| 2038 | 5,506 | 4,647 | 859 | 84% | 210 | 60 | 755 | 27.86% | 27.86% |
| 2039 | 5,514 | 4,805 | 709 | 87% | 211 | 62 | 773 | 27.26% | 27.26% |
| 2040 | 5,523 | 4,974 | 549 | 90% | 211 | 63 | 791 | 26.71% | 26.71% |
| 2041 | 5,535 | 5,156 | 379 | 93% | 212 | 65 | 809 | 26.21% | 26.21% |
| 2042 | 5,549 | 5,351 | 198 | 96% | 214 | 66 | 828 | 25.80% | 25.80% |
| 2043 | 5,566 | 5,566 | - | 100% | 12 | 68 | 848 | 1.41% | 1.41% |
| 2044 | 5,587 | 5,587 | - | 100% | 12 | 69 | 867 | 1.40% | 1.40% |
| 2045 | 5,610 | 5,610 | - | 100% | 12 | 71 | 887 | 1.40% | 1.40% |
| 2046 | 5,636 | 5,636 | - | 100% | 13 | 73 | 907 | 1.40% | 1.40% |
| 2047 | 5,663 | 5,663 | - | 100% | 13 | 74 | 927 | 1.40% | 1.40% |
| 2048 | 5,692 | 5,692 | - | 100% | 13 | 76 | 948 | 1.40% | 1.40% |
| 2049 | 5,722 | 5,722 | - | 100% | 14 | 78 | 970 | 1.40% | 1.40% |
| 2050 | 5,753 | 5,753 | - | 100% | 14 | 79 | 992 | 1.40% | 1.40% |
| 2051 | 5,785 | 5,785 | - | 100% | 14 | 81 | 1,014 | 1.40% | 1.40% |

Notes and assumptions:
The projection is based on the results of the June 30, 2017 actuarial valuation.
The actuarial determined contribution is determined by the prior year's actuarial valuation.

**Kentucky Retirement Systems**
**Exhibit 3-3**
**SPRS Retirement Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 967 | $ 261 | $ 706 | 27% | $ 35 | $ 4 | $ 49 | 72.47% | 71.57% |
| 2018 | 970 | 264 | 706 | 27% | 58 | 4 | 49 | 119.04% | 119.04% |
| 2019 | 972 | 275 | 697 | 28% | 59 | 4 | 50 | 119.04% | 117.68% |
| 2020 | 972 | 290 | 682 | 30% | 58 | 4 | 50 | 115.03% | 115.03% |
| 2021 | 972 | 308 | 664 | 32% | 58 | 4 | 51 | 112.92% | 112.92% |
| 2022 | 970 | 323 | 647 | 33% | 57 | 4 | 52 | 110.20% | 110.20% |
| 2023 | 967 | 338 | 629 | 35% | 57 | 4 | 53 | 107.83% | 107.83% |
| 2024 | 964 | 353 | 611 | 37% | 57 | 4 | 54 | 105.43% | 105.43% |
| 2025 | 959 | 367 | 592 | 38% | 56 | 4 | 55 | 103.15% | 103.15% |
| 2026 | 952 | 382 | 570 | 40% | 56 | 4 | 56 | 100.46% | 100.46% |
| 2027 | 946 | 396 | 550 | 42% | 56 | 5 | 57 | 97.63% | 97.63% |
| 2028 | 938 | 411 | 527 | 44% | 56 | 5 | 59 | 94.95% | 94.95% |
| 2029 | 930 | 427 | 503 | 46% | 56 | 5 | 60 | 92.30% | 92.30% |
| 2030 | 922 | 444 | 478 | 48% | 56 | 5 | 62 | 89.64% | 89.64% |
| 2031 | 914 | 462 | 452 | 51% | 56 | 5 | 64 | 87.08% | 87.08% |
| 2032 | 905 | 481 | 424 | 53% | 55 | 5 | 65 | 84.79% | 84.79% |
| 2033 | 896 | 502 | 394 | 56% | 55 | 5 | 67 | 82.39% | 82.39% |
| 2034 | 888 | 524 | 364 | 59% | 55 | 6 | 69 | 80.17% | 80.17% |
| 2035 | 880 | 548 | 332 | 62% | 55 | 6 | 71 | 78.21% | 78.21% |
| 2036 | 872 | 574 | 298 | 66% | 55 | 6 | 73 | 76.32% | 76.32% |
| 2037 | 864 | 603 | 261 | 70% | 56 | 6 | 75 | 74.41% | 74.41% |
| 2038 | 857 | 633 | 224 | 74% | 56 | 6 | 76 | 72.75% | 72.75% |
| 2039 | 850 | 666 | 184 | 78% | 56 | 6 | 78 | 71.03% | 71.03% |
| 2040 | 844 | 702 | 142 | 83% | 56 | 6 | 80 | 69.68% | 69.68% |
| 2041 | 838 | 741 | 97 | 88% | 56 | 7 | 82 | 68.46% | 68.46% |
| 2042 | 833 | 782 | 51 | 94% | 57 | 7 | 84 | 67.35% | 67.35% |
| 2043 | 828 | 828 | - | 100% | 5 | 7 | 86 | 5.93% | 5.93% |
| 2044 | 824 | 824 | - | 100% | 5 | 7 | 88 | 5.88% | 5.88% |
| 2045 | 820 | 820 | - | 100% | 5 | 7 | 90 | 5.85% | 5.85% |
| 2046 | 817 | 817 | - | 100% | 5 | 7 | 92 | 5.83% | 5.83% |
| 2047 | 815 | 815 | - | 100% | 5 | 7 | 94 | 5.81% | 5.81% |
| 2048 | 812 | 812 | - | 100% | 6 | 8 | 96 | 5.80% | 5.80% |
| 2049 | 810 | 810 | - | 100% | 6 | 8 | 98 | 5.79% | 5.79% |
| 2050 | 809 | 809 | - | 100% | 6 | 8 | 100 | 5.79% | 5.79% |
| 2051 | 807 | 807 | - | 100% | 6 | 8 | 102 | 5.79% | 5.79% |

Notes and assumptions:
The projection is based on the results of the June 30, 2017 actuarial valuation.
The actuarial determined contribution is determined by the prior year's actuarial valuation.
The employer contribution amount shown does not include the $10 million additional contribution budgeted to be paid in fiscal year beginning 2017.

**Kentucky Retirement Systems**
**Exhibit 3-4**
**KERS Hazardous Insurance Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 419 | $ 493 | $ (74) | 118% | $ 4 | $ 1 | $ 162 | 2.26% | 1.34% |
| 2018 | 436 | 507 | (71) | 116% | 4 | 2 | 165 | 2.46% | 2.46% |
| 2019 | 453 | 517 | (64) | 114% | 4 | 2 | 169 | 2.46% | 1.69% |
| 2020 | 468 | 531 | (63) | 113% | 3 | 2 | 174 | 1.72% | 1.72% |
| 2021 | 482 | 549 | (67) | 114% | 2 | 2 | 178 | 1.12% | 1.12% |
| 2022 | 494 | 561 | (67) | 114% | 1 | 2 | 183 | 0.55% | 0.55% |
| 2023 | 504 | 570 | (66) | 113% | 1 | 2 | 187 | 0.53% | 0.53% |
| 2024 | 513 | 576 | (63) | 112% | 0 | 2 | 192 | 0.00% | 0.00% |
| 2025 | 520 | 582 | (62) | 112% | 0 | 2 | 197 | 0.00% | 0.00% |
| 2026 | 525 | 586 | (61) | 112% | 0 | 2 | 201 | 0.00% | 0.00% |
| 2027 | 530 | 588 | (58) | 111% | 0 | 2 | 206 | 0.00% | 0.00% |
| 2028 | 534 | 590 | (56) | 110% | 0 | 2 | 210 | 0.00% | 0.00% |
| 2029 | 537 | 590 | (53) | 110% | 0 | 2 | 216 | 0.00% | 0.00% |
| 2030 | 540 | 591 | (51) | 109% | 0 | 2 | 222 | 0.00% | 0.00% |
| 2031 | 543 | 590 | (47) | 109% | 0 | 2 | 228 | 0.00% | 0.00% |
| 2032 | 546 | 591 | (45) | 108% | 0 | 2 | 235 | 0.00% | 0.00% |
| 2033 | 550 | 591 | (41) | 107% | 0 | 2 | 242 | 0.00% | 0.00% |
| 2034 | 554 | 592 | (38) | 107% | 1 | 3 | 249 | 0.40% | 0.40% |
| 2035 | 559 | 594 | (35) | 106% | 1 | 3 | 255 | 0.39% | 0.39% |
| 2036 | 565 | 596 | (31) | 105% | 1 | 3 | 262 | 0.38% | 0.38% |
| 2037 | 572 | 599 | (27) | 105% | 1 | 3 | 269 | 0.37% | 0.37% |
| 2038 | 580 | 602 | (22) | 104% | 1 | 3 | 275 | 0.36% | 0.36% |
| 2039 | 588 | 607 | (19) | 103% | 1 | 3 | 281 | 0.36% | 0.36% |
| 2040 | 598 | 612 | (14) | 102% | 1 | 3 | 287 | 0.35% | 0.35% |
| 2041 | 608 | 617 | (9) | 101% | 2 | 3 | 292 | 0.68% | 0.68% |
| 2042 | 618 | 623 | (5) | 101% | 2 | 3 | 298 | 0.67% | 0.67% |
| 2043 | 629 | 629 | - | 100% | 7 | 3 | 304 | 2.14% | 2.14% |
| 2044 | 640 | 640 | - | 100% | 7 | 3 | 311 | 2.11% | 2.11% |
| 2045 | 651 | 651 | - | 100% | 7 | 3 | 318 | 2.07% | 2.07% |
| 2046 | 662 | 662 | - | 100% | 7 | 3 | 325 | 2.05% | 2.05% |
| 2047 | 673 | 673 | - | 100% | 7 | 3 | 332 | 2.02% | 2.02% |
| 2048 | 685 | 685 | - | 100% | 7 | 3 | 340 | 1.99% | 1.99% |
| 2049 | 696 | 696 | - | 100% | 7 | 3 | 348 | 1.97% | 1.97% |
| 2050 | 707 | 707 | - | 100% | 7 | 4 | 355 | 1.95% | 1.95% |
| 2051 | 718 | 718 | - | 100% | 7 | 4 | 364 | 1.92% | 1.92% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

**Kentucky Retirement Systems**
**Exhibit 3-5**
**CERS Hazardous Insurance Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 1,788 | $ 1,197 | $ 591 | 67% | $ 51 | $ 2 | $ 541 | 9.35% | 9.35% |
| 2018 | 1,853 | 1,243 | 610 | 67% | 65 | 5 | 536 | 12.17% | 12.17% |
| 2019 | 1,912 | 1,293 | 619 | 68% | 62 | 6 | 538 | 11.45% | 11.45% |
| 2020 | 1,962 | 1,347 | 615 | 69% | 69 | 6 | 541 | 12.75% | 12.75% |
| 2021 | 2,005 | 1,418 | 587 | 71% | 67 | 7 | 546 | 12.27% | 12.27% |
| 2022 | 2,038 | 1,467 | 571 | 72% | 63 | 7 | 551 | 11.43% | 11.43% |
| 2023 | 2,061 | 1,506 | 555 | 73% | 61 | 7 | 558 | 10.93% | 10.93% |
| 2024 | 2,075 | 1,536 | 539 | 74% | 60 | 7 | 565 | 10.62% | 10.62% |
| 2025 | 2,081 | 1,558 | 523 | 75% | 58 | 7 | 573 | 10.12% | 10.12% |
| 2026 | 2,078 | 1,573 | 505 | 76% | 57 | 7 | 582 | 9.79% | 9.79% |
| 2027 | 2,068 | 1,580 | 488 | 76% | 57 | 7 | 591 | 9.64% | 9.64% |
| 2028 | 2,052 | 1,583 | 469 | 77% | 56 | 7 | 602 | 9.30% | 9.30% |
| 2029 | 2,031 | 1,582 | 449 | 78% | 56 | 7 | 614 | 9.12% | 9.12% |
| 2030 | 2,008 | 1,580 | 428 | 79% | 56 | 7 | 627 | 8.93% | 8.93% |
| 2031 | 1,982 | 1,576 | 406 | 80% | 56 | 7 | 641 | 8.74% | 8.74% |
| 2032 | 1,954 | 1,571 | 383 | 80% | 56 | 7 | 656 | 8.54% | 8.54% |
| 2033 | 1,927 | 1,569 | 358 | 81% | 56 | 7 | 672 | 8.33% | 8.33% |
| 2034 | 1,899 | 1,568 | 331 | 83% | 56 | 7 | 688 | 8.14% | 8.14% |
| 2035 | 1,873 | 1,570 | 303 | 84% | 56 | 7 | 704 | 7.95% | 7.95% |
| 2036 | 1,849 | 1,575 | 274 | 85% | 57 | 7 | 721 | 7.91% | 7.91% |
| 2037 | 1,828 | 1,587 | 241 | 87% | 57 | 7 | 738 | 7.72% | 7.72% |
| 2038 | 1,811 | 1,603 | 208 | 89% | 57 | 8 | 755 | 7.55% | 7.55% |
| 2039 | 1,796 | 1,624 | 172 | 90% | 57 | 8 | 772 | 7.38% | 7.38% |
| 2040 | 1,785 | 1,652 | 133 | 93% | 57 | 8 | 790 | 7.22% | 7.22% |
| 2041 | 1,779 | 1,687 | 92 | 95% | 58 | 8 | 809 | 7.17% | 7.17% |
| 2042 | 1,776 | 1,728 | 48 | 97% | 58 | 8 | 828 | 7.00% | 7.00% |
| 2043 | 1,777 | 1,777 | - | 100% | 10 | 8 | 847 | 1.13% | 1.13% |
| 2044 | 1,782 | 1,782 | - | 100% | 10 | 9 | 866 | 1.11% | 1.11% |
| 2045 | 1,789 | 1,789 | - | 100% | 10 | 9 | 886 | 1.10% | 1.10% |
| 2046 | 1,799 | 1,799 | - | 100% | 10 | 9 | 906 | 1.08% | 1.08% |
| 2047 | 1,811 | 1,811 | - | 100% | 10 | 9 | 926 | 1.07% | 1.07% |
| 2048 | 1,823 | 1,823 | - | 100% | 10 | 9 | 947 | 1.06% | 1.06% |
| 2049 | 1,836 | 1,836 | - | 100% | 10 | 10 | 969 | 1.04% | 1.04% |
| 2050 | 1,847 | 1,847 | - | 100% | 10 | 10 | 991 | 1.03% | 1.03% |
| 2051 | 1,859 | 1,859 | - | 100% | 10 | 10 | 1,013 | 1.01% | 1.01% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

**Kentucky Retirement Systems**
**Exhibit 3-6**
**SPRS Insurance Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 277 | $ 180 | $ 97 | 65% | $ 9 | $ 0 | $ 48 | 18.77% | 18.10% |
| 2018 | 286 | 186 | 100 | 65% | 13 | 0 | 48 | 27.23% | 27.23% |
| 2019 | 295 | 195 | 100 | 66% | 13 | 1 | 49 | 27.23% | 25.86% |
| 2020 | 302 | 205 | 97 | 68% | 12 | 1 | 49 | 24.49% | 24.49% |
| 2021 | 309 | 216 | 93 | 70% | 12 | 1 | 50 | 24.00% | 24.00% |
| 2022 | 314 | 224 | 90 | 71% | 11 | 1 | 51 | 21.57% | 21.57% |
| 2023 | 319 | 231 | 88 | 72% | 11 | 1 | 52 | 21.15% | 21.15% |
| 2024 | 321 | 236 | 85 | 74% | 10 | 1 | 53 | 18.87% | 18.87% |
| 2025 | 322 | 240 | 82 | 75% | 10 | 1 | 54 | 18.52% | 18.52% |
| 2026 | 322 | 242 | 80 | 75% | 10 | 1 | 55 | 18.18% | 18.18% |
| 2027 | 320 | 244 | 76 | 76% | 9 | 1 | 56 | 16.07% | 16.07% |
| 2028 | 318 | 244 | 74 | 77% | 9 | 1 | 57 | 15.79% | 15.79% |
| 2029 | 314 | 244 | 70 | 78% | 9 | 1 | 59 | 15.25% | 15.25% |
| 2030 | 310 | 243 | 67 | 78% | 9 | 1 | 61 | 14.75% | 14.75% |
| 2031 | 305 | 242 | 63 | 79% | 9 | 1 | 62 | 14.52% | 14.52% |
| 2032 | 300 | 240 | 60 | 80% | 9 | 1 | 64 | 14.06% | 14.06% |
| 2033 | 294 | 238 | 56 | 81% | 9 | 1 | 66 | 13.64% | 13.64% |
| 2034 | 288 | 237 | 51 | 82% | 9 | 1 | 68 | 13.24% | 13.24% |
| 2035 | 283 | 235 | 48 | 83% | 9 | 1 | 69 | 13.04% | 13.04% |
| 2036 | 277 | 234 | 43 | 84% | 9 | 1 | 71 | 12.68% | 12.68% |
| 2037 | 272 | 234 | 38 | 86% | 9 | 1 | 73 | 12.33% | 12.33% |
| 2038 | 267 | 235 | 32 | 88% | 9 | 1 | 75 | 12.00% | 12.00% |
| 2039 | 263 | 236 | 27 | 90% | 9 | 1 | 77 | 11.69% | 11.69% |
| 2040 | 259 | 238 | 21 | 92% | 9 | 1 | 78 | 11.54% | 11.54% |
| 2041 | 255 | 241 | 14 | 95% | 9 | 1 | 80 | 11.25% | 11.25% |
| 2042 | 252 | 245 | 7 | 97% | 9 | 1 | 82 | 10.98% | 10.98% |
| 2043 | 250 | 250 | 0 | 100% | 2 | 1 | 84 | 1.84% | 1.84% |
| 2044 | 249 | 249 | 0 | 100% | 2 | 1 | 85 | 1.82% | 1.82% |
| 2045 | 248 | 248 | 0 | 100% | 2 | 1 | 87 | 1.80% | 1.80% |
| 2046 | 248 | 248 | 0 | 100% | 2 | 1 | 89 | 1.78% | 1.78% |
| 2047 | 248 | 248 | 0 | 100% | 2 | 1 | 91 | 1.75% | 1.75% |
| 2048 | 249 | 249 | 0 | 100% | 2 | 1 | 93 | 1.73% | 1.73% |
| 2049 | 249 | 249 | 0 | 100% | 2 | 1 | 95 | 1.71% | 1.71% |
| 2050 | 250 | 250 | 0 | 100% | 2 | 1 | 97 | 1.69% | 1.69% |
| 2051 | 251 | 251 | 0 | 100% | 2 | 1 | 99 | 1.66% | 1.66% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

