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**Kansas Public Employees
Retirement System**

Valuation Report as of December 31, 2017





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July 10, 2018

Board of Trustees
Kansas Public Employees Retirement System
611 S. Kansas Ave., Suite 100
Topeka, KS 66603

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Kansas Public Employees Retirement System (KPERS) as of December 31, 2017 for the purpose of determining contribution rates for FY 2021 for the State and Schools (July 1, 2020 to June 30, 2021) and FY 2020 for Local employers (calendar year 2020). The major findings of the valuation are contained in this report, which reflects the plan provisions in place on December 31, 2017 and any legislative changes from the 2018 Session. There have been no changes to the plan provisions or actuarial assumptions since the prior valuation.

In preparing our report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, member data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

We further certify that all costs, liabilities, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the System. Nevertheless, the emerging costs will vary from those presented in this report to the extent actual experience differs from that projected by the actuarial assumptions. The Board of Trustees has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.



Board of Trustees
July 10, 2018
Page 2

Actuarial computations presented in this report are for purposes of determining the actuarial recommended and statutory funding amounts for the System. Actuarial computations for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standard Number 67 and computations for financial reporting by employers under Governmental Accounting Standard Number 68 are provided in separate reports. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. Determinations for other purposes may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

The consultants who worked on this assignment are pension actuaries. Cavanaugh Macdonald Consulting, LLC's advice is not intended to be a substitute for qualified legal or accounting counsel.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

We would like to express our appreciation to KPERS Executive Director, Alan Conroy, and to members of his staff, who gave substantial assistance in supplying the data on which this report is based.

We respectfully submit the following report and look forward to discussing it with you.

Sincerely,

A handwritten signature in blue ink that reads 'Patrice Beckham'.

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Brent A. Banister'.

Brent A. Banister Ph.D., FSA, EA, MAAA, FCA
Chief Actuary



SECTION 1 – BOARD SUMMARY

OVERVIEW

The Kansas Public Employees Retirement System is an umbrella organization which administers the following three statewide pension groups: the Kansas Public Employees Retirement System (KPERS), the Kansas Police and Firemen’s Retirement System (KP&F) and the Kansas Retirement System for Judges (Judges). This report presents the results of the December 31, 2017 actuarial valuations for each of the groups.

The primary purposes of performing actuarial valuations are to:

- determine the employer contribution rates required to fund each group on an actuarial basis,
- determine the statutory employer contribution rates for each group,
- disclose asset and liability measures as of the valuation date,
- compare the actual experience since the last valuation date to that expected, and
- analyze and report on trends in contributions, assets, and liabilities over the past several years.

The 2018 Legislature passed House Substitute for Senate Bill 109 that provided for the following additional funding to the KPERS School group:

- An additional payment of \$82 million in July 2018 (received by KPERS).
- A contingent additional payment of up to \$56 million to be paid in FY 2019, if actual FY 2018 receipts exceed the consensus revenue estimates (full amount received by KPERS).
- A contingent additional payment of up to \$56 million to be paid in FY 2020, if actual FY 2019 receipts exceed the consensus revenue estimates.

For the purposes of determining the State/School actuarial contribution rate in this report, which is applicable for FY 2021, the \$82 million payment and the first payment of \$56 million already received were reflected. In addition, it was assumed that the additional contribution for FY 2020 will be made on July 1, 2019. As a result of these three additional contributions, the State/School actuarial contribution rate for FY 2021 is lower by 0.36%.

KPERS 3 (Cash Balance members) refers to non-corrections members who either began their participation or were rehired on or after January 1, 2015. Of the 143,947 active KPERS members, 38,752 (about 27%) were KPERS 3 members as of the valuation date. KPERS 3 members receive guaranteed interest credits of 4.0% on their account balances. There is also the possibility of additional interest credits that are dependent on KPERS’ actual investment returns. The additional interest credits, referred to as “dividends”, are equal to 75% of the five-year average net compound rate of return, as determined by the Board, for the preceding calendar year and the prior four calendar years on the market value of assets that is above 6.0%. If applicable, the dividend is granted as soon as administratively feasible after March 31 and is credited on the account balance as of the previous December 31. Transition rules apply for the initial years until the Cash Balance Plan has been effective for five full calendar years (January 1, 2020). The dividend for 2017 was dependent on the net rate of return on the market value of assets for calendar years 2015, 2016 and 2017. The average annualized net return for the three-year period, as calculated by KPERS, was 7.4%. Using the statutory formula, the additional interest credit (dividend) is equal to 1.1%.

The valuation results provide a “snapshot” view of the System’s financial condition on December 31, 2017. The unfunded actuarial liability (UAL), for the System as a whole, decreased by \$154 million due to multiple factors, the most significant of which was the amortization payment on the 2015 legacy UAL base. The total UAL is composed of various pieces or layers of UAL. However, the initial UAL base, referred to as the 2015 legacy UAL base, still represents the majority of the current UAL. The current amortization



SECTION 1 – BOARD SUMMARY

period is fifteen years as of the valuation date. As the remaining amortization period for that base shortens over time, the portion of the amortization payment that is applied to the principal of the outstanding balance, instead of interest, will increase. As a result, the remaining balance of the 2015 legacy UAL base to expected to decline more rapidly over time and have a significant positive impact on the System’s total UAL, if the full statutory contributions are made. A detailed analysis of the change in the unfunded actuarial liability from December 31, 2016 to December 31, 2017 can be found on page 8.

In KPERS, the State, School, and Local employers do not necessarily contribute the full actuarial contribution rate. Based on legislation passed in 1993, the employer contribution rates certified by the Board may not increase by more than the statutory cap. The statutory cap has changed over time, but the current cap is 1.20% for FY 2021 (the rate is set based on the December 31, 2017 actuarial valuation). Although separate valuations are performed for the State and School groups, the statutory contribution rate for the two groups is determined using the combined valuation results. For the first time since the statutory cap was implemented, the statutory and actuarial contribution rates are equal in this valuation. By statute, if the actuarial required contribution (ARC) for the State alone is less than the statutory contribution rate when the two groups are combined (as it is in this valuation), the excess of the statutory contribution rate over the actuarial required contribution rate for the State alone is allocated to the School to improve the funding of that group.

A summary of actuarial and statutory employer contribution rates for the Retirement System (excluding the statutory contribution for the Death and Disability Program) for this valuation and the prior valuation follows:

System	December 31, 2017 Valuation		
	Actuarial	Statutory	Difference
State ¹	9.22%	14.23%	(5.01%)
School ¹	15.59%	14.23%	1.36%
State/School ¹	14.23%	14.23%	0.00%
Local ¹	8.61%	8.61%	0.00%
Police & Fire - Uniform Rates ²	21.93%	21.93%	0.00%
Judges	17.26%	17.26%	0.00%

System	December 31, 2016 Valuation		
	Actuarial	Statutory	Difference
State ¹	9.49%	14.41%	(4.92%)
School ¹	16.15%	14.41%	1.74%
State/School ¹	14.74%	14.41%	0.33%
Local ¹	8.89%	8.89%	0.00%
Police & Fire - Uniform Rates ²	22.13%	22.13%	0.00%
Judges	18.65%	18.65%	0.00%

¹ By statute, rates are allowed to increase by a maximum of 1.2%, plus the cost of any benefit enhancements. The December 31, 2017 valuation sets the employer contribution rate for FY 2021 for the State and School group and calendar year 2020 for the Local group. An additional contribution of 0.68% applies to the School group in FY 2021 due to contribution reductions in FY 2017 and FY 2019 (see following table).