GRS Retirement Consulting

P: 469.524.0000 | F: 469.524.0003 | www.grsconsulting.com

February 27, 2018

Mr. David Eager

**Re: BR 427 SB 1**
**AA Statement 1 of 4**
**KERS and CERS Non-Hazardous Systems**

Dear Mr. Eager:

We have reviewed and analyzed the summary of proposed changes in the proposed pension reform legislation SB 1 (BR 427). The purpose of this letter is to communicate to the fiscal analysis of this proposed legislation on the retirement and insurance funds maintained by the Kentucky Retirement System (KRS) as it applies to the Non-Hazardous Systems (i.e. KERS Non-Hazardous and CERS Non-Hazardous).

## Principal Provisions of Proposed Legislation

Exhibit 1 provides a summary of the provisions in the pension reform bill that have a fiscal impact on the retirement system. In summary, the Tier 3 Hybrid Plan will be the default plan for providing benefits to future members, but beginning January 1, 2019 there will be a new optional defined contribution plan that members may make a one-time irrevocable election to earn future retirement benefits in the defined contribution plan, in lieu of the defined benefit plan. The amortization of the unfunded actuarial accrued liability will be determined on a level-dollar basis, but the amortization period will remain unchanged and continue to decrease by one year each future year. Finally, active Tier I members who became participants on or after July 1, 2003 (but prior to September 1, 2008) will contribute the lesser of 3% of pay and their normal cost to the Health Insurance Funds.

## Summary of Cost Impact

Section 1 includes exhibits that show a comparison of the fiscal impact of the proposed legislation to the current plan over the next 35 years. Specifically, these exhibits show the projected impact on the: (1) unfunded actuarial accrued liability, (2) funded ratio, (3) total employer contribution dollars, and (4) projected composite employer contribution rates, for each of the funds (retirement and health insurance). Section 2 provides additional detail regarding each projection under the current plan and Section 3 provides similar information under the proposed legislation. Section 4 provides the fiscal impact under an alternative assumption scenario for the KERS Non-Hazardous System that assumes a decreasing active membership count consistent with recent trends. Below are comments regarding the cost projection for each fund.

5605 North MacArthur Boulevard | Suite 870 | Irving, Texas 75038-2631

KERS Non-Hazardous Retirement Fund

The changes in the benefit provisions have a minimal impact on the change in the actuarial accrued liability (and unfunded actuarial accrued liability) as of June 30, 2017. The change in the interest crediting rate for the Tier 3 hybrid plan will slightly decrease the ongoing liability and cost for this benefit tier. However, the slight decrease in the employer cost is partially offset by the employer cost for members who elect to earn benefits in the optional defined contribution plan. As described later in this letter, we project the long-term cost of this defined contribution plan to be 3.5% of payroll, which is slightly higher than the cost of providing benefits in the Tier 3 hybrid plan. As Tier 3 and defined contribution plan members become a larger percentage of the active population, this will gradually have a larger impact on total employer contributions.

Additionally, some of the differences in the projected unfunded liability and projected employer contributions compared to the baseline projection of the current plan are due to slight differences in applying contributions that are determined biannually and as a percentage of expected payroll (i.e. the baseline projections) and applying contributions that are determined annually and as both a percentage of payroll (i.e. the normal cost rate in the proposed legislation projections) and a dollar amount (i.e. the amortization of the unfunded actuarial accrued liability in the proposed legislation projections).

KERS Non-Hazardous Insurance Fund

The changes in the benefit provisions have a minimal impact on the change in the actuarial accrued liability (and unfunded actuarial accrued liability). The initial reduction in the projected required employer contributions is due to the increase in the Tier I member contribution requirement to the health insurance fund. The slight differences in the projected unfunded liability and projected employer contributions compared to baseline projection of the current plan are not significant and mostly due to nuances in applying contributions that are determined biannually and as a percentage of expected payroll (i.e. the baseline projection) and applying contributions that are determined annually and as both a percentage of payroll (i.e. the normal cost rate in the proposed legislation projections) and a dollar amount (i.e. the amortization of the unfunded actuarial accrued liability in the proposed legislation projections). *For business making decisions stakeholders should consider the proposed increase to certain Tier I member contributions to result in a cost savings for the participating employers, but there are not any changes to the benefits provided by the health insurance funds that have a fiscal impact.*

CERS Non-Hazardous Retirement Fund

Similar to the KERS non-hazardous retirement fund, there is minimal change in the actuarial accrued liability (and unfunded actuarial accrued liability) as of June 30, 2017 due to changes in the benefit provisions. The change in the interest crediting rate for the Tier 3 hybrid plan will slightly decrease the ongoing liability and cost for this benefit tier. However, the slight decrease in the employer cost is offset by the employer cost for members who elect to earn benefits in the optional defined contribution plan. As described later in this letter, we project the long-term cost of this defined contribution plan to be 3.5% of payroll, which is slightly higher than the cost of providing benefits in the Tier 3 hybrid plan. As Tier 3 and defined contribution plan members become a larger percentage of the active population, this will gradually have a larger impact on total employer contributions.

The projected employer contribution requirements under the proposed legislation become larger than the projected cost in baseline projection beginning with the fiscal year 2020/2021 and through the fiscal year 2029/2030 due to the use of a level-dollar amortization (versus a 2% payroll growth assumption). However, this effect is reversed after fiscal year 2029/2030.

CERS Non-Hazardous Insurance Fund

The change in the benefit provisions had a minimal impact on the change in the actuarial accrued liability (and unfunded actuarial accrued liability). The initial savings in the employer contribution requirement is due to the increase in the Tier I member contribution requirement to the health insurance fund. This decrease in the projected employer contribution requirement is partially offset due to the use of a level-dollar amortization (versus a 2% payroll growth assumption). This effect is reversed around fiscal year 2029/2030.

## GRS Comments on Proposed Legislation

Below are comments on certain provisions in the proposed legislation.

New Optional Defined Contribution Plan

The proposed legislation would provide a new optional defined contribution plan to members in the KERS and CERS nonhazardous retirement systems that would allow all current and future members a one-time irrevocable election to earn future retirement benefits in a defined contribution plan that provides a 4.00% of pay employer contribution (the member contribution requirement will remain unchanged at 5.00% of pay). This new defined contribution plan will not decrease the employer cost, but will shift the risks, such as investment risk and longevity risk, from the participating employers to the members with respect to the members earning benefits in the defined contribution plan.

For the fiscal impact analysis, we project the long-term cost of this defined contribution plan to be 3.5% of payroll, after reflecting the effects of forfeitures in the employer matching contributions when employees separate from service prior to becoming vested.

The proposed legislation also allows all current members the opportunity to make a one-time irrevocable election to freeze their benefits earning in the defined benefit plan and earn future benefits in the new defined contribution plan. There are a couple policy issues that the General Assembly may want to consider when finalizing this legislation. First, the Tier 1 and Tier 2 benefits are more valuable than the benefit provided in the new defined contribution plan and allowing all current members in the KERS and CERS nonhazardous retirement systems to elect to switch to the defined contribution plan provides an opportunity for Tier 1 and Tier 2 members to adversely select against themselves. Limiting the election opportunity to current Tier 3 members hired after January 1, 2014 would limit possible of adverse selection.

Second, the proposed legislation provides current members in the defined benefit plan an indefinitely open window to elect to earn future benefits in the defined contribution plan. We suggest providing a limited window for the current members hired prior to January 1, 2019 to make an election to earn retirement benefits in the optional defined contribution plan.

The proposed legislation requires employers to make a normal cost contribution as a percentage of pay that is an annual amount sufficient, when combined with employee contributions, to fund benefits earned during the year, including costs for those members who elect to participate in the optional defined contribution plan (Tier IV). Tier I, Tier II, Tier III, and Tier IV have different normal cost rates because the value of the benefits provided by each benefit tier vary. We interpret this provision to require each employer contribute a single "blended" normal cost rate that will slightly vary year-to-year as the demographics of the plan changes. This method is relatively simple and would reduce possible anti-selection due to differences in the normal cost of the Tier III and Tier IV benefit plans. However, it may be difficult for the retirement system to administer as it would require a process of identifying the Tier IV contributions that must be directed to the members' accounts. We suggest the General Assembly seek input from the Retirement System regarding this process and whether it would be preferable to charge employers different normal cost rates depending on the retirement benefit tier of their employee, or an alternative method that is cost neutral and administratively feasible.

Change in the Interest Crediting Rate Formula in the Tier 3 Hybrid Plan

The change in the interest crediting rate formula to 85% of the 10-year geometric average will result in greater "risk-sharing" in the funds actual investment performance. Compared to the current formula, the proposed formula will generally provide a lower interest credit during times when the average return is less than 10.00% and a higher interest credit when the average return is in excess of 10.00%. Over time, we expect the new formula to provide an interest credit that is 0.40% to 0.50% less in annual interest credits compared to the current formula. Increasing the averaging period from 5 years to 10 years is not projected to have a fiscal impact but will reduce the short-term volatility in the year-to-year change in the interest crediting rate provided at each June 30.

Allocation of Amortization Payment to Participating Employers in CERS and Agencies Participating in KERS

The employers' (and agencies) allocation percentage will be based on the average covered payroll during the last three fiscal years (FY 14/15, FY 15/16, and FY 16/17) to the average total covered payroll for the system. This allocation percentage would remain unchanged in future years (albeit, minor adjustments if employers cease participating in the system). There are some favorable characteristics with this method as each employer's contribution effort to finance the unfunded actuarial accrued liability will remain relatively constant and eliminates incentives for employers to pursue the use of "contract" employees to reduce their covered payroll (and required contribution). Employers that are increasing in size will not be burdened to pay a greater share of the unfunded actuarial accrued liability on the covered payroll for those additional employees. Rather, the marginal change in the employer's pension contribution effort will be the normal cost rate on the change in covered payroll.

We have not analyzed the change in covered payroll for the participating employers in the systems or how the average of the fiscal years identified in the proposed legislation compare to the distribution of covered payroll among employers in other years, such as the 12/13 and 13/14 fiscal years. Given the declining covered payroll experienced by some of the systems over the last several years, it is possible that using a 5-year average period or the currently proposed 3-year averaging period using different fiscal years may be more representative of the allocated share of each employer's share of the unfunded actuarial accrued liability. There will not be a fiscal impact to the system if the averaging method is changed, but there would be a cost increase or decrease for individual participating employers. We recommend the Legislative Research Commission seek input from Kentucky Retirement Systems regarding the fiscal years and the averaging period used in the calculation.

Further to this point, using a static allocation may gradually drift from mirroring the employer participation demographics in future years (some employers are growing and other entities are decreasing their workforce). Also, while this proposed method may be appropriate for allocating the existing unfunded liability, it may not be appropriate for allocating unfunded liabilities that may be incurred in a future year. Note, if this issue does occur, then it could be easily addressed by the General Assembly in a future year by using a layered amortization base.

Modification in the Reemployment after Retirement Provisions

If a member retires after January 1, 2019 and becomes reemployed by a participating employer in KRS or TRS on a full-time basis between a three-month and a twelve-month time period following the member's initial retirement date, then the member's retirement allowance will be suspended until the first anniversary of the member's initial retirement date. This would be between a one-month and a nine-month suspension of the member's retirement allowance. This provision will result in some reduced financial benefit (when considering their total income from all sources) for members to commence their retirement benefit at an earlier age and seek reemployment. However, we do not believe the reduction in the member's financial benefit due to this suspension is significant enough to change retirement behavior. As a result, we have not adjusted, or delayed, the anticipated age members will commence their retirement due to this modification. However, this modification may still be important and relevant for policy reasons.

Distribution of the Actuarial Accrued Liability Among Membership Status

The proposed legislation would make certain changes to retirement and health insurance benefits to active members after January 1, 2019 as well as future active members in these Non-Hazardous Retirement Systems. For educational and informational purposes, the actuarial accrued liability attributable to the current retirees and inactive members (vested and non-vested) in the KERS Non-Hazardous Retirement System is approximately 75% of the total actuarial accrued liability. (Similarly, the retiree and inactive member liability is approximately 60% of the total actuarial accrued liability for the CERS Non-Hazardous Retirement System). As a result, while the proposed changes may have a material impact on the actuarial accrued liability attributable to the current active members in the Retirement System, the changes have a much smaller impact as a percentage of the total actuarial accrued liability attributable of the entire Retirement System.

**Basis of Calculations**

GRS based the calculations and analysis in this letter on the member and financial data provided by KRS and used to perform the actuarial valuation as of June 30, 2017. Except where noted otherwise, the projections assume no actuarial gains or losses will occur in the future, and that members will terminate, retire, become disabled, or die as predicted by the actuarial assumptions documented in the June 30, 2017 actuarial valuation report.

These projections also do not reflect the actual investment experience of the retirement system after the measurement date of June 30, 2017. The projections assume that the participating employers in each Retirement System will maintain the current workforce in each future year and that as current active members terminate or retire from a covered position in the Retirement System, the employer would replace them with a new employee. We have assumed that all current active members earning Tier 1 and Tier 2 retirement benefits will not elect to earn future benefits in the optional defined contribution plan. However, we have assumed that 25% of all active members currently in Tier 3 and 25% of all future members will elect to earn retirement benefits in the defined contribution plan.

We have assumed the new interest credit formula for the Tier 3 hybrid plan will provide 0.50% less in annual interest credits for the KERS (non-hazardous and hazardous) and SPRS systems and 0.40% less in annual interest credits for the CER (non-hazardous and hazardous) systems.

Our calculations are based upon assumptions regarding future events, which may or may not materialize. Depending on actual plan experience, actual results could deviate significantly from our projections. They are further based on the interpretation of the legislation that members who elect the optional defined contribution plan are still eligible for insurance benefits and that while the level dollar amortization method is effective at the 2019 valuation, the 30-year amortization period that was effective with the 2013 valuation is not re-set at the 2019 valuation.

**General Comments**

We are not attorneys, and we cannot provide a legal opinion regarding the changes in this proposed legislation. Nothing in this letter should be construed as providing legal, investment or tax advice. It may be prudent to consult with the Retirement System's counsel before enacting any such changes. Finally, no statement in this letter is intended to be interpreted as a recommendation in favor of or in opposition to the changes studied herein.

Mr. White and Mr. Newton are Enrolled Actuaries. All the of the undersigned are also members of the American Academy of Actuaries and we meet all of the Qualification Standards of the American

Academy of Actuaries to render the actuarial opinion contained herein. In addition, all of the undersigned are experienced in performing valuations for large public retirement systems. If you have any questions, or require any additional or clarifying information, please do not hesitate to contact us.

Sincerely,

Joseph P. Newton, FSA, MAAA, EA
Senior Consultant

Janie Shaw, ASA, MAAA
Consultant

Daniel J. White, FSA, MAAA, EA
Senior Consultant

K:\35[illegible]

Exhibit 1. Summary of Proposed Changes

Section 1. Comparison of Fiscal Impact

Section 2. Projected Cost of the Retirement and Insurance – Current Plan

Section 3. Projected Cost of the Retirement and Insurance – Proposed Legislation

Section 4. Alternative Projection Scenario for KERS Non-Hazardous System

# Exhibit 1. Summary of Changes in Benefit Provisions and Employer Funding for the KERS and CERS Non-Hazardous Systems

## Retirement Formulas

Tier 1:

- No change to the basic formula.
- For retirements on or after January 1, 2019, the highest five years of pay used to determine the member's final average compensation must be complete fiscal years and must contain at least 60 months.