² For KP&F, the statutory contribution rate is equal to the "Uniform" rate. The rate shown is for both State and Local employers. The uniform rate does not include the payment required to amortize the unfunded past service liability determined separately for each employer. (See Table 15)



SECTION 1 – BOARD SUMMARY

Legislation passed in the 2017 session provided for the payment of the delayed contributions for the School group from FY 2017 and FY 2019 in level annual installments of \$6.4 million and \$19.4 million over a 20-year period commencing in FY 2018 and FY 2020, respectively. These installment payments are determined as an additional contribution rate for the School group and are added to the regular statutory contribution rate determined for the State/School group. The additional contribution rate for the \$64 million delayed School contributions for fiscal year 2017 is 0.18% for fiscal year 2019 and 0.17% for FY 2020 and FY 2021. The additional contribution rate for the scheduled \$194 million delayed School contributions for fiscal year 2019 is 0.52% for FY 2020 and 0.51% for FY 2021. The total statutory contribution rates for the School group for FY 2019 through FY 2021 are shown in the following table:

	FY 2019	FY 2020	FY 2021
Regular Statutory State/School Contribution Rate	13.21%	14.41%	14.23%
Contribution for FY 2017 Contribution Reduction	0.18%	0.17%	0.17%
Contribution for FY 2019 Contribution Reduction	<u>0.00%</u>	<u>0.52%</u>	<u>0.51%</u>
Total School Contribution Rate	13.39%	15.10%	14.91%

The net rate of return on the market value of assets in 2017 was 14.0%, as reported by KPERS, which was higher than the 2017 assumed return of 7.75%. Due to the reflection of past investment experience through the asset smoothing method, the net rate of return on the actuarial value of assets for calendar year 2017 was 8.4%. The combined impact of recognizing the scheduled portion of deferred asset experience and the favorable investment experience during 2017 changed the net deferred asset loss of \$566 million in the prior valuation to a net deferred asset gain of \$338 million in the current valuation. Based on the results of this valuation, the State and Local groups continue to be at the actuarial required contribution rate. In addition, for the first time since the 1994 valuation the statutory contribution rate is equal to the actuarial required contribution rate for the State/School group.

EXPERIENCE - ALL SYSTEMS COMBINED

December 31, 2016 – December 31, 2017

In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is December 31, 2017. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the System, which are generally in excess of assets. The actuarial process leads to a method of determining the contributions needed by members and employers in the future to balance the System assets and liabilities.

Changes in both the System’s membership, assets and liabilities impacted the change in the actuarial contribution rates between the December 31, 2016 and December 31, 2017 actuarial valuations. On the following pages, each component is examined.



SECTION 1 – BOARD SUMMARY

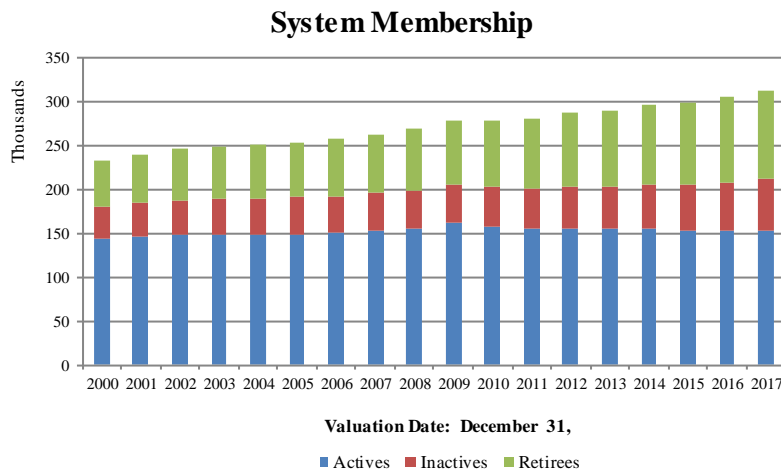
MEMBERSHIP

The following table contains a summary of the changes in the active membership between the December 31, 2016 and December 31, 2017 actuarial valuations.

	State	School	Local	KP&F	Judges	Total
12/31/2016 (Starting count)	21,879	84,321	38,364	7,303	252	152,119
New actives	2,611	11,051	5,383	776	21	19,842
Non-vested Terminations	(956)	(4,336)	(2,098)	(236)	(0)	(7,626)
Elected Refund	(707)	(1,236)	(1,189)	(115)	(2)	(3,249)
Vested Terminations	<u>(546)</u>	<u>(3,014)</u>	<u>(1,202)</u>	<u>(37)</u>	<u>(0)</u>	<u>(4,799)</u>
Total Withdrawals	(2,209)	(8,586)	(4,489)	(388)	(2)	(15,674)
Deaths	(34)	(65)	(60)	(3)	(0)	(162)
Disabilities	(24)	(41)	(24)	(13)	(0)	(102)
Retirements	(775)	(2,355)	(995)	(200)	(11)	(4,336)
Other/Transfer	<u>(21)</u>	<u>(86)</u>	<u>102</u>	<u>6</u>	<u>(1)</u>	<u>0</u>
12/31/2017 (Ending count)	21,427	84,239	38,281	7,481	259	151,687

As can be seen from the table, KPERS, in total, experienced a small net decrease in the number of active members with the largest decrease occurring in the State group. This pattern of low (or negative) employee growth has not been unusual in recent years. However, the decline in active membership has an adverse impact on the valuation results. As a result of fewer active members, coupled with low salary increases, the total active member payroll has not grown as expected, so there have been fewer contribution dollars to help fund the System's unfunded actuarial liability.

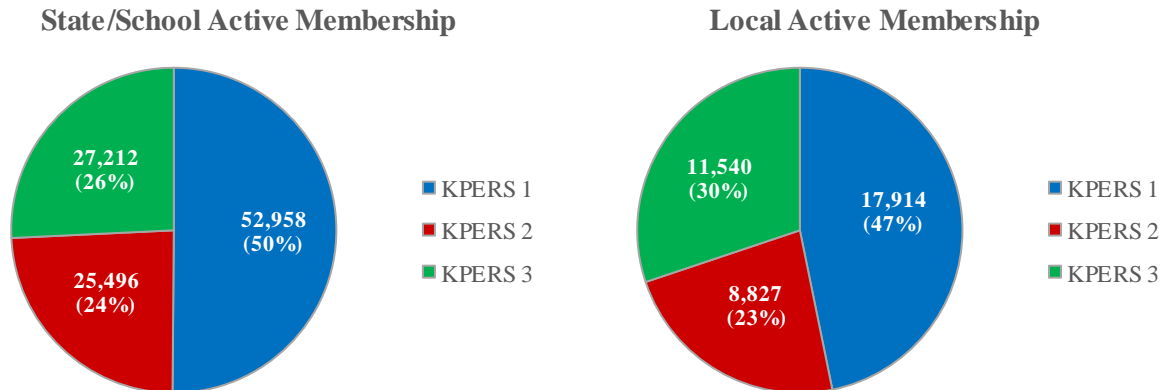
The following graph shows the number of active and inactive vested members, as well as retirees, in current and prior valuations. The number of active members has declined since 2009 while the number of retirees has continued to grow.





SECTION 1 – BOARD SUMMARY

There are currently three different benefit structures in KPERS. The most recent tier, KPERS 3 (Cash Balance members), refers to non-corrections members who either began their participation or were rehired on or after January 1, 2015. KPERS 2 refers to members who either began their participation or were rehired on or after July 1, 2009, but before January 1, 2015. Of the 143,947 active KPERS members, 34,323 (about 24%) are KPERS 2 members and 38,752 (about 27%) are KPERS 3 members as of the valuation date. The split of KPERS members in the State/School group and Local group by benefit tier is shown below:



ASSETS

As of December 31, 2017, the System had total funds of \$19.6 billion on a market value basis, excluding assets held for the Group Insurance and Optional Life reserves. This was an increase of \$1.9 billion from the December 31, 2016 value of \$17.7 billion.

The market value of assets is not used directly in the calculation of contribution rates. An asset valuation method is used to smooth the effect of market fluctuations. The smoothing method calculates the difference between the actual return and the expected return (assumed net rate of return) on the market value of assets each year. The difference is recognized equally over a five-year period. See Tables 3A through 3F and 4 for the detailed development of the actuarial value of assets as of December 31, 2017 for each group.

The components of the change in the total market value and actuarial value of assets for the Retirement System (in millions) are set forth in the following table.