Tier 2:

- No change to the basic formula.

Tier 3:

- Interest credits on or after June 30, 2018 will be 85% of the fund's geometric 10-year net investment return (0% for those not participating in the Hybrid plan).
- Removal of the $5,000 post-retirement death benefit for all members hired on and after January 1, 2014.

Optional 401(a) Defined Contribution Plan:

- Future employees can elect participate in the new defined contribution plan that requires 5.00% of pay contributions from the member and 4.00% of pay contributions from the employer rather than the Tier 3 hybrid defined benefit plan. The members become 100% vested in the employer provided benefit upon attaining 5 years of service.
- Tier 1, 2, and 3 members can make a one-time election to prospectively earn future benefits in the new optional 401(a) defined contribution plan.

## Member Contribution Rates

- Member contribution rates to the retirement fund for Tier 1, Tier 2, and Tier 3 members remain unchanged at 5.00% of pay. Effective January 1, 2019, contributions to the health insurance funds for Tier 1 members who began participation on or after July 1, 2003 (but prior to September 1, 2008) will increase to the lesser of 3.00% of pay or the normal cost rate, as separately determined for these members based upon the system in which they participate.
  - The 3.00% maximum will be phased in over three years (i.e. from 0% to 3% of pay) and may be adjusted annually after the phase-in by increments of 0.25% of pay, but in no case shall exceed 3% of pay.
- The contributions to the health insurance funds are classified as 401(h) contributions and are not refundable to the member.

## Pension Anti-Spiking Provisions

Compensatory time payments upon termination for Tier I members

- The payment of compensatory time upon termination of employment will be excluded in creditable compensation (which is used in the calculation of the member's final average compensation) for Tier I members retiring after July 1, 2023.

Equipment/Uniform Allowances:

- Excluded from creditable compensation earned on or after January 1, 2019.

# Exhibit 1. Summary of Changes in Benefit Provisions and Employer Funding for the KERS and CERS Non-Hazardous Systems (Continued)

## Sick Leave

- Converted sick service cannot exceed amount for accumulated sick leave as of August 1, 2018.
- Sick leave service credit does not count towards retirement eligibility for those retiring on or after August 1, 2018.

## Retiree Health Accessibility

- No change.

## Line of Duty Death

- The surviving spouse (if any) shall supersede all previous beneficiary designations for members that die in the line of duty.

## Reemployment After Retirement

The following reemployment after retirement provisions apply to members who retire on or after January 1, 2019 in order to continue to receive their retirement allowance during their reemployment:

- Must have a three (3) month break in employment and no prearranged reemployment agreement.
- After required employment break, the retired member can return to work in a part-time or full-time position.
  - Monthly pension will not be suspended for the duration of reemployment in a part-time position or for the duration of reemployment in a full-time position if the member has not returned to reemployment for at least a twelve (12) month period following initial retirement.
  - If a member returns to full-time reemployment prior to the twelve month period, the monthly pension will be suspended until twelve months have passed following initial retirement.
  - The retiree will not earn additional retirement benefits.
- Employer required to make normal cost contributions (both pension and retiree health) on the payroll of the reemployed retiree.

# Exhibit 1. Summary of Changes in Benefit Provisions and Employer Funding for the KERS and CERS Non-Hazardous Systems (Continued)

## Employer Funding

The Board will continue to have the authority to change the contribution rates for CERS on an annual basis and will have the authority to change contribution rates for KERS on an annual basis after the fiscal year ending June 30, 2020.

Actuarially Determined Contributions (ADC) for actuarial valuations performed on and after June 30, 2019 are based on normal cost plus an amortization payment to finance the unfunded actuarial accrued liability:

- Normal cost determined using entry age normal cost method paid as a percentage of payroll.
- Unfunded liability payment determined using a closed amortization period (25 years remaining in the 2018 valuation).
- Allocation of amortization payment for the unfunded liability to participating employers in KERS, and CERS is based on a level-dollar amortization
  - The dollar amount of the amortization payment will be allocated to each participating employer in proportion to their average percentage of the total compensation for years (FY 14/15, FY 15/16, and FY 16/17), adjusted for any employers who cease participation in the System.
    - Each employer's proportionate share of the amortization payment will remain a relatively constant percentage each future year.

# Section 1.
# Comparison of Fiscal Impact
# Current Plan vs. Proposed Changes

**Kentucky Retirement Systems**
**Exhibit 1-1**
**KERS Non-Hazardous Retirement Fund**
**Comparison of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 1, | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 13,468 | $ 13,465 | $ (3) | 14% | 14% | 0% | $ 629 | $ 629 | $ 0 | 41.1% | 41.1% | 0.0% |
| 2018 | 13,591 | 13,593 | 2 | 13% | 13% | 0% | 1,101 | 1,085 | (16) | 71.0% | 70.0% | -1.1% |
| 2019 | 13,349 | 13,366 | 17 | 15% | 14% | -1% | 1,118 | 1,087 | (31) | 71.0% | 69.0% | -2.0% |
| 2020 | 13,042 | 13,090 | 48 | 17% | 16% | -1% | 1,097 | 1,083 | (14) | 68.5% | 67.7% | -0.9% |
| 2021 | 12,700 | 12,762 | 62 | 19% | 18% | -1% | 1,116 | 1,081 | (35) | 68.5% | 66.4% | -2.1% |
| 2022 | 12,334 | 12,435 | 101 | 21% | 20% | -1% | 1,086 | 1,076 | (10) | 65.5% | 65.0% | -0.6% |
| 2023 | 11,979 | 12,092 | 113 | 23% | 22% | -1% | 1,105 | 1,071 | (34) | 65.5% | 63.5% | -2.0% |
| 2024 | 11,580 | 11,732 | 152 | 25% | 24% | -1% | 1,075 | 1,068 | (7) | 62.6% | 62.2% | -0.4% |
| 2025 | 11,190 | 11,354 | 164 | 27% | 26% | -1% | 1,095 | 1,065 | (30) | 62.6% | 60.8% | -1.7% |
| 2026 | 10,755 | 10,956 | 201 | 30% | 28% | -2% | 1,064 | 1,062 | (2) | 59.6% | 59.5% | -0.1% |
| 2027 | 10,327 | 10,538 | 211 | 32% | 30% | -2% | 1,084 | 1,058 | (26) | 59.6% | 58.2% | -1.4% |
| 2028 | 9,853 | 10,099 | 246 | 35% | 32% | -3% | 1,052 | 1,055 | 3 | 56.7% | 56.9% | 0.2% |
| 2029 | 9,385 | 9,637 | 252 | 37% | 34% | -3% | 1,072 | 1,052 | (20) | 56.7% | 55.6% | -1.1% |
| 2030 | 8,868 | 9,150 | 282 | 40% | 37% | -3% | 1,040 | 1,049 | 9 | 53.9% | 54.4% | 0.5% |
| 2031 | 8,355 | 8,640 | 285 | 43% | 39% | -4% | 1,062 | 1,047 | (15) | 53.9% | 53.1% | -0.8% |
| 2032 | 7,791 | 8,102 | 311 | 46% | 42% | -4% | 1,028 | 1,043 | 15 | 51.1% | 51.8% | 0.7% |
| 2033 | 7,229 | 7,538 | 309 | 49% | 45% | -4% | 1,051 | 1,041 | (10) | 51.1% | 50.6% | -0.5% |
| 2034 | 6,614 | 6,944 | 330 | 53% | 49% | -4% | 1,015 | 1,039 | 24 | 48.3% | 49.5% | 1.1% |
| 2035 | 6,000 | 6,320 | 320 | 57% | 53% | -4% | 1,038 | 1,037 | (1) | 48.3% | 48.3% | 0.0% |
| 2036 | 5,331 | 5,663 | 332 | 61% | 57% | -4% | 1,003 | 1,035 | 32 | 45.6% | 47.1% | 1.5% |
| 2037 | 4,661 | 4,973 | 312 | 65% | 61% | -4% | 1,028 | 1,035 | 7 | 45.6% | 45.9% | 0.3% |
| 2038 | 3,931 | 4,247 | 316 | 70% | 66% | -4% | 987 | 1,035 | 48 | 42.8% | 44.8% | 2.1% |
| 2039 | 3,204 | 3,485 | 281 | 76% | 72% | -4% | 1,012 | 1,035 | 23 | 42.8% | 43.7% | 1.0% |
| 2040 | 2,414 | 2,681 | 267 | 81% | 78% | -3% | 963 | 1,036 | 73 | 39.7% | 42.7% | 3.0% |
| 2041 | 1,634 | 1,835 | 201 | 87% | 84% | -3% | 987 | 1,037 | 50 | 39.7% | 41.7% | 2.0% |
| 2042 | 788 | 944 | 156 | 94% | 92% | -2% | 897 | 1,040 | 143 | 35.2% | 40.8% | 5.6% |
| 2043 | - | - | - | 100% | 100% | 0% | 76 | 74 | (2) | 2.9% | 2.8% | -0.1% |
| 2044 | - | - | - | 100% | 100% | 0% | 77 | 75 | (2) | 2.9% | 2.8% | -0.1% |
| 2045 | - | - | - | 100% | 100% | 0% | 78 | 76 | (2) | 2.9% | 2.8% | -0.1% |
| 2046 | - | - | - | 100% | 100% | 0% | 79 | 76 | (3) | 2.8% | 2.7% | -0.1% |
| 2047 | - | - | - | 100% | 100% | 0% | 81 | 78 | (3) | 2.8% | 2.7% | -0.1% |
| 2048 | - | - | - | 100% | 100% | 0% | 82 | 79 | (3) | 2.8% | 2.7% | -0.1% |
| 2049 | - | - | - | 100% | 100% | 0% | 83 | 80 | (3) | 2.8% | 2.7% | -0.1% |
| 2050 | - | - | - | 100% | 100% | 0% | 85 | 82 | (3) | 2.8% | 2.7% | -0.1% |
| 2051 | - | - | - | 100% | 100% | 0% | 87 | 83 | (4) | 2.8% | 2.7% | -0.1% |

Notes and assumptions:

It is assumed that the employer cost of defined contribution plan is 3.50% of pay, after reflecting the effects of forfeitures attributable to nonvested members, and that 25% of current Tier 3 members and 25% of future member elect to enter the DC plan.

**Kentucky Retirement Systems**
**Exhibit 1-2**
**CERS Non-Hazardous Retirement Fund**
**Comparison of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 1, | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 6,039 | $ 6,034 | $ (5) | 53% | 53% | 0% | $ 355 | $ 355 | $ 0 | 14.5% | 14.5% | 0.0% |
| 2018 | 6,219 | 6,225 | 6 | 53% | 52% | -1% | 546 | 534 | (12) | 21.8% | 21.4% | -0.5% |
| 2019 | 6,299 | 6,317 | 18 | 53% | 53% | 0% | 548 | 544 | (4) | 21.5% | 21.4% | -0.1% |
| 2020 | 6,292 | 6,316 | 24 | 54% | 54% | 0% | 558 | 643 | 85 | 21.5% | 24.8% | 3.3% |
| 2021 | 6,165 | 6,103 | (62) | 56% | 56% | 0% | 563 | 639 | 76 | 21.3% | 24.2% | 2.9% |
| 2022 | 6,099 | 5,955 | (144) | 57% | 58% | 1% | 561 | 628 | 67 | 20.9% | 23.3% | 2.5% |
| 2023 | 6,026 | 5,804 | (222) | 58% | 59% | 1% | 565 | 624 | 59 | 20.6% | 22.8% | 2.1% |
| 2024 | 5,941 | 5,646 | (295) | 59% | 61% | 2% | 570 | 619 | 49 | 20.4% | 22.2% | 1.8% |
| 2025 | 5,840 | 5,477 | (363) | 61% | 63% | 2% | 575 | 615 | 40 | 20.2% | 21.6% | 1.4% |
| 2026 | 5,725 | 5,300 | (425) | 62% | 64% | 2% | 580 | 610 | 30 | 20.0% | 21.1% | 1.1% |
| 2027 | 5,595 | 5,112 | (483) | 63% | 66% | 3% | 585 | 607 | 22 | 19.8% | 20.6% | 0.8% |
| 2028 | 5,446 | 4,913 | (533) | 64% | 67% | 3% | 591 | 603 | 12 | 19.7% | 20.1% | 0.4% |
| 2029 | 5,280 | 4,701 | (579) | 66% | 69% | 3% | 597 | 600 | 3 | 19.5% | 19.6% | 0.1% |
| 2030 | 5,094 | 4,479 | (615) | 67% | 70% | 3% | 604 | 596 | (8) | 19.3% | 19.1% | -0.3% |
| 2031 | 4,885 | 4,243 | (642) | 68% | 72% | 4% | 611 | 594 | (17) | 19.2% | 18.6% | -0.5% |
| 2032 | 4,654 | 3,992 | (662) | 70% | 73% | 3% | 619 | 591 | (28) | 19.0% | 18.2% | -0.9% |
| 2033 | 4,397 | 3,728 | (669) | 72% | 75% | 3% | 627 | 589 | (38) | 18.9% | 17.7% | -1.2% |
| 2034 | 4,115 | 3,447 | (668) | 74% | 77% | 3% | 636 | 586 | (50) | 18.7% | 17.3% | -1.5% |
| 2035 | 3,803 | 3,149 | (654) | 76% | 79% | 3% | 645 | 584 | (61) | 18.6% | 16.9% | -1.8% |
| 2036 | 3,462 | 2,833 | (629) | 78% | 81% | 3% | 655 | 583 | (72) | 18.5% | 16.5% | -2.0% |
| 2037 | 3,087 | 2,499 | (588) | 80% | 83% | 3% | 666 | 582 | (84) | 18.4% | 16.0% | -2.3% |
| 2038 | 2,677 | 2,144 | (533) | 83% | 85% | 2% | 678 | 583 | (95) | 18.3% | 15.7% | -2.6% |
| 2039 | 2,230 | 1,767 | (463) | 86% | 88% | 2% | 690 | 583 | (107) | 18.1% | 15.3% | -2.8% |
| 2040 | 1,742 | 1,368 | (374) | 89% | 90% | 1% | 703 | 584 | (119) | 18.0% | 15.0% | -3.0% |
| 2041 | 1,211 | 942 | (269) | 92% | 93% | 1% | 715 | 585 | (130) | 17.9% | 14.7% | -3.3% |
| 2042 | 634 | 489 | (145) | 96% | 96% | 0% | 730 | 588 | (142) | 17.9% | 14.4% | -3.5% |
| 2043 | - | - | - | 100% | 100% | 0% | 78 | 88 | 10 | 1.9% | 2.1% | 0.2% |
| 2044 | - | - | - | 100% | 100% | 0% | 79 | 89 | 10 | 1.9% | 2.1% | 0.2% |
| 2045 | - | - | - | 100% | 100% | 0% | 80 | 90 | 10 | 1.8% | 2.1% | 0.2% |
| 2046 | - | - | - | 100% | 100% | 0% | 82 | 92 | 10 | 1.8% | 2.1% | 0.2% |
| 2047 | - | - | - | 100% | 100% | 0% | 83 | 93 | 10 | 1.8% | 2.0% | 0.2% |
| 2048 | - | - | - | 100% | 100% | 0% | 84 | 95 | 11 | 1.8% | 2.0% | 0.2% |
| 2049 | - | - | - | 100% | 100% | 0% | 86 | 97 | 11 | 1.8% | 2.0% | 0.2% |
| 2050 | - | - | - | 100% | 100% | 0% | 88 | 99 | 11 | 1.8% | 2.0% | 0.2% |
| 2051 | - | - | - | 100% | 100% | 0% | 89 | 101 | 12 | 1.8% | 2.0% | 0.2% |

Notes and assumptions:

It is assumed that the employer cost of defined contribution plan is 3.50% of pay, after reflecting the effects of forfeitures attributable to nonvested members, and that 25% of current Tier 3 members and 25% of future member elect to enter the DC plan.