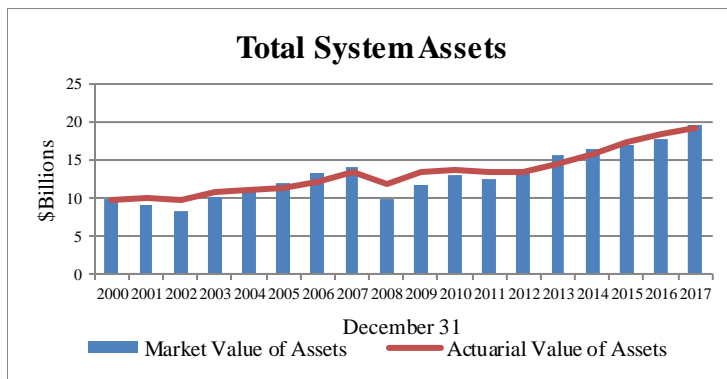


SECTION 1 – BOARD SUMMARY

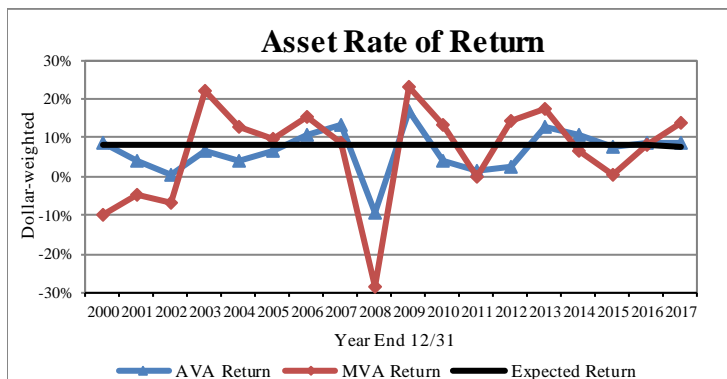
	Market Value \$(millions)	Actuarial Value \$(millions)
Assets, December 31, 2016	\$17,690	\$18,256
• Employer and Member Contributions	1,198	1,198
• Benefit Payments	(1,720)	(1,720)
• Investment Income, Net of Expenses	2,417	1,513
Assets, December 31, 2017	\$19,585	\$19,247
Net Rate of Return	14.0%	8.4%

The actuarial value of assets as of December 31, 2017, was \$19.247 billion. The annualized dollar-weighted net rate of return for 2017 was 8.4%, measured on the actuarial value of assets, and 14.0%, measured on the market value of assets as reported by KPERs.

Due to the use of an asset smoothing method, there is \$338 million of net deferred investment gain experience that has not yet been recognized, i.e. the market value of assets is greater than the actuarial value. This deferred investment gain will be recognized in the actuarial value of assets over the next four years, but may be offset by actual investment experience if it is less favorable than assumed.



The actuarial value of assets has been both above and below the market value during the period, which is to be expected when using an asset smoothing method.



The net rate of return on the actuarial (smoothed) value of assets has been less volatile than the market value return. The deferred investment loss will be reflected in the actuarial value of assets in the next few years, absent favorable investment experience.



SECTION 1 – BOARD SUMMARY

LIABILITIES

The actuarial liability is that portion of the present value of future benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and asset values at the same date is referred to as the unfunded actuarial liability (UAL). The UAL will be reduced if the employer contributions exceed the employer normal cost for the year, after allowing for interest on the previous balance of the UAL. Benefit improvements, experience gains and losses, and changes in actuarial assumptions and methods will also impact the total actuarial liability and the unfunded portion thereof.

The UAL by group is summarized below (in millions):

	State	School	Local	KP&F	Judges	Total*
Actuarial Liability	\$4,457	\$14,891	\$5,300	\$3,320	\$186	\$28,154
Actuarial Value of Assets	<u>3,588</u>	<u>9,178</u>	<u>3,841</u>	<u>2,460</u>	<u>179</u>	<u>19,247</u>
Unfunded Actuarial Liability*	\$ 869	\$ 5,712	\$1,458	\$ 860	\$ 8	\$ 8,907

*May not add due to rounding.