**Kentucky Retirement Systems**
**Exhibit 1-3**
**KERS Non-Hazardous Insurance Fund**
**Summary of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 1, | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 1,859 | $ 1,859 | $ - | 31% | 31% | 0% | $ 128 | $ 128 | $ 0 | 8.4% | 8.4% | 0.0% |
| 2018 | 1,886 | 1,886 | - | 32% | 32% | 0% | 191 | 191 | - | 12.4% | 12.4% | 0.0% |
| 2019 | 1,862 | 1,856 | (6) | 34% | 35% | 1% | 194 | 194 | - | 12.4% | 12.4% | 0.0% |
| 2020 | 1,820 | 1,807 | (13) | 37% | 38% | 1% | 188 | 178 | (10) | 11.8% | 11.2% | -0.6% |
| 2021 | 1,770 | 1,760 | (10) | 40% | 41% | 1% | 191 | 176 | (15) | 11.8% | 10.9% | -0.9% |
| 2022 | 1,721 | 1,719 | (2) | 43% | 43% | 0% | 182 | 174 | (8) | 11.1% | 10.6% | -0.5% |
| 2023 | 1,674 | 1,676 | 2 | 46% | 46% | 0% | 186 | 172 | (14) | 11.1% | 10.3% | -0.8% |
| 2024 | 1,621 | 1,630 | 9 | 48% | 48% | 0% | 178 | 170 | (8) | 10.4% | 10.0% | -0.5% |
| 2025 | 1,570 | 1,582 | 12 | 51% | 50% | -1% | 181 | 169 | (12) | 10.4% | 9.7% | -0.7% |
| 2026 | 1,510 | 1,531 | 21 | 53% | 52% | -1% | 173 | 167 | (6) | 9.8% | 9.4% | -0.3% |
| 2027 | 1,454 | 1,477 | 23 | 55% | 54% | -1% | 176 | 165 | (11) | 9.8% | 9.1% | -0.6% |
| 2028 | 1,390 | 1,420 | 30 | 57% | 56% | -1% | 168 | 164 | (4) | 9.1% | 8.9% | -0.2% |
| 2029 | 1,327 | 1,359 | 32 | 59% | 58% | -1% | 171 | 162 | (9) | 9.1% | 8.6% | -0.5% |
| 2030 | 1,255 | 1,295 | 40 | 62% | 60% | -2% | 162 | 160 | (2) | 8.5% | 8.4% | -0.1% |
| 2031 | 1,187 | 1,227 | 40 | 64% | 62% | -2% | 166 | 158 | (8) | 8.5% | 8.1% | -0.4% |
| 2032 | 1,109 | 1,155 | 46 | 66% | 64% | -2% | 158 | 157 | (1) | 7.9% | 7.9% | -0.1% |
| 2033 | 1,033 | 1,079 | 46 | 68% | 67% | -1% | 162 | 157 | (5) | 7.9% | 7.7% | -0.2% |
| 2034 | 947 | 999 | 52 | 71% | 69% | -2% | 155 | 156 | 1 | 7.4% | 7.5% | 0.1% |
| 2035 | 863 | 914 | 51 | 73% | 71% | -2% | 158 | 156 | (2) | 7.4% | 7.3% | -0.1% |
| 2036 | 769 | 824 | 55 | 76% | 74% | -2% | 151 | 156 | 5 | 6.9% | 7.2% | 0.2% |
| 2037 | 675 | 727 | 52 | 79% | 77% | -2% | 155 | 157 | 2 | 6.9% | 7.0% | 0.1% |
| 2038 | 572 | 625 | 53 | 82% | 80% | -2% | 149 | 157 | 8 | 6.5% | 6.9% | 0.4% |
| 2039 | 469 | 515 | 46 | 85% | 84% | -1% | 152 | 157 | 5 | 6.5% | 6.7% | 0.2% |
| 2040 | 355 | 400 | 45 | 89% | 87% | -2% | 145 | 158 | 13 | 6.0% | 6.6% | 0.5% |
| 2041 | 242 | 276 | 34 | 92% | 91% | -1% | 149 | 159 | 10 | 6.0% | 6.4% | 0.4% |
| 2042 | 118 | 143 | 25 | 96% | 95% | -1% | 135 | 160 | 25 | 5.4% | 6.3% | 1.0% |
| 2043 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 0.5% | 0.5% | 0.0% |
| 2044 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 0.5% | 0.5% | 0.0% |
| 2045 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 0.5% | 0.5% | 0.0% |
| 2046 | - | - | - | 100% | 100% | 0% | 13 | 13 | - | 0.5% | 0.5% | 0.0% |
| 2047 | - | - | - | 100% | 100% | 0% | 14 | 14 | - | 0.5% | 0.5% | 0.0% |
| 2048 | - | - | - | 100% | 100% | 0% | 14 | 14 | - | 0.5% | 0.5% | 0.0% |
| 2049 | - | - | - | 100% | 100% | 0% | 12 | 12 | - | 0.4% | 0.4% | 0.0% |
| 2050 | - | - | - | 100% | 100% | 0% | 12 | 12 | - | 0.4% | 0.4% | 0.0% |
| 2051 | - | - | - | 100% | 100% | 0% | 12 | 12 | - | 0.4% | 0.4% | 0.0% |

**Kentucky Retirement Systems**
**Exhibit 1-4**
**CERS Non-Hazardous Insurance Fund**
**Summary of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 1, | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 1,128 | $ 1,128 | $ - | 66% | 66% | 0% | $ 114 | $ 114 | $ 0 | 4.7% | 4.7% | 0.0% |
| 2018 | 1,171 | 1,171 | - | 67% | 67% | 0% | 154 | 154 | - | 6.2% | 6.2% | 0.0% |
| 2019 | 1,192 | 1,183 | (9) | 67% | 68% | 1% | 153 | 143 | (10) | 6.1% | 5.7% | -0.4% |
| 2020 | 1,190 | 1,176 | (14) | 69% | 69% | 0% | 154 | 155 | 1 | 6.0% | 6.0% | 0.1% |
| 2021 | 1,153 | 1,125 | (28) | 71% | 72% | 1% | 153 | 153 | - | 5.8% | 5.8% | 0.0% |
| 2022 | 1,140 | 1,097 | (43) | 72% | 73% | 1% | 150 | 148 | (2) | 5.6% | 5.6% | -0.1% |
| 2023 | 1,125 | 1,069 | (56) | 73% | 75% | 2% | 149 | 146 | (3) | 5.5% | 5.4% | -0.1% |
| 2024 | 1,109 | 1,040 | (69) | 74% | 76% | 2% | 148 | 144 | (4) | 5.4% | 5.2% | -0.2% |
| 2025 | 1,089 | 1,009 | (80) | 75% | 77% | 2% | 147 | 142 | (5) | 5.2% | 5.0% | -0.2% |
| 2026 | 1,067 | 977 | (90) | 76% | 78% | 2% | 146 | 140 | (6) | 5.1% | 4.9% | -0.2% |
| 2027 | 1,042 | 942 | (100) | 77% | 80% | 3% | 145 | 138 | (7) | 5.0% | 4.7% | -0.2% |
| 2028 | 1,013 | 905 | (108) | 78% | 81% | 3% | 144 | 135 | (9) | 4.8% | 4.5% | -0.3% |
| 2029 | 982 | 867 | (115) | 79% | 82% | 3% | 144 | 134 | (10) | 4.7% | 4.4% | -0.3% |
| 2030 | 947 | 826 | (121) | 80% | 83% | 3% | 143 | 131 | (12) | 4.6% | 4.2% | -0.4% |
| 2031 | 908 | 783 | (125) | 81% | 84% | 3% | 143 | 130 | (13) | 4.5% | 4.1% | -0.4% |
| 2032 | 865 | 738 | (127) | 82% | 85% | 3% | 143 | 129 | (14) | 4.4% | 4.0% | -0.4% |
| 2033 | 818 | 691 | (127) | 84% | 86% | 2% | 144 | 129 | (15) | 4.4% | 3.9% | -0.4% |
| 2034 | 766 | 641 | (125) | 85% | 87% | 2% | 144 | 129 | (15) | 4.3% | 3.8% | -0.5% |
| 2035 | 709 | 588 | (121) | 86% | 88% | 2% | 146 | 130 | (16) | 4.2% | 3.8% | -0.5% |
| 2036 | 646 | 531 | (115) | 87% | 90% | 3% | 147 | 130 | (17) | 4.2% | 3.7% | -0.5% |
| 2037 | 578 | 471 | (107) | 89% | 91% | 2% | 150 | 131 | (19) | 4.2% | 3.6% | -0.5% |
| 2038 | 503 | 407 | (96) | 90% | 92% | 2% | 151 | 131 | (20) | 4.1% | 3.6% | -0.6% |
| 2039 | 421 | 338 | (83) | 92% | 94% | 2% | 155 | 132 | (23) | 4.1% | 3.5% | -0.6% |
| 2040 | 330 | 264 | (66) | 94% | 95% | 1% | 157 | 134 | (23) | 4.1% | 3.5% | -0.6% |
| 2041 | 231 | 184 | (47) | 96% | 97% | 1% | 160 | 135 | (25) | 4.0% | 3.4% | -0.6% |
| 2042 | 123 | 98 | (25) | 98% | 98% | 0% | 166 | 138 | (28) | 4.1% | 3.4% | -0.7% |
| 2043 | - | - | - | 100% | 100% | 0% | 41 | 41 | - | 1.0% | 1.0% | 0.0% |
| 2044 | - | - | - | 100% | 100% | 0% | 41 | 41 | - | 1.0% | 1.0% | 0.0% |
| 2045 | - | - | - | 100% | 100% | 0% | 42 | 42 | - | 1.0% | 1.0% | 0.0% |
| 2046 | - | - | - | 100% | 100% | 0% | 42 | 42 | - | 1.0% | 1.0% | 0.0% |
| 2047 | - | - | - | 100% | 100% | 0% | 43 | 43 | - | 0.9% | 0.9% | 0.0% |
| 2048 | - | - | - | 100% | 100% | 0% | 43 | 43 | - | 0.9% | 0.9% | 0.0% |
| 2049 | - | - | - | 100% | 100% | 0% | 43 | 43 | - | 0.9% | 0.9% | 0.0% |
| 2050 | - | - | - | 100% | 100% | 0% | 43 | 43 | - | 0.9% | 0.9% | 0.0% |
| 2051 | - | - | - | 100% | 100% | 0% | 44 | 44 | - | 0.9% | 0.9% | 0.0% |

# Section 2.
# Projected Cost of the Retirement and Insurance Current Plan

**Kentucky Retirement Systems**
**Exhibit 2-1**
**KERS Non-Hazardous Retirement Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 15,592 | $ 2,124 | $ 13,468 | 14% | $ 629 | $ 77 | $ 1,532 | 41.06% | 41.98% |
| 2018 | 15,629 | 2,038 | 13,591 | 13% | 1,101 | 78 | 1,551 | 71.03% | 71.03% |
| 2019 | 15,645 | 2,296 | 13,349 | 15% | 1,118 | 79 | 1,574 | 71.03% | 69.79% |
| 2020 | 15,643 | 2,601 | 13,042 | 17% | 1,097 | 80 | 1,601 | 68.54% | 68.54% |
| 2021 | 15,624 | 2,924 | 12,700 | 19% | 1,116 | 81 | 1,628 | 68.54% | 67.18% |
| 2022 | 15,587 | 3,253 | 12,334 | 21% | 1,086 | 83 | 1,656 | 65.54% | 65.54% |
| 2023 | 15,535 | 3,556 | 11,979 | 23% | 1,105 | 84 | 1,686 | 65.54% | 64.13% |
| 2024 | 15,466 | 3,886 | 11,580 | 25% | 1,075 | 86 | 1,718 | 62.57% | 62.57% |
| 2025 | 15,383 | 4,193 | 11,190 | 27% | 1,095 | 88 | 1,751 | 62.57% | 61.15% |
| 2026 | 15,285 | 4,530 | 10,755 | 30% | 1,064 | 89 | 1,785 | 59.60% | 59.60% |
| 2027 | 15,172 | 4,845 | 10,327 | 32% | 1,084 | 91 | 1,819 | 59.60% | 58.21% |
| 2028 | 15,052 | 5,199 | 9,853 | 35% | 1,052 | 93 | 1,854 | 56.71% | 56.71% |
| 2029 | 14,918 | 5,533 | 9,385 | 37% | 1,072 | 95 | 1,891 | 56.71% | 55.37% |
| 2030 | 14,769 | 5,901 | 8,868 | 40% | 1,040 | 96 | 1,929 | 53.90% | 53.90% |
| 2031 | 14,609 | 6,254 | 8,355 | 43% | 1,062 | 99 | 1,970 | 53.90% | 52.59% |
| 2032 | 14,440 | 6,649 | 7,791 | 46% | 1,028 | 101 | 2,012 | 51.10% | 51.10% |
| 2033 | 14,262 | 7,033 | 7,229 | 49% | 1,051 | 103 | 2,056 | 51.10% | 49.82% |
| 2034 | 14,077 | 7,463 | 6,614 | 53% | 1,015 | 105 | 2,101 | 48.33% | 48.33% |
| 2035 | 13,884 | 7,884 | 6,000 | 57% | 1,038 | 107 | 2,147 | 48.33% | 47.09% |
| 2036 | 13,689 | 8,358 | 5,331 | 61% | 1,003 | 110 | 2,198 | 45.62% | 45.62% |
| 2037 | 13,496 | 8,835 | 4,661 | 65% | 1,028 | 113 | 2,253 | 45.62% | 44.35% |
| 2038 | 13,309 | 9,378 | 3,931 | 70% | 987 | 115 | 2,310 | 42.75% | 42.75% |
| 2039 | 13,132 | 9,928 | 3,204 | 76% | 1,012 | 118 | 2,368 | 42.75% | 41.48% |
| 2040 | 12,967 | 10,553 | 2,414 | 81% | 963 | 121 | 2,427 | 39.68% | 39.68% |
| 2041 | 12,815 | 11,181 | 1,634 | 87% | 987 | 124 | 2,487 | 39.68% | 38.35% |
| 2042 | 12,675 | 11,887 | 788 | 94% | 897 | 127 | 2,547 | 35.22% | 35.22% |
| 2043 | 12,549 | 12,549 | 0 | 100% | 76 | 130 | 2,608 | 2.93% | 2.93% |
| 2044 | 12,436 | 12,436 | 0 | 100% | 77 | 133 | 2,669 | 2.89% | 2.89% |
| 2045 | 12,338 | 12,338 | 0 | 100% | 78 | 137 | 2,731 | 2.86% | 2.86% |
| 2046 | 12,254 | 12,254 | 0 | 100% | 79 | 140 | 2,794 | 2.84% | 2.84% |
| 2047 | 12,184 | 12,184 | 0 | 100% | 81 | 143 | 2,858 | 2.82% | 2.82% |
| 2048 | 12,130 | 12,130 | 0 | 100% | 82 | 146 | 2,924 | 2.80% | 2.80% |
| 2049 | 12,092 | 12,092 | 0 | 100% | 83 | 150 | 2,990 | 2.79% | 2.79% |
| 2050 | 12,069 | 12,069 | 0 | 100% | 85 | 153 | 3,058 | 2.79% | 2.79% |
| 2051 | 12,064 | 12,064 | 0 | 100% | 87 | 156 | 3,127 | 2.78% | 2.78% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the $87 million additional contribution budgeted to be paid in fiscal year beginning 2017.

**Kentucky Retirement Systems**
**Exhibit 2-2**
**CERS Non-Hazardous Retirement Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 12,804 | $ 6,765 | $ 6,039 | 53% | $ 355 | $ 123 | $ 2,452 | 14.48% | 14.48% |
| 2018 | 13,121 | 6,902 | 6,219 | 53% | 546 | 125 | 2,500 | 21.84% | 21.84% |
| 2019 | 13,421 | 7,122 | 6,299 | 53% | 548 | 127 | 2,547 | 21.50% | 21.50% |
| 2020 | 13,704 | 7,412 | 6,292 | 54% | 558 | 130 | 2,594 | 21.53% | 21.53% |
| 2021 | 13,970 | 7,805 | 6,165 | 56% | 563 | 132 | 2,642 | 21.33% | 21.33% |
| 2022 | 14,218 | 8,119 | 6,099 | 57% | 561 | 135 | 2,690 | 20.86% | 20.86% |
| 2023 | 14,445 | 8,419 | 6,026 | 58% | 565 | 137 | 2,740 | 20.64% | 20.64% |
| 2024 | 14,652 | 8,711 | 5,941 | 59% | 570 | 140 | 2,790 | 20.43% | 20.43% |
| 2025 | 14,836 | 8,996 | 5,840 | 61% | 575 | 142 | 2,842 | 20.22% | 20.22% |
| 2026 | 14,998 | 9,273 | 5,725 | 62% | 580 | 145 | 2,894 | 20.03% | 20.03% |
| 2027 | 15,136 | 9,541 | 5,595 | 63% | 585 | 147 | 2,948 | 19.84% | 19.84% |
| 2028 | 15,259 | 9,813 | 5,446 | 64% | 591 | 150 | 3,003 | 19.67% | 19.67% |
| 2029 | 15,359 | 10,079 | 5,280 | 66% | 597 | 153 | 3,062 | 19.50% | 19.50% |
| 2030 | 15,438 | 10,344 | 5,094 | 67% | 604 | 156 | 3,124 | 19.34% | 19.34% |
| 2031 | 15,496 | 10,611 | 4,885 | 68% | 611 | 159 | 3,187 | 19.18% | 19.18% |
| 2032 | 15,536 | 10,882 | 4,654 | 70% | 619 | 163 | 3,254 | 19.03% | 19.03% |
| 2033 | 15,558 | 11,161 | 4,397 | 72% | 627 | 166 | 3,323 | 18.88% | 18.88% |
| 2034 | 15,565 | 11,450 | 4,115 | 74% | 636 | 170 | 3,394 | 18.74% | 18.74% |
| 2035 | 15,556 | 11,753 | 3,803 | 76% | 645 | 173 | 3,467 | 18.61% | 18.61% |
| 2036 | 15,535 | 12,073 | 3,462 | 78% | 655 | 177 | 3,545 | 18.49% | 18.49% |
| 2037 | 15,507 | 12,420 | 3,087 | 80% | 666 | 181 | 3,628 | 18.37% | 18.37% |
| 2038 | 15,478 | 12,801 | 2,677 | 83% | 678 | 186 | 3,714 | 18.25% | 18.25% |
| 2039 | 15,451 | 13,221 | 2,230 | 86% | 690 | 190 | 3,803 | 18.14% | 18.14% |
| 2040 | 15,428 | 13,686 | 1,742 | 89% | 703 | 195 | 3,895 | 18.04% | 18.04% |
| 2041 | 15,413 | 14,202 | 1,211 | 92% | 715 | 199 | 3,988 | 17.94% | 17.94% |
| 2042 | 15,406 | 14,772 | 634 | 96% | 730 | 204 | 4,083 | 17.87% | 17.87% |
| 2043 | 15,409 | 15,409 | 0 | 100% | 78 | 209 | 4,179 | 1.87% | 1.87% |
| 2044 | 15,423 | 15,423 | 0 | 100% | 79 | 214 | 4,277 | 1.85% | 1.85% |
| 2045 | 15,449 | 15,449 | 0 | 100% | 80 | 219 | 4,377 | 1.83% | 1.83% |
| 2046 | 15,488 | 15,488 | 0 | 100% | 82 | 224 | 4,478 | 1.82% | 1.82% |
| 2047 | 15,540 | 15,540 | 0 | 100% | 83 | 229 | 4,581 | 1.81% | 1.81% |
| 2048 | 15,606 | 15,606 | 0 | 100% | 84 | 234 | 4,686 | 1.80% | 1.80% |
| 2049 | 15,687 | 15,687 | 0 | 100% | 86 | 240 | 4,792 | 1.79% | 1.79% |
| 2050 | 15,783 | 15,783 | 0 | 100% | 88 | 245 | 4,901 | 1.79% | 1.79% |
| 2051 | 15,895 | 15,895 | 0 | 100% | 89 | 251 | 5,012 | 1.78% | 1.78% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.
The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

**Kentucky Retirement Systems**
**Exhibit 2-3**
**KERS Non-Hazardous Insurance Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 2,683 | $ 824 | $ 1,859 | 31% | $ 128 | $ 5 | $ 1,524 | 8.41% | 8.41% |
| 2018 | 2,760 | 874 | 1,886 | 32% | 191 | 6 | 1,541 | 12.40% | 12.40% |
| 2019 | 2,837 | 975 | 1,862 | 34% | 194 | 7 | 1,564 | 12.40% | 12.09% |
| 2020 | 2,907 | 1,087 | 1,820 | 37% | 188 | 8 | 1,590 | 11.81% | 11.81% |
| 2021 | 2,972 | 1,202 | 1,770 | 40% | 191 | 9 | 1,617 | 11.81% | 11.50% |
| 2022 | 3,032 | 1,311 | 1,721 | 43% | 182 | 10 | 1,645 | 11.09% | 11.09% |
| 2023 | 3,085 | 1,411 | 1,674 | 46% | 186 | 10 | 1,675 | 11.09% | 10.77% |
| 2024 | 3,133 | 1,512 | 1,621 | 48% | 178 | 11 | 1,706 | 10.44% | 10.44% |
| 2025 | 3,174 | 1,604 | 1,570 | 51% | 181 | 12 | 1,738 | 10.44% | 10.12% |
| 2026 | 3,208 | 1,698 | 1,510 | 53% | 173 | 13 | 1,772 | 9.76% | 9.76% |
| 2027 | 3,235 | 1,781 | 1,454 | 55% | 176 | 14 | 1,806 | 9.76% | 9.47% |
| 2028 | 3,254 | 1,864 | 1,390 | 57% | 168 | 15 | 1,841 | 9.13% | 9.13% |
| 2029 | 3,264 | 1,937 | 1,327 | 59% | 171 | 15 | 1,877 | 9.13% | 8.82% |
| 2030 | 3,265 | 2,010 | 1,255 | 62% | 162 | 16 | 1,915 | 8.48% | 8.48% |
| 2031 | 3,259 | 2,072 | 1,187 | 64% | 166 | 17 | 1,956 | 8.48% | 8.23% |
| 2032 | 3,248 | 2,139 | 1,109 | 66% | 158 | 18 | 1,998 | 7.92% | 7.92% |
| 2033 | 3,233 | 2,200 | 1,033 | 68% | 162 | 19 | 2,041 | 7.92% | 7.68% |
| 2034 | 3,215 | 2,268 | 947 | 71% | 155 | 20 | 2,085 | 7.42% | 7.42% |
| 2035 | 3,195 | 2,332 | 863 | 73% | 158 | 20 | 2,132 | 7.42% | 7.20% |
| 2036 | 3,175 | 2,406 | 769 | 76% | 151 | 21 | 2,183 | 6.94% | 6.94% |
| 2037 | 3,156 | 2,481 | 675 | 79% | 155 | 22 | 2,237 | 6.94% | 6.74% |
| 2038 | 3,141 | 2,569 | 572 | 82% | 149 | 23 | 2,293 | 6.48% | 6.48% |
| 2039 | 3,129 | 2,660 | 469 | 85% | 152 | 23 | 2,351 | 6.48% | 6.28% |
| 2040 | 3,122 | 2,767 | 355 | 89% | 145 | 24 | 2,410 | 6.02% | 6.02% |
| 2041 | 3,120 | 2,878 | 242 | 92% | 149 | 25 | 2,469 | 6.02% | 5.83% |
| 2042 | 3,122 | 3,004 | 118 | 96% | 135 | 25 | 2,529 | 5.35% | 5.35% |
| 2043 | 3,131 | 3,131 | 0 | 100% | 13 | 26 | 2,589 | 0.49% | 0.49% |
| 2044 | 3,144 | 3,144 | 0 | 100% | 13 | 26 | 2,650 | 0.49% | 0.49% |
| 2045 | 3,162 | 3,162 | 0 | 100% | 13 | 27 | 2,712 | 0.48% | 0.48% |
| 2046 | 3,184 | 3,184 | 0 | 100% | 13 | 28 | 2,774 | 0.48% | 0.48% |
| 2047 | 3,208 | 3,208 | 0 | 100% | 14 | 28 | 2,838 | 0.48% | 0.48% |
| 2048 | 3,233 | 3,233 | 0 | 100% | 14 | 29 | 2,903 | 0.48% | 0.48% |
| 2049 | 3,260 | 3,260 | 0 | 100% | 12 | 30 | 2,969 | 0.42% | 0.42% |
| 2050 | 3,287 | 3,287 | 0 | 100% | 12 | 30 | 3,036 | 0.41% | 0.41% |
| 2051 | 3,315 | 3,315 | 0 | 100% | 12 | 31 | 3,105 | 0.40% | 0.40% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.
The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

**Kentucky Retirement Systems**
**Exhibit 2-4**
**CERS Non-Hazardous Insurance Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 3,355 | $ 2,227 | $ 1,128 | 66% | $ 114 | $ 10 | $ 2,429 | 4.70% | 4.70% |
| 2018 | 3,514 | 2,343 | 1,171 | 67% | 154 | 11 | 2,477 | 6.21% | 6.21% |
| 2019 | 3,667 | 2,475 | 1,192 | 67% | 153 | 13 | 2,524 | 6.06% | 6.06% |
| 2020 | 3,813 | 2,623 | 1,190 | 69% | 154 | 14 | 2,572 | 5.98% | 5.98% |
| 2021 | 3,951 | 2,798 | 1,153 | 71% | 153 | 15 | 2,619 | 5.84% | 5.84% |
| 2022 | 4,081 | 2,941 | 1,140 | 72% | 150 | 17 | 2,668 | 5.62% | 5.62% |
| 2023 | 4,202 | 3,077 | 1,125 | 73% | 149 | 18 | 2,718 | 5.48% | 5.48% |
| 2024 | 4,315 | 3,206 | 1,109 | 74% | 148 | 19 | 2,768 | 5.35% | 5.35% |
| 2025 | 4,419 | 3,330 | 1,089 | 75% | 147 | 20 | 2,820 | 5.21% | 5.21% |
| 2026 | 4,514 | 3,447 | 1,067 | 76% | 146 | 22 | 2,873 | 5.08% | 5.08% |
| 2027 | 4,600 | 3,558 | 1,042 | 77% | 145 | 23 | 2,926 | 4.96% | 4.96% |
| 2028 | 4,676 | 3,663 | 1,013 | 78% | 144 | 24 | 2,982 | 4.83% | 4.83% |
| 2029 | 4,745 | 3,763 | 982 | 79% | 144 | 26 | 3,040 | 4.72% | 4.72% |
| 2030 | 4,807 | 3,860 | 947 | 80% | 143 | 27 | 3,102 | 4.60% | 4.60% |
| 2031 | 4,862 | 3,954 | 908 | 81% | 143 | 28 | 3,166 | 4.51% | 4.51% |
| 2032 | 4,912 | 4,047 | 865 | 82% | 143 | 29 | 3,232 | 4.42% | 4.42% |
| 2033 | 4,958 | 4,140 | 818 | 84% | 144 | 31 | 3,301 | 4.35% | 4.35% |
| 2034 | 5,002 | 4,236 | 766 | 85% | 144 | 32 | 3,372 | 4.28% | 4.28% |
| 2035 | 5,045 | 4,336 | 709 | 86% | 146 | 33 | 3,445 | 4.23% | 4.23% |
| 2036 | 5,089 | 4,443 | 646 | 87% | 147 | 34 | 3,522 | 4.18% | 4.18% |
| 2037 | 5,135 | 4,557 | 578 | 89% | 150 | 35 | 3,605 | 4.15% | 4.15% |
| 2038 | 5,184 | 4,681 | 503 | 90% | 151 | 36 | 3,691 | 4.10% | 4.10% |
| 2039 | 5,235 | 4,814 | 421 | 92% | 155 | 37 | 3,780 | 4.09% | 4.09% |
| 2040 | 5,289 | 4,959 | 330 | 94% | 157 | 38 | 3,872 | 4.06% | 4.06% |
| 2041 | 5,347 | 5,116 | 231 | 96% | 160 | 39 | 3,965 | 4.04% | 4.04% |
| 2042 | 5,409 | 5,286 | 123 | 98% | 166 | 40 | 4,059 | 4.08% | 4.08% |
| 2043 | 5,475 | 5,475 | 0 | 100% | 41 | 41 | 4,156 | 0.98% | 0.98% |
| 2044 | 5,545 | 5,545 | 0 | 100% | 41 | 42 | 4,253 | 0.97% | 0.97% |
| 2045 | 5,619 | 5,619 | 0 | 100% | 42 | 43 | 4,352 | 0.97% | 0.97% |
| 2046 | 5,696 | 5,696 | 0 | 100% | 42 | 44 | 4,453 | 0.95% | 0.95% |
| 2047 | 5,775 | 5,775 | 0 | 100% | 43 | 46 | 4,555 | 0.94% | 0.94% |
| 2048 | 5,855 | 5,855 | 0 | 100% | 43 | 47 | 4,660 | 0.92% | 0.92% |
| 2049 | 5,937 | 5,937 | 0 | 100% | 43 | 48 | 4,766 | 0.91% | 0.91% |
| 2050 | 6,019 | 6,019 | 0 | 100% | 43 | 49 | 4,874 | 0.89% | 0.89% |
| 2051 | 6,102 | 6,102 | 0 | 100% | 44 | 50 | 4,985 | 0.88% | 0.88% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation and assumes constant active membership count in all future years.
The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

# Section 3.
# Projected Cost of the Retirement and Insurance Proposed Legislation

**Kentucky Retirement Systems**
**Exhibit 3-1**
**KERS Non-Hazardous Retirement Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | DC Plan Covered Payroll | Employer Contribution DC Plan | Member Contribution DC Plan | Total Employer Contributions (6) + (10) | Total Employer Contribution Rate (12) / [(8)+(9)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 15,589 | $ 2,124 | $ 13,465 | 14% | $ 629 | $ 77 | $ 1,532 | $ 0 | $ 0 | $ 0 | $ 629 | 41.06% |
| 2018 | 15,614 | 2,021 | 13,593 | 13% | 1,082 | 73 | 1,452 | 99 | 3 | 5 | 1,085 | 69.97% |
| 2019 | 15,621 | 2,255 | 13,366 | 14% | 1,083 | 73 | 1,453 | 121 | 4 | 6 | 1,087 | 69.04% |
| 2020 | 15,607 | 2,517 | 13,090 | 16% | 1,078 | 73 | 1,457 | 143 | 5 | 7 | 1,083 | 67.66% |
| 2021 | 15,574 | 2,812 | 12,762 | 18% | 1,075 | 73 | 1,463 | 165 | 6 | 8 | 1,081 | 66.40% |
| 2022 | 15,521 | 3,086 | 12,435 | 20% | 1,069 | 73 | 1,469 | 187 | 7 | 9 | 1,076 | 64.96% |
| 2023 | 15,449 | 3,357 | 12,092 | 22% | 1,064 | 74 | 1,477 | 210 | 7 | 10 | 1,071 | 63.51% |
| 2024 | 15,358 | 3,626 | 11,732 | 24% | 1,060 | 74 | 1,486 | 232 | 8 | 12 | 1,068 | 62.18% |
| 2025 | 15,249 | 3,895 | 11,354 | 26% | 1,056 | 75 | 1,497 | 254 | 9 | 13 | 1,065 | 60.83% |
| 2026 | 15,123 | 4,167 | 10,956 | 28% | 1,052 | 75 | 1,509 | 276 | 10 | 14 | 1,062 | 59.51% |
| 2027 | 14,979 | 4,441 | 10,538 | 30% | 1,048 | 76 | 1,521 | 298 | 10 | 15 | 1,058 | 58.17% |
| 2028 | 14,825 | 4,726 | 10,099 | 32% | 1,044 | 77 | 1,534 | 320 | 11 | 16 | 1,055 | 56.90% |
| 2029 | 14,652 | 5,015 | 9,637 | 34% | 1,040 | 77 | 1,548 | 343 | 12 | 17 | 1,052 | 55.64% |
| 2030 | 14,461 | 5,311 | 9,150 | 37% | 1,036 | 78 | 1,564 | 365 | 13 | 18 | 1,049 | 54.38% |
| 2031 | 14,256 | 5,616 | 8,640 | 39% | 1,033 | 79 | 1,583 | 387 | 14 | 19 | 1,047 | 53.14% |
| 2032 | 14,037 | 5,935 | 8,102 | 42% | 1,029 | 80 | 1,603 | 409 | 14 | 20 | 1,043 | 51.83% |
| 2033 | 13,807 | 6,269 | 7,538 | 45% | 1,026 | 81 | 1,625 | 431 | 15 | 22 | 1,041 | 50.63% |
| 2034 | 13,564 | 6,620 | 6,944 | 49% | 1,023 | 82 | 1,647 | 454 | 16 | 23 | 1,039 | 49.46% |
| 2035 | 13,311 | 6,991 | 6,320 | 53% | 1,020 | 84 | 1,671 | 476 | 17 | 24 | 1,037 | 48.29% |
| 2036 | 13,050 | 7,387 | 5,663 | 57% | 1,018 | 85 | 1,701 | 497 | 17 | 25 | 1,035 | 47.08% |
| 2037 | 12,787 | 7,814 | 4,973 | 61% | 1,017 | 87 | 1,735 | 517 | 18 | 26 | 1,035 | 45.94% |
| 2038 | 12,526 | 8,279 | 4,247 | 66% | 1,016 | 89 | 1,772 | 537 | 19 | 27 | 1,035 | 44.81% |
| 2039 | 12,272 | 8,787 | 3,485 | 72% | 1,016 | 91 | 1,811 | 557 | 19 | 28 | 1,035 | 43.71% |
| 2040 | 12,024 | 9,343 | 2,681 | 78% | 1,016 | 93 | 1,851 | 576 | 20 | 29 | 1,036 | 42.69% |
| 2041 | 11,785 | 9,950 | 1,835 | 84% | 1,016 | 95 | 1,891 | 596 | 21 | 30 | 1,037 | 41.70% |
| 2042 | 11,555 | 10,611 | 944 | 92% | 1,018 | 97 | 1,931 | 615 | 22 | 31 | 1,040 | 40.84% |
| 2043 | 11,335 | 11,335 | - | 100% | 52 | 99 | 1,973 | 635 | 22 | 32 | 74 | 2.84% |
| 2044 | 11,124 | 11,124 | - | 100% | 52 | 101 | 2,015 | 654 | 23 | 33 | 75 | 2.81% |
| 2045 | 10,924 | 10,924 | - | 100% | 52 | 103 | 2,058 | 673 | 24 | 34 | 76 | 2.78% |
| 2046 | 10,736 | 10,736 | - | 100% | 52 | 105 | 2,103 | 691 | 24 | 35 | 76 | 2.72% |
| 2047 | 10,559 | 10,559 | - | 100% | 53 | 107 | 2,149 | 710 | 25 | 35 | 78 | 2.73% |
| 2048 | 10,395 | 10,395 | - | 100% | 54 | 110 | 2,196 | 728 | 25 | 36 | 79 | 2.70% |
| 2049 | 10,245 | 10,245 | - | 100% | 54 | 112 | 2,245 | 746 | 26 | 37 | 80 | 2.68% |
| 2050 | 10,109 | 10,109 | - | 100% | 55 | 115 | 2,294 | 763 | 27 | 38 | 82 | 2.68% |
| 2051 | 9,989 | 9,989 | - | 100% | 56 | 117 | 2,346 | 781 | 27 | 39 | 83 | 2.65% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation.