See Table 6 for the detailed development of the actuarial liability by group. The calculation of the UAL by group is shown in Table 10.

The UAL is amortized using a “layered” approach. The legacy UAL is the amount of UAL from the December 31, 2015 valuation which was projected to June 30, 2018 for State/School and Judges and December 31, 2017 for Local and KP&F to reflect the lag between the valuation date and the fiscal year to which the contribution rates set in the valuation apply. This initial or legacy UAL amortization base continues to be amortized over the original period, which was set at 40 years beginning July 1, 1993 (15 years remaining as of December 31, 2017). The increase in the UAL, resulting from the assumption changes reflected in the 2016 valuation, was amortized over a closed 25-year period. Changes in the UAL that result from actuarial experience each year (gains and losses) are amortized over a closed 20-year period that begins with the fiscal year in which the contribution rates will apply.

For the State/School group, the statutory contribution rate has been less than the actuarial contribution rate since 1994 which results in an increase in the UAL for that group. Other factors influencing the UAL from year to year include actual experience versus that expected, based on the actuarial assumptions (on both assets and liabilities), changes in actuarial assumptions, procedures or methods, and changes in benefit provisions.

The actual experience measured in this valuation is that which occurred during the prior plan year (calendar year 2017). For all of the groups, except KP&F, the valuation results reflect a net liability gain for the year (which decreases the UAL), largely due to salary increases that were lower than expected. The total net liability gain for the System was \$46 million. The liability loss for KP&F was primarily due to salary increases that were higher than expected. In addition, the System experienced a return of 8.4% on the actuarial value of assets, which is higher than the assumed return of 7.75%, resulting in an aggregate experience gain of \$117 million. Therefore, the net result of all experience (asset and liability) in 2017 for all groups was an experience gain for the System of \$163 million.



SECTION 1 – BOARD SUMMARY

Between December 31, 2016 and December 31, 2017 the change in the unfunded actuarial liability for the System, as a whole, was as follows (in millions):

	\$ millions
Unfunded Actuarial Liability, December 31, 2016	\$ 9,061
<ul style="list-style-type: none"> • effect of contribution cap/time lag • expected decrease due to amortization • (gain)/loss from investment return on actuarial assets • demographic experience¹ • all other experience • assumption changes • benefit provision changes 	149 (136) (117) (46) (4) 0 0
Unfunded Actuarial Liability, December 31, 2017 ²	\$ 8,907

¹Liability gain is about 0.16% of total actuarial liability.

²May not add due to rounding.

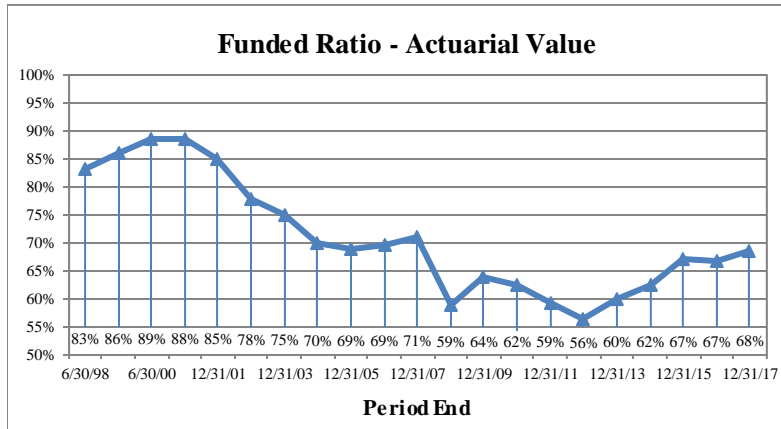
A detailed summary of the change in the unfunded actuarial liability by group is shown on page 19.

An evaluation of the UAL on a pure dollar basis may not provide a complete analysis since only the difference between the assets and liabilities (which are both very large numbers) is reflected. Another way to evaluate the UAL and the progress made in its funding is to track the funded status, the ratio of the actuarial value of assets to the actuarial liability. The funded ratio does not necessarily indicate whether or not additional funding is needed, nor does it indicate whether or not the plan could settle all liabilities with current assets. The funded status information for the KPERs System is shown in the following table (in millions).