The actuarial determined contribution is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the $87 million additional contribution budgeted to be paid in fiscal year beginning 2017.

It is assumed that the employer cost of defined contribution plan is 3.50% of pay, after reflecting the effects of forfeitures attributable to nonvested members, and that 25% of current Tier 3 members and 25% of future member elect to enter the DC plan.

**Kentucky Retirement Systems**
**Exhibit 3-2**
**CERS Non-Hazardous Retirement Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | DC Plan Covered Payroll | Employer Contribution DC Plan | Member Contribution DC Plan | Total Employer Contributions (6) + (10) | Total Employer Contribution Rate (12) / [(8)+(9)] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 12,799 | $ 6,765 | $ 6,034 | 53% | $ 355 | $ 123 | $ 2,452 | $ 0 | $ 0 | $ 0 | $ 355 | 14.48% |
| 2018 | 13,096 | 6,871 | 6,225 | 52% | 527 | 115 | 2,310 | 190 | 7 | 10 | 534 | 21.36% |
| 2019 | 13,381 | 7,064 | 6,317 | 53% | 536 | 116 | 2,321 | 226 | 8 | 11 | 544 | 21.36% |
| 2020 | 13,646 | 7,330 | 6,316 | 54% | 634 | 117 | 2,333 | 261 | 9 | 13 | 643 | 24.79% |
| 2021 | 13,890 | 7,787 | 6,103 | 56% | 629 | 117 | 2,346 | 296 | 10 | 15 | 639 | 24.19% |
| 2022 | 14,112 | 8,157 | 5,955 | 58% | 616 | 118 | 2,360 | 331 | 12 | 17 | 628 | 23.34% |
| 2023 | 14,309 | 8,505 | 5,804 | 59% | 611 | 119 | 2,374 | 366 | 13 | 18 | 624 | 22.78% |
| 2024 | 14,482 | 8,836 | 5,646 | 61% | 605 | 119 | 2,389 | 401 | 14 | 20 | 619 | 22.18% |
| 2025 | 14,628 | 9,151 | 5,477 | 63% | 600 | 120 | 2,406 | 436 | 15 | 22 | 615 | 21.64% |
| 2026 | 14,748 | 9,448 | 5,300 | 64% | 594 | 121 | 2,423 | 471 | 16 | 24 | 610 | 21.08% |
| 2027 | 14,838 | 9,726 | 5,112 | 66% | 589 | 122 | 2,441 | 506 | 18 | 25 | 607 | 20.59% |
| 2028 | 14,909 | 9,996 | 4,913 | 67% | 584 | 123 | 2,462 | 541 | 19 | 27 | 603 | 20.08% |
| 2029 | 14,951 | 10,250 | 4,701 | 69% | 580 | 124 | 2,487 | 576 | 20 | 29 | 600 | 19.59% |
| 2030 | 14,967 | 10,488 | 4,479 | 70% | 575 | 126 | 2,514 | 610 | 21 | 30 | 596 | 19.08% |
| 2031 | 14,957 | 10,714 | 4,243 | 72% | 571 | 127 | 2,544 | 644 | 23 | 32 | 594 | 18.64% |
| 2032 | 14,923 | 10,931 | 3,992 | 73% | 567 | 129 | 2,576 | 677 | 24 | 34 | 591 | 18.16% |
| 2033 | 14,867 | 11,139 | 3,728 | 75% | 564 | 131 | 2,612 | 711 | 25 | 36 | 589 | 17.73% |
| 2034 | 14,789 | 11,342 | 3,447 | 77% | 560 | 132 | 2,650 | 744 | 26 | 37 | 586 | 17.27% |
| 2035 | 14,689 | 11,540 | 3,149 | 79% | 557 | 134 | 2,689 | 777 | 27 | 39 | 584 | 16.85% |
| 2036 | 14,572 | 11,739 | 2,833 | 81% | 555 | 137 | 2,735 | 810 | 28 | 40 | 583 | 16.45% |
| 2037 | 14,442 | 11,943 | 2,499 | 83% | 553 | 139 | 2,786 | 841 | 29 | 42 | 582 | 16.04% |
| 2038 | 14,304 | 12,160 | 2,144 | 85% | 552 | 142 | 2,842 | 872 | 31 | 44 | 583 | 15.70% |
| 2039 | 14,163 | 12,396 | 1,767 | 88% | 551 | 145 | 2,901 | 902 | 32 | 45 | 583 | 15.33% |
| 2040 | 14,021 | 12,653 | 1,368 | 90% | 551 | 148 | 2,962 | 933 | 33 | 47 | 584 | 15.00% |
| 2041 | 13,880 | 12,938 | 942 | 93% | 551 | 151 | 3,025 | 963 | 34 | 48 | 585 | 14.67% |
| 2042 | 13,742 | 13,253 | 489 | 96% | 553 | 155 | 3,091 | 992 | 35 | 50 | 588 | 14.40% |
| 2043 | 13,610 | 13,610 | - | 100% | 52 | 158 | 3,158 | 1,022 | 36 | 51 | 88 | 2.11% |
| 2044 | 13,483 | 13,483 | - | 100% | 52 | 161 | 3,227 | 1,051 | 37 | 53 | 89 | 2.08% |
| 2045 | 13,364 | 13,364 | - | 100% | 52 | 165 | 3,297 | 1,080 | 38 | 54 | 90 | 2.06% |
| 2046 | 13,254 | 13,254 | - | 100% | 53 | 168 | 3,370 | 1,108 | 39 | 55 | 92 | 2.05% |
| 2047 | 13,154 | 13,154 | - | 100% | 53 | 172 | 3,444 | 1,137 | 40 | 57 | 93 | 2.03% |
| 2048 | 13,065 | 13,065 | - | 100% | 54 | 176 | 3,520 | 1,166 | 41 | 58 | 95 | 2.03% |
| 2049 | 12,987 | 12,987 | - | 100% | 55 | 180 | 3,598 | 1,194 | 42 | 60 | 97 | 2.02% |
| 2050 | 12,923 | 12,923 | - | 100% | 56 | 184 | 3,678 | 1,223 | 43 | 61 | 99 | 2.02% |
| 2051 | 12,873 | 12,873 | - | 100% | 57 | 188 | 3,761 | 1,251 | 44 | 63 | 101 | 2.02% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation.

The actuarial determined contribution is determined by the prior year's actuarial valuation.

It is assumed that the employer cost of defined contribution plan is 3.50% of pay, after reflecting the effects of forfeitures attributable to nonvested members, and that 25% of current Tier 3 members and 25% of future member elect to enter the DC plan.

**Kentucky Retirement Systems**
**Exhibit 3-3**
**KERS Non-Hazardous Insurance Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 2,683 | $ 824 | $ 1,859 | 31% | $ 128 | $ 5 | $ 1,524 | 8.41% | 8.41% |
| 2018 | 2,760 | 874 | 1,886 | 32% | 191 | 12 | 1,541 | 12.40% | 12.40% |
| 2019 | 2,837 | 981 | 1,856 | 35% | 194 | 13 | 1,564 | 12.40% | 11.69% |
| 2020 | 2,907 | 1,100 | 1,807 | 38% | 178 | 14 | 1,590 | 11.19% | 11.19% |
| 2021 | 2,972 | 1,212 | 1,760 | 41% | 176 | 15 | 1,617 | 10.88% | 10.88% |
| 2022 | 3,032 | 1,313 | 1,719 | 43% | 174 | 15 | 1,645 | 10.58% | 10.58% |
| 2023 | 3,085 | 1,409 | 1,676 | 46% | 172 | 16 | 1,675 | 10.27% | 10.27% |
| 2024 | 3,133 | 1,503 | 1,630 | 48% | 170 | 17 | 1,706 | 9.96% | 9.96% |
| 2025 | 3,174 | 1,592 | 1,582 | 50% | 169 | 17 | 1,738 | 9.72% | 9.72% |
| 2026 | 3,208 | 1,677 | 1,531 | 52% | 167 | 18 | 1,772 | 9.42% | 9.42% |
| 2027 | 3,235 | 1,758 | 1,477 | 54% | 165 | 19 | 1,806 | 9.14% | 9.14% |
| 2028 | 3,254 | 1,834 | 1,420 | 56% | 164 | 19 | 1,841 | 8.91% | 8.91% |
| 2029 | 3,264 | 1,905 | 1,359 | 58% | 162 | 20 | 1,877 | 8.63% | 8.63% |
| 2030 | 3,265 | 1,970 | 1,295 | 60% | 160 | 20 | 1,915 | 8.36% | 8.36% |
| 2031 | 3,259 | 2,032 | 1,227 | 62% | 158 | 21 | 1,956 | 8.08% | 8.08% |
| 2032 | 3,248 | 2,093 | 1,155 | 64% | 157 | 21 | 1,998 | 7.86% | 7.86% |
| 2033 | 3,233 | 2,154 | 1,079 | 67% | 157 | 22 | 2,041 | 7.69% | 7.69% |
| 2034 | 3,215 | 2,216 | 999 | 69% | 156 | 22 | 2,085 | 7.48% | 7.48% |
| 2035 | 3,195 | 2,281 | 914 | 71% | 156 | 22 | 2,132 | 7.32% | 7.32% |
| 2036 | 3,175 | 2,351 | 824 | 74% | 156 | 22 | 2,183 | 7.15% | 7.15% |
| 2037 | 3,156 | 2,429 | 727 | 77% | 157 | 23 | 2,237 | 7.02% | 7.02% |
| 2038 | 3,141 | 2,516 | 625 | 80% | 157 | 23 | 2,293 | 6.85% | 6.85% |
| 2039 | 3,129 | 2,614 | 515 | 84% | 157 | 24 | 2,351 | 6.68% | 6.68% |
| 2040 | 3,122 | 2,722 | 400 | 87% | 158 | 24 | 2,410 | 6.56% | 6.56% |
| 2041 | 3,120 | 2,844 | 276 | 91% | 159 | 25 | 2,469 | 6.44% | 6.44% |
| 2042 | 3,122 | 2,979 | 143 | 95% | 160 | 25 | 2,529 | 6.33% | 6.33% |
| 2043 | 3,131 | 3,131 | - | 100% | 13 | 26 | 2,589 | 0.49% | 0.49% |
| 2044 | 3,144 | 3,144 | - | 100% | 13 | 26 | 2,650 | 0.49% | 0.49% |
| 2045 | 3,162 | 3,162 | - | 100% | 13 | 27 | 2,712 | 0.48% | 0.48% |
| 2046 | 3,184 | 3,184 | - | 100% | 13 | 28 | 2,774 | 0.48% | 0.48% |
| 2047 | 3,208 | 3,208 | - | 100% | 14 | 28 | 2,838 | 0.48% | 0.48% |
| 2048 | 3,233 | 3,233 | - | 100% | 14 | 29 | 2,903 | 0.48% | 0.48% |
| 2049 | 3,260 | 3,260 | - | 100% | 12 | 30 | 2,969 | 0.42% | 0.42% |
| 2050 | 3,287 | 3,287 | - | 100% | 12 | 30 | 3,036 | 0.41% | 0.41% |
| 2051 | 3,315 | 3,315 | - | 100% | 12 | 31 | 3,105 | 0.40% | 0.40% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

**Kentucky Retirement Systems**
**Exhibit 3-4**
**CERS Non-Hazardous Insurance Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 3,355 | $ 2,227 | $ 1,128 | 66% | $ 114 | $ 10 | $ 2,429 | 4.70% | 4.70% |
| 2018 | 3,514 | 2,343 | 1,171 | 67% | 154 | 21 | 2,477 | 6.21% | 6.21% |
| 2019 | 3,667 | 2,484 | 1,183 | 68% | 143 | 26 | 2,524 | 5.66% | 5.66% |
| 2020 | 3,813 | 2,637 | 1,176 | 69% | 155 | 27 | 2,572 | 6.03% | 6.03% |
| 2021 | 3,951 | 2,826 | 1,125 | 72% | 153 | 28 | 2,619 | 5.84% | 5.84% |
| 2022 | 4,081 | 2,984 | 1,097 | 73% | 148 | 28 | 2,668 | 5.55% | 5.55% |
| 2023 | 4,202 | 3,133 | 1,069 | 75% | 146 | 29 | 2,718 | 5.37% | 5.37% |
| 2024 | 4,315 | 3,275 | 1,040 | 76% | 144 | 30 | 2,768 | 5.20% | 5.20% |
| 2025 | 4,419 | 3,410 | 1,009 | 77% | 142 | 31 | 2,820 | 5.04% | 5.04% |
| 2026 | 4,514 | 3,537 | 977 | 78% | 140 | 32 | 2,873 | 4.87% | 4.87% |
| 2027 | 4,600 | 3,658 | 942 | 80% | 138 | 32 | 2,926 | 4.72% | 4.72% |
| 2028 | 4,676 | 3,771 | 905 | 81% | 135 | 33 | 2,982 | 4.53% | 4.53% |
| 2029 | 4,745 | 3,878 | 867 | 82% | 134 | 34 | 3,040 | 4.41% | 4.41% |
| 2030 | 4,807 | 3,981 | 826 | 83% | 131 | 35 | 3,102 | 4.22% | 4.22% |
| 2031 | 4,862 | 4,079 | 783 | 84% | 130 | 35 | 3,166 | 4.11% | 4.11% |
| 2032 | 4,912 | 4,174 | 738 | 85% | 129 | 36 | 3,232 | 3.99% | 3.99% |
| 2033 | 4,958 | 4,267 | 691 | 86% | 129 | 36 | 3,301 | 3.91% | 3.91% |
| 2034 | 5,002 | 4,361 | 641 | 87% | 129 | 36 | 3,372 | 3.83% | 3.83% |
| 2035 | 5,045 | 4,457 | 588 | 88% | 130 | 36 | 3,445 | 3.77% | 3.77% |
| 2036 | 5,089 | 4,558 | 531 | 90% | 130 | 36 | 3,522 | 3.69% | 3.69% |
| 2037 | 5,135 | 4,664 | 471 | 91% | 131 | 37 | 3,605 | 3.63% | 3.63% |
| 2038 | 5,184 | 4,777 | 407 | 92% | 131 | 38 | 3,691 | 3.55% | 3.55% |
| 2039 | 5,235 | 4,897 | 338 | 94% | 132 | 38 | 3,780 | 3.49% | 3.49% |
| 2040 | 5,289 | 5,025 | 264 | 95% | 134 | 39 | 3,872 | 3.46% | 3.46% |
| 2041 | 5,347 | 5,163 | 184 | 97% | 135 | 40 | 3,965 | 3.40% | 3.40% |
| 2042 | 5,409 | 5,311 | 98 | 98% | 138 | 41 | 4,059 | 3.40% | 3.40% |
| 2043 | 5,475 | 5,475 | - | 100% | 41 | 42 | 4,156 | 0.98% | 0.98% |
| 2044 | 5,545 | 5,545 | - | 100% | 41 | 43 | 4,253 | 0.97% | 0.97% |
| 2045 | 5,619 | 5,619 | - | 100% | 42 | 44 | 4,352 | 0.97% | 0.97% |
| 2046 | 5,696 | 5,696 | - | 100% | 42 | 45 | 4,453 | 0.95% | 0.95% |
| 2047 | 5,775 | 5,775 | - | 100% | 43 | 46 | 4,555 | 0.94% | 0.94% |
| 2048 | 5,855 | 5,855 | - | 100% | 43 | 47 | 4,660 | 0.92% | 0.92% |
| 2049 | 5,937 | 5,937 | - | 100% | 43 | 48 | 4,766 | 0.91% | 0.91% |
| 2050 | 6,019 | 6,019 | - | 100% | 43 | 49 | 4,874 | 0.89% | 0.89% |
| 2051 | 6,102 | 6,102 | - | 100% | 44 | 50 | 4,985 | 0.88% | 0.88% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

# Section 4:

# Alternative Scenario for KERS Non-Hazardous

# Projected Cost of the Retirement and Insurance Current Plan with Projected Population Decrease

**Kentucky Retirement Systems**
**Exhibit 4-1 (Alternative Assumptions that Assume a Decreasing Active Membership)**
**KERS Non-Hazardous Retirement Fund**
**Comparison of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 13,468 | $ 13,465 | $ (3) | 14% | 14% | 0% | $ 629 | $ 629 | $ 0 | 41.1% | 41.1% | 0.0% |
| 2018 | 13,590 | 13,593 | 3 | 13% | 13% | 0% | 1,085 | 1,083 | (2) | 71.0% | 70.9% | -0.2% |
| 2019 | 13,364 | 13,366 | 2 | 15% | 14% | -1% | 1,084 | 1,071 | (13) | 71.0% | 70.2% | -0.9% |
| 2020 | 13,089 | 13,104 | 15 | 16% | 16% | 0% | 1,081 | 1,081 | 0 | 70.9% | 70.8% | 0.0% |
| 2021 | 12,763 | 12,777 | 14 | 18% | 18% | 0% | 1,081 | 1,078 | (3) | 70.9% | 70.7% | -0.2% |
| 2022 | 12,433 | 12,449 | 16 | 20% | 20% | 0% | 1,071 | 1,071 | - | 70.3% | 70.2% | 0.0% |
| 2023 | 12,092 | 12,106 | 14 | 22% | 22% | 0% | 1,071 | 1,067 | (4) | 70.3% | 70.0% | -0.3% |
| 2024 | 11,729 | 11,746 | 17 | 24% | 23% | -1% | 1,063 | 1,062 | (1) | 69.7% | 69.7% | -0.1% |
| 2025 | 11,351 | 11,368 | 17 | 26% | 25% | -1% | 1,063 | 1,059 | (4) | 69.7% | 69.4% | -0.3% |
| 2026 | 10,950 | 10,969 | 19 | 28% | 27% | -1% | 1,054 | 1,054 | - | 69.1% | 69.1% | 0.0% |
| 2027 | 10,532 | 10,551 | 19 | 30% | 29% | -1% | 1,054 | 1,051 | (3) | 69.1% | 68.9% | -0.2% |
| 2028 | 10,089 | 10,110 | 21 | 32% | 31% | -1% | 1,045 | 1,046 | 1 | 68.6% | 68.6% | 0.0% |
| 2029 | 9,628 | 9,647 | 19 | 35% | 34% | -1% | 1,045 | 1,042 | (3) | 68.6% | 68.4% | -0.2% |
| 2030 | 9,140 | 9,160 | 20 | 37% | 36% | -1% | 1,037 | 1,038 | 1 | 68.1% | 68.2% | 0.0% |
| 2031 | 8,630 | 8,648 | 18 | 40% | 39% | -1% | 1,038 | 1,035 | (3) | 68.1% | 67.9% | -0.2% |
| 2032 | 8,089 | 8,110 | 21 | 43% | 41% | -2% | 1,031 | 1,031 | - | 67.6% | 67.6% | 0.0% |
| 2033 | 7,525 | 7,544 | 19 | 46% | 44% | -2% | 1,032 | 1,027 | (5) | 67.6% | 67.2% | -0.3% |
| 2034 | 6,927 | 6,948 | 21 | 49% | 48% | -1% | 1,023 | 1,024 | 1 | 66.9% | 67.0% | 0.0% |
| 2035 | 6,302 | 6,322 | 20 | 53% | 51% | -2% | 1,025 | 1,020 | (5) | 66.9% | 66.6% | -0.3% |
| 2036 | 5,641 | 5,664 | 23 | 57% | 55% | -2% | 1,019 | 1,018 | (1) | 66.3% | 66.3% | 0.0% |
| 2037 | 4,951 | 4,973 | 22 | 62% | 60% | -2% | 1,023 | 1,016 | (7) | 66.3% | 65.8% | -0.5% |
| 2038 | 4,217 | 4,245 | 28 | 67% | 65% | -2% | 1,014 | 1,014 | - | 65.4% | 65.4% | 0.0% |
| 2039 | 3,453 | 3,481 | 28 | 72% | 70% | -2% | 1,019 | 1,012 | (7) | 65.4% | 64.9% | -0.5% |
| 2040 | 2,643 | 2,677 | 34 | 78% | 77% | -1% | 1,005 | 1,012 | 7 | 64.2% | 64.6% | 0.4% |
| 2041 | 1,803 | 1,830 | 27 | 85% | 84% | -1% | 1,010 | 1,010 | - | 64.2% | 64.2% | 0.0% |
| 2042 | 914 | 939 | 25 | 92% | 91% | -1% | 988 | 1,009 | 21 | 62.5% | 63.9% | 1.3% |
| 2043 | - | - | - | 100% | 100% | 0% | 46 | 46 | - | 2.9% | 2.9% | 0.0% |
| 2044 | - | - | - | 100% | 100% | 0% | 46 | 45 | (1) | 2.9% | 2.8% | -0.1% |
| 2045 | - | - | - | 100% | 100% | 0% | 46 | 45 | (1) | 2.9% | 2.8% | 0.0% |
| 2046 | - | - | - | 100% | 100% | 0% | 45 | 45 | - | 2.8% | 2.8% | 0.0% |
| 2047 | - | - | - | 100% | 100% | 0% | 45 | 44 | (1) | 2.8% | 2.8% | -0.1% |
| 2048 | - | - | - | 100% | 100% | 0% | 45 | 43 | (2) | 2.8% | 2.7% | -0.1% |
| 2049 | - | - | - | 100% | 100% | 0% | 45 | 43 | (2) | 2.8% | 2.7% | -0.1% |
| 2050 | - | - | - | 100% | 100% | 0% | 45 | 43 | (2) | 2.8% | 2.7% | -0.1% |
| 2051 | - | - | - | 100% | 100% | 0% | 45 | 43 | (2) | 2.8% | 2.7% | -0.1% |

Notes and assumptions:

The active membership population count is assumed to decrease by 2% per year each future year.

It is assumed that the employer cost of defined contribution plan is 3.50% of pay, after reflecting the effects of forfeitures attributable to nonvested members, and that 25% of current Tier 3 members and 25% of future member elect to enter the DC plan.

**Kentucky Retirement Systems**
**Exhibit 4-2 (Alternative Assumptions that Assume a Decreasing Active Membership)**
**KERS Non-Hazardous Insurance Fund**
**Summary of Fiscal Impact**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Unfunded Actuarial Accrued Liability | | | Funded Ratio | | | Employer Contribution | | | Employer Contribution Rate | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference | Current | Proposed | Difference |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 1,859 | $ 1,859 | $ - | 31% | 31% | 0% | $ 128 | $ 128 | $ 0 | 8.4% | 8.4% | 0.0% |
| 2018 | 1,886 | 1,886 | - | 32% | 32% | 0% | 188 | 188 | - | 12.4% | 12.4% | 0.0% |
| 2019 | 1,864 | 1,858 | (6) | 34% | 34% | 0% | 188 | 188 | - | 12.4% | 12.4% | 0.0% |
| 2020 | 1,828 | 1,815 | (13) | 37% | 38% | 1% | 185 | 178 | (7) | 12.2% | 11.7% | -0.5% |
| 2021 | 1,781 | 1,768 | (13) | 40% | 40% | 0% | 185 | 176 | (9) | 12.2% | 11.6% | -0.6% |
| 2022 | 1,737 | 1,726 | (11) | 43% | 43% | 0% | 180 | 173 | (7) | 11.9% | 11.4% | -0.5% |
| 2023 | 1,693 | 1,683 | (10) | 45% | 45% | 0% | 180 | 172 | (8) | 11.9% | 11.4% | -0.5% |
| 2024 | 1,646 | 1,638 | (8) | 47% | 48% | 1% | 176 | 170 | (6) | 11.6% | 11.2% | -0.4% |
| 2025 | 1,597 | 1,590 | (7) | 49% | 50% | 1% | 176 | 168 | (8) | 11.6% | 11.1% | -0.5% |
| 2026 | 1,543 | 1,538 | (5) | 52% | 52% | 0% | 172 | 166 | (6) | 11.4% | 11.0% | -0.4% |
| 2027 | 1,489 | 1,484 | (5) | 54% | 54% | 0% | 172 | 164 | (8) | 11.4% | 10.8% | -0.5% |
| 2028 | 1,428 | 1,426 | (2) | 56% | 56% | 0% | 167 | 162 | (5) | 11.1% | 10.7% | -0.3% |
| 2029 | 1,366 | 1,364 | (2) | 58% | 58% | 0% | 167 | 160 | (7) | 11.1% | 10.6% | -0.5% |
| 2030 | 1,299 | 1,299 | - | 60% | 60% | 0% | 163 | 158 | (5) | 10.8% | 10.5% | -0.3% |
| 2031 | 1,231 | 1,231 | - | 62% | 62% | 0% | 163 | 157 | (6) | 10.8% | 10.4% | -0.4% |
| 2032 | 1,156 | 1,158 | 2 | 64% | 64% | 0% | 159 | 155 | (4) | 10.5% | 10.2% | -0.3% |
| 2033 | 1,079 | 1,081 | 2 | 66% | 66% | 0% | 159 | 154 | (5) | 10.5% | 10.2% | -0.3% |
| 2034 | 996 | 1,001 | 5 | 68% | 68% | 0% | 156 | 154 | (2) | 10.3% | 10.1% | -0.1% |
| 2035 | 910 | 914 | 4 | 71% | 70% | -1% | 156 | 154 | (2) | 10.3% | 10.1% | -0.2% |
| 2036 | 817 | 823 | 6 | 73% | 73% | 0% | 154 | 153 | (1) | 10.1% | 10.0% | -0.1% |
| 2037 | 720 | 726 | 6 | 76% | 76% | 0% | 155 | 153 | (2) | 10.1% | 10.0% | -0.1% |
| 2038 | 616 | 623 | 7 | 79% | 79% | 0% | 153 | 153 | - | 9.9% | 9.9% | 0.0% |
| 2039 | 506 | 513 | 7 | 83% | 83% | 0% | 154 | 153 | (1) | 9.9% | 9.9% | -0.1% |
| 2040 | 389 | 397 | 8 | 87% | 86% | -1% | 151 | 153 | 2 | 9.7% | 9.8% | 0.1% |
| 2041 | 267 | 273 | 6 | 91% | 91% | 0% | 152 | 153 | 1 | 9.7% | 9.8% | 0.1% |
| 2042 | 136 | 141 | 5 | 95% | 95% | 0% | 149 | 154 | 5 | 9.5% | 9.8% | 0.3% |
| 2043 | - | - | - | 100% | 100% | 0% | 8 | 8 | - | 0.5% | 0.5% | 0.0% |
| 2044 | - | - | - | 100% | 100% | 0% | 8 | 8 | - | 0.5% | 0.5% | 0.0% |
| 2045 | - | - | - | 100% | 100% | 0% | 8 | 8 | - | 0.5% | 0.5% | 0.0% |
| 2046 | - | - | - | 100% | 100% | 0% | 8 | 8 | - | 0.5% | 0.5% | 0.0% |
| 2047 | - | - | - | 100% | 100% | 0% | 8 | 8 | - | 0.5% | 0.5% | 0.0% |
| 2048 | - | - | - | 100% | 100% | 0% | 8 | 8 | - | 0.5% | 0.5% | 0.0% |
| 2049 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 0.4% | 0.4% | 0.0% |
| 2050 | - | - | - | 100% | 100% | 0% | 7 | 7 | - | 0.4% | 0.4% | 0.0% |
| 2051 | - | - | - | 100% | 100% | 0% | 6 | 6 | - | 0.4% | 0.4% | 0.0% |

Notes and assumptions:
The active membership population count is assumed to decrease by 2% per year each future year.

**Kentucky Retirement Systems**
**Exhibit 4-3 (Alternative Assumptions that Assume a Decreasing Active Membership)**
**KERS Non-Hazardous Retirement Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 15,592 | $ 2,124 | $ 13,468 | 14% | $ 629 | $ 77 | $ 1,532 | 41.06% | 41.98% |
| 2018 | 15,628 | 2,038 | 13,590 | 13% | 1,085 | 76 | 1,528 | 71.03% | 71.03% |
| 2019 | 15,642 | 2,278 | 13,364 | 15% | 1,084 | 76 | 1,526 | 71.03% | 70.87% |
| 2020 | 15,635 | 2,546 | 13,089 | 16% | 1,081 | 76 | 1,526 | 70.85% | 70.85% |
| 2021 | 15,610 | 2,847 | 12,763 | 18% | 1,081 | 76 | 1,526 | 70.85% | 70.65% |
| 2022 | 15,566 | 3,133 | 12,433 | 20% | 1,071 | 76 | 1,525 | 70.27% | 70.27% |
| 2023 | 15,503 | 3,411 | 12,092 | 22% | 1,071 | 76 | 1,525 | 70.27% | 70.00% |
| 2024 | 15,421 | 3,692 | 11,729 | 24% | 1,063 | 76 | 1,525 | 69.71% | 69.71% |
| 2025 | 15,321 | 3,970 | 11,351 | 26% | 1,063 | 76 | 1,525 | 69.71% | 69.45% |
| 2026 | 15,204 | 4,254 | 10,950 | 28% | 1,054 | 76 | 1,525 | 69.14% | 69.14% |
| 2027 | 15,068 | 4,536 | 10,532 | 30% | 1,054 | 76 | 1,525 | 69.14% | 68.87% |
| 2028 | 14,922 | 4,833 | 10,089 | 32% | 1,045 | 76 | 1,524 | 68.60% | 68.60% |
| 2029 | 14,757 | 5,129 | 9,628 | 35% | 1,045 | 76 | 1,523 | 68.60% | 68.36% |
| 2030 | 14,574 | 5,434 | 9,140 | 37% | 1,037 | 76 | 1,523 | 68.11% | 68.11% |
| 2031 | 14,375 | 5,745 | 8,630 | 40% | 1,038 | 76 | 1,525 | 68.11% | 67.87% |
| 2032 | 14,163 | 6,074 | 8,089 | 43% | 1,031 | 76 | 1,526 | 67.55% | 67.55% |
| 2033 | 13,937 | 6,412 | 7,525 | 46% | 1,032 | 76 | 1,528 | 67.55% | 67.27% |
| 2034 | 13,699 | 6,772 | 6,927 | 49% | 1,023 | 76 | 1,529 | 66.93% | 66.93% |
| 2035 | 13,447 | 7,145 | 6,302 | 53% | 1,025 | 77 | 1,531 | 66.93% | 66.66% |
| 2036 | 13,187 | 7,546 | 5,641 | 57% | 1,019 | 77 | 1,536 | 66.32% | 66.32% |
| 2037 | 12,924 | 7,973 | 4,951 | 62% | 1,023 | 77 | 1,543 | 66.32% | 65.92% |
| 2038 | 12,661 | 8,444 | 4,217 | 67% | 1,014 | 78 | 1,551 | 65.36% | 65.36% |
| 2039 | 12,401 | 8,948 | 3,453 | 72% | 1,019 | 78 | 1,559 | 65.36% | 64.85% |
| 2040 | 12,146 | 9,503 | 2,643 | 78% | 1,005 | 78 | 1,567 | 64.15% | 64.15% |
| 2041 | 11,896 | 10,093 | 1,803 | 85% | 1,010 | 79 | 1,574 | 64.15% | 63.65% |
| 2042 | 11,652 | 10,738 | 914 | 92% | 988 | 79 | 1,580 | 62.54% | 62.54% |
| 2043 | 11,414 | 11,414 | - | 100% | 46 | 79 | 1,585 | 2.93% | 2.93% |
| 2044 | 11,182 | 11,182 | - | 100% | 46 | 79 | 1,589 | 2.89% | 2.89% |
| 2045 | 10,956 | 10,956 | - | 100% | 46 | 80 | 1,593 | 2.86% | 2.86% |
| 2046 | 10,737 | 10,737 | - | 100% | 45 | 80 | 1,596 | 2.84% | 2.84% |
| 2047 | 10,524 | 10,524 | - | 100% | 45 | 80 | 1,600 | 2.82% | 2.82% |
| 2048 | 10,318 | 10,318 | - | 100% | 45 | 80 | 1,603 | 2.80% | 2.80% |
| 2049 | 10,120 | 10,120 | - | 100% | 45 | 80 | 1,606 | 2.79% | 2.79% |
| 2050 | 9,931 | 9,931 | - | 100% | 45 | 80 | 1,609 | 2.79% | 2.79% |
| 2051 | 9,750 | 9,750 | - | 100% | 45 | 81 | 1,611 | 2.78% | 2.78% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation. The active membership population count is assumed to decrease by 2% per year each future year.

The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the $87 million additional contribution budgeted to be paid in fiscal year beginning 2017.

**Kentucky Retirement Systems**
**Exhibit 4-4 (Alternative Assumptions that Assume a Decreasing Active Membership)**
**KERS Non-Hazardous Retirement Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio | Employer Contribution Pension Plan | Member Contribution Pension Plan | Pension Plan Covered Payroll | DC Plan Covered Payroll | Employer Contribution DC Plan | Member Contribution DC Plan | Total Employer Contributions | Total Employer Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| 2017 | $ 15,589 | $ 2,124 | $ 13,465 | 14% | $ 629 | $ 77 | $ 1,532 | $ 0 | $ 0 | $ 0 | $ 629 | 41.06% |
| 2018 | 15,614 | 2,021 | 13,593 | 13% | 1,080 | 72 | 1,435 | 93 | 3 | 5 | 1,083 | 70.88% |
| 2019 | 15,619 | 2,253 | 13,366 | 14% | 1,067 | 71 | 1,417 | 109 | 4 | 5 | 1,071 | 70.17% |
| 2020 | 15,602 | 2,498 | 13,104 | 16% | 1,077 | 70 | 1,401 | 125 | 4 | 6 | 1,081 | 70.84% |
| 2021 | 15,565 | 2,788 | 12,777 | 18% | 1,073 | 69 | 1,386 | 140 | 5 | 7 | 1,078 | 70.66% |
| 2022 | 15,506 | 3,057 | 12,449 | 20% | 1,066 | 69 | 1,370 | 155 | 5 | 8 | 1,071 | 70.24% |
| 2023 | 15,426 | 3,320 | 12,106 | 22% | 1,061 | 68 | 1,356 | 169 | 6 | 8 | 1,067 | 69.98% |
| 2024 | 15,326 | 3,580 | 11,746 | 23% | 1,056 | 67 | 1,341 | 183 | 6 | 9 | 1,062 | 69.66% |
| 2025 | 15,206 | 3,838 | 11,368 | 25% | 1,052 | 66 | 1,328 | 197 | 7 | 10 | 1,059 | 69.44% |
| 2026 | 15,066 | 4,097 | 10,969 | 27% | 1,047 | 66 | 1,314 | 211 | 7 | 11 | 1,054 | 69.11% |
| 2027 | 14,906 | 4,355 | 10,551 | 29% | 1,043 | 65 | 1,300 | 224 | 8 | 11 | 1,051 | 68.94% |
| 2028 | 14,733 | 4,623 | 10,110 | 31% | 1,038 | 64 | 1,286 | 238 | 8 | 12 | 1,046 | 68.64% |
| 2029 | 14,539 | 4,892 | 9,647 | 34% | 1,033 | 64 | 1,272 | 251 | 9 | 13 | 1,042 | 68.41% |
| 2030 | 14,325 | 5,165 | 9,160 | 36% | 1,029 | 63 | 1,259 | 264 | 9 | 13 | 1,038 | 68.15% |
| 2031 | 14,092 | 5,444 | 8,648 | 39% | 1,025 | 62 | 1,249 | 276 | 10 | 14 | 1,035 | 67.89% |
| 2032 | 13,843 | 5,733 | 8,110 | 41% | 1,021 | 62 | 1,238 | 288 | 10 | 14 | 1,031 | 67.57% |
| 2033 | 13,579 | 6,035 | 7,544 | 44% | 1,017 | 61 | 1,228 | 299 | 10 | 15 | 1,027 | 67.23% |
| 2034 | 13,299 | 6,351 | 6,948 | 48% | 1,013 | 61 | 1,218 | 311 | 11 | 16 | 1,024 | 66.98% |
| 2035 | 13,004 | 6,682 | 6,322 | 51% | 1,009 | 60 | 1,209 | 322 | 11 | 16 | 1,020 | 66.63% |
| 2036 | 12,698 | 7,034 | 5,664 | 55% | 1,006 | 60 | 1,204 | 331 | 12 | 17 | 1,018 | 66.28% |
| 2037 | 12,386 | 7,413 | 4,973 | 60% | 1,004 | 60 | 1,203 | 340 | 12 | 17 | 1,016 | 65.84% |
| 2038 | 12,071 | 7,826 | 4,245 | 65% | 1,002 | 60 | 1,204 | 348 | 12 | 17 | 1,014 | 65.37% |
| 2039 | 11,758 | 8,277 | 3,481 | 70% | 1,000 | 60 | 1,205 | 355 | 12 | 18 | 1,012 | 64.90% |
| 2040 | 11,448 | 8,771 | 2,677 | 77% | 999 | 60 | 1,206 | 361 | 13 | 18 | 1,012 | 64.58% |
| 2041 | 11,141 | 9,311 | 1,830 | 84% | 997 | 60 | 1,206 | 368 | 13 | 18 | 1,010 | 64.18% |
| 2042 | 10,838 | 9,899 | 939 | 91% | 996 | 60 | 1,206 | 374 | 13 | 19 | 1,009 | 63.88% |
| 2043 | 10,539 | 10,539 | - | 100% | 33 | 60 | 1,206 | 379 | 13 | 19 | 46 | 2.90% |
| 2044 | 10,244 | 10,244 | - | 100% | 32 | 60 | 1,205 | 384 | 13 | 19 | 45 | 2.83% |
| 2045 | 9,955 | 9,955 | - | 100% | 31 | 60 | 1,205 | 388 | 14 | 19 | 45 | 2.83% |
| 2046 | 9,672 | 9,672 | - | 100% | 31 | 60 | 1,204 | 392 | 14 | 20 | 45 | 2.82% |
| 2047 | 9,395 | 9,395 | - | 100% | 30 | 60 | 1,205 | 395 | 14 | 20 | 44 | 2.75% |
| 2048 | 9,125 | 9,125 | - | 100% | 29 | 60 | 1,205 | 398 | 14 | 20 | 43 | 2.68% |
| 2049 | 8,863 | 8,863 | - | 100% | 29 | 60 | 1,206 | 399 | 14 | 20 | 43 | 2.68% |
| 2050 | 8,611 | 8,611 | - | 100% | 29 | 60 | 1,208 | 401 | 14 | 20 | 43 | 2.67% |
| 2051 | 8,369 | 8,369 | - | 100% | 29 | 60 | 1,209 | 402 | 14 | 20 | 43 | 2.67% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation. The active membership population count is assumed to decrease by 2% per year each future year.

The actuarial determined contribution is determined by the prior year's actuarial valuation.

The employer contribution amount shown does not include the $87 million additional contribution budgeted to be paid in fiscal year beginning 2017.

It is assumed that the employer cost of defined contribution plan is 3.50% of pay, after reflecting the effects of forfeitures attributable to nonvested members, and that 25% of current Tier 3 members and 25% of future member elect to enter the DC plan.

**Kentucky Retirement Systems**
**Exhibit 4-5 (Alternative Assumptions that Assume a Decreasing Active Membership)**
**KERS Non-Hazardous Insurance Fund**
**Current Plan**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 2,683 | $ 824 | $ 1,859 | 31% | $ 128 | $ 5 | $ 1,524 | 8.41% | 8.41% |
| 2018 | 2,760 | 874 | 1,886 | 32% | 188 | 6 | 1,518 | 12.40% | 12.40% |
| 2019 | 2,836 | 972 | 1,864 | 34% | 188 | 7 | 1,516 | 12.40% | 12.28% |
| 2020 | 2,905 | 1,077 | 1,828 | 37% | 185 | 7 | 1,516 | 12.21% | 12.21% |
| 2021 | 2,969 | 1,188 | 1,781 | 40% | 185 | 8 | 1,515 | 12.21% | 12.09% |
| 2022 | 3,026 | 1,289 | 1,737 | 43% | 180 | 8 | 1,514 | 11.90% | 11.90% |
| 2023 | 3,077 | 1,384 | 1,693 | 45% | 180 | 9 | 1,514 | 11.90% | 11.77% |
| 2024 | 3,122 | 1,476 | 1,646 | 47% | 176 | 9 | 1,514 | 11.63% | 11.63% |
| 2025 | 3,159 | 1,562 | 1,597 | 49% | 176 | 10 | 1,514 | 11.63% | 11.50% |
| 2026 | 3,188 | 1,645 | 1,543 | 52% | 172 | 10 | 1,514 | 11.35% | 11.35% |
| 2027 | 3,210 | 1,721 | 1,489 | 54% | 172 | 11 | 1,514 | 11.35% | 11.21% |
| 2028 | 3,222 | 1,794 | 1,428 | 56% | 167 | 11 | 1,513 | 11.05% | 11.05% |
| 2029 | 3,224 | 1,858 | 1,366 | 58% | 167 | 12 | 1,512 | 11.05% | 10.91% |
| 2030 | 3,217 | 1,918 | 1,299 | 60% | 163 | 12 | 1,512 | 10.76% | 10.76% |
| 2031 | 3,202 | 1,971 | 1,231 | 62% | 163 | 13 | 1,514 | 10.76% | 10.63% |
| 2032 | 3,180 | 2,024 | 1,156 | 64% | 159 | 13 | 1,515 | 10.49% | 10.49% |
| 2033 | 3,153 | 2,074 | 1,079 | 66% | 159 | 13 | 1,517 | 10.49% | 10.39% |
| 2034 | 3,122 | 2,126 | 996 | 68% | 156 | 14 | 1,518 | 10.28% | 10.28% |
| 2035 | 3,087 | 2,177 | 910 | 71% | 156 | 14 | 1,520 | 10.28% | 10.21% |
| 2036 | 3,051 | 2,234 | 817 | 73% | 154 | 15 | 1,525 | 10.12% | 10.12% |
| 2037 | 3,015 | 2,295 | 720 | 76% | 155 | 15 | 1,532 | 10.12% | 10.03% |
| 2038 | 2,980 | 2,364 | 616 | 79% | 153 | 15 | 1,540 | 9.93% | 9.93% |
| 2039 | 2,947 | 2,441 | 506 | 83% | 154 | 15 | 1,548 | 9.93% | 9.84% |
| 2040 | 2,917 | 2,528 | 389 | 87% | 151 | 15 | 1,556 | 9.73% | 9.73% |
| 2041 | 2,890 | 2,623 | 267 | 91% | 152 | 15 | 1,562 | 9.73% | 9.65% |
| 2042 | 2,866 | 2,730 | 136 | 95% | 149 | 16 | 1,568 | 9.51% | 9.51% |
| 2043 | 2,846 | 2,846 | - | 100% | 8 | 16 | 1,573 | 0.49% | 0.49% |
| 2044 | 2,829 | 2,829 | - | 100% | 8 | 16 | 1,578 | 0.49% | 0.49% |
| 2045 | 2,814 | 2,814 | - | 100% | 8 | 16 | 1,582 | 0.48% | 0.48% |
| 2046 | 2,800 | 2,800 | - | 100% | 8 | 16 | 1,585 | 0.48% | 0.48% |
| 2047 | 2,787 | 2,787 | - | 100% | 8 | 16 | 1,588 | 0.48% | 0.48% |
| 2048 | 2,773 | 2,773 | - | 100% | 8 | 16 | 1,591 | 0.48% | 0.48% |
| 2049 | 2,759 | 2,759 | - | 100% | 7 | 16 | 1,594 | 0.42% | 0.42% |
| 2050 | 2,743 | 2,743 | - | 100% | 7 | 16 | 1,597 | 0.41% | 0.41% |
| 2051 | 2,725 | 2,725 | - | 100% | 6 | 16 | 1,600 | 0.40% | 0.40% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation. The active membership population count is assumed to decrease by 2% per year each future year.
The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.

**Kentucky Retirement Systems**
**Exhibit 4-6 (Alternative Assumptions that Assume a Decreasing Active Membership)**
**KERS Non-Hazardous Insurance Fund**
**Proposed Legislation**
**($ in Millions)**

| Fiscal Year Beginning July 1, | Actuarial Accrued Liability | Actuarial Value of Assets | Unfunded Actuarial Accrued Liability | Funded Ratio (3) / (2) | Employer Contribution | Member Contribution | Covered Payroll | Employer Contribution as % of Covered Payroll | Employer Actuarially Determined Contribution Rate |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 2017 | $ 2,683 | $ 824 | $ 1,859 | 31% | $ 128 | $ 5 | $ 1,524 | 8.41% | 8.41% |
| 2018 | 2,760 | 874 | 1,886 | 32% | 188 | 12 | 1,518 | 12.40% | 12.40% |
| 2019 | 2,836 | 978 | 1,858 | 34% | 188 | 13 | 1,516 | 12.40% | 11.87% |
| 2020 | 2,905 | 1,090 | 1,815 | 38% | 178 | 13 | 1,516 | 11.74% | 11.74% |
| 2021 | 2,969 | 1,201 | 1,768 | 40% | 176 | 14 | 1,515 | 11.62% | 11.62% |
| 2022 | 3,026 | 1,300 | 1,726 | 43% | 173 | 14 | 1,514 | 11.43% | 11.43% |
| 2023 | 3,077 | 1,394 | 1,683 | 45% | 172 | 14 | 1,514 | 11.36% | 11.36% |
| 2024 | 3,122 | 1,484 | 1,638 | 48% | 170 | 15 | 1,514 | 11.23% | 11.23% |
| 2025 | 3,159 | 1,569 | 1,590 | 50% | 168 | 15 | 1,514 | 11.10% | 11.10% |
| 2026 | 3,188 | 1,650 | 1,538 | 52% | 166 | 15 | 1,514 | 10.96% | 10.96% |
| 2027 | 3,210 | 1,726 | 1,484 | 54% | 164 | 16 | 1,514 | 10.83% | 10.83% |
| 2028 | 3,222 | 1,796 | 1,426 | 56% | 162 | 16 | 1,513 | 10.71% | 10.71% |
| 2029 | 3,224 | 1,860 | 1,364 | 58% | 160 | 16 | 1,512 | 10.58% | 10.58% |
| 2030 | 3,217 | 1,918 | 1,299 | 60% | 158 | 16 | 1,512 | 10.45% | 10.45% |
| 2031 | 3,202 | 1,971 | 1,231 | 62% | 157 | 16 | 1,514 | 10.37% | 10.37% |
| 2032 | 3,180 | 2,022 | 1,158 | 64% | 155 | 17 | 1,515 | 10.23% | 10.23% |
| 2033 | 3,153 | 2,072 | 1,081 | 66% | 154 | 16 | 1,517 | 10.15% | 10.15% |
| 2034 | 3,122 | 2,121 | 1,001 | 68% | 154 | 16 | 1,518 | 10.14% | 10.14% |
| 2035 | 3,087 | 2,173 | 914 | 70% | 154 | 16 | 1,520 | 10.13% | 10.13% |
| 2036 | 3,051 | 2,228 | 823 | 73% | 153 | 16 | 1,525 | 10.03% | 10.03% |
| 2037 | 3,015 | 2,289 | 726 | 76% | 153 | 16 | 1,532 | 9.99% | 9.99% |
| 2038 | 2,980 | 2,357 | 623 | 79% | 153 | 16 | 1,540 | 9.94% | 9.94% |
| 2039 | 2,947 | 2,434 | 513 | 83% | 153 | 16 | 1,548 | 9.88% | 9.88% |
| 2040 | 2,917 | 2,520 | 397 | 86% | 153 | 16 | 1,556 | 9.83% | 9.83% |
| 2041 | 2,890 | 2,617 | 273 | 91% | 153 | 16 | 1,562 | 9.80% | 9.80% |
| 2042 | 2,866 | 2,725 | 141 | 95% | 154 | 16 | 1,568 | 9.82% | 9.82% |
| 2043 | 2,846 | 2,846 | - | 100% | 8 | 16 | 1,573 | 0.49% | 0.49% |
| 2044 | 2,829 | 2,829 | - | 100% | 8 | 16 | 1,578 | 0.49% | 0.49% |
| 2045 | 2,814 | 2,814 | - | 100% | 8 | 16 | 1,582 | 0.48% | 0.48% |
| 2046 | 2,800 | 2,800 | - | 100% | 8 | 16 | 1,585 | 0.48% | 0.48% |
| 2047 | 2,787 | 2,787 | - | 100% | 8 | 16 | 1,588 | 0.48% | 0.48% |
| 2048 | 2,773 | 2,773 | - | 100% | 8 | 16 | 1,591 | 0.48% | 0.48% |
| 2049 | 2,759 | 2,759 | - | 100% | 7 | 16 | 1,594 | 0.42% | 0.42% |
| 2050 | 2,743 | 2,743 | - | 100% | 7 | 16 | 1,597 | 0.41% | 0.41% |
| 2051 | 2,725 | 2,725 | - | 100% | 6 | 16 | 1,600 | 0.40% | 0.40% |

Notes and assumptions:

The projection is based on the results of the June 30, 2017 actuarial valuation. The active membership population count is assumed to decrease by 2% per year each future year.
The employer actuarially determined contribution rate for a particular year is determined by the prior year's actuarial valuation.