	12/31/11	12/31/12	12/31/13	12/31/14	12/31/15	12/31/16	12/31/17
Using Actuarial Value of Assets:							
Funded Ratio (AVA/AL)	59%	56%	60%	62%	67%	67%	68%
Unfunded Actuarial Liability (AL-AVA)	\$9,228	\$10,253	\$9,766	\$9,468	\$8,539	\$9,061	\$8,907
Using Market Value of Assets:							
Funded Ratio (MVA/AL)	55%	59%	65%	65%	65%	65%	70%
Unfunded Actuarial Liability (AL-MVA)	\$10,130	\$9,714	\$8,584	\$8,808	\$9,055	\$9,627	\$8,569



SECTION 1 – BOARD SUMMARY



Changes in actuarial assumptions and methods, coupled with investment returns below the assumed rate and contributions below the actuarial rate significantly reduced the funded ratio over much of this period. The funded ratio is expected to increase steadily in the future assuming assumptions are met and scheduled contributions are made.

Given the current funded status of the System, the deferred investment experience, the amortization method, the amortization period, and the scheduled employer contribution rates, the dollar amount of the UAL for the entire System is expected to hold steady over the next few years and then start to decline. The funded ratio is expected to improve absent experience losses in the future, but will continue to be heavily dependent on the actual investment returns.

CONTRIBUTION RATES

The funding objective of the System is to establish contribution rates that over time will remain relatively level, as a percentage of payroll, and to pay off the unfunded actuarial liability in a reasonable timeframe.

Generally, the actuarial contribution rates to the various Systems consist of:

- a "normal cost" for the portion of projected liabilities allocated by the actuarial cost method to service of members during the year following the valuation date and an expense load for administrative expenses for the year,
- a "UAL contribution" for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets.

There is also a statutory contribution rate that is used to finance the Death and Disability Program. Contributions for the Death and Disability Program are deposited in a separate trust fund from which benefits are paid. A separate actuarial analysis and report is prepared for the Death and Disability Program on June 30 of each year, so the death and disability contribution rate is not reflected in this report.

The 2018 Legislature passed House Substitute for Senate Bill 109 that provided for the following additional funding to the KPERS School group:

- An additional payment of \$82 million in July 2018 (received by KPERS).
- A contingent additional payment of up to \$56 million to be paid in FY 2019, if actual FY 2018 receipts exceed the consensus revenue estimates (full amount received by KPERS).
- A contingent additional payment of up to \$56 million to be paid in FY 2020, if actual FY 2019 receipts exceed the consensus revenue estimates.

For the purposes of determining the State/School actuarial contribution rate in this report, which is applicable for FY 2021, the \$82 million payment and the first payment of \$56 million already received were reflected. In addition, it was assumed that the additional contribution of \$56 million for FY 2020 will



SECTION 1 – BOARD SUMMARY

be made on July 1, 2019. As a result of these three additional contributions, the State/School actuarial contribution rate for FY 2021 is lower by 0.36%.

In KPERS, State, School and Local employers do not necessarily contribute the full actuarial contribution rate. Based on legislation passed in 1993, the employer contribution rates certified by the Board may not increase by more than the statutory cap. The statutory cap, which has been changed periodically, is 1.2% for all three groups (0.9% in fiscal year 2014, 1.0% in 2015, and 1.1% in 2016, and 1.2% in 2017 and beyond). In 2015, SB 4 reset the previously certified employer contribution rate for the State/School group for the last half of FY 2015 from 11.27% to 8.65%. In addition, SB 228 lowered the statutory rates for the State/School group from 12.37% to 10.91% for FY 2016 and 13.57% to 10.81% for FY 2017. The December 31, 2014 valuation set the statutory contribution rates for FY 2018, based on the 1.2% statutory cap.

The results of the December 31, 2017 valuation are used to set employer contribution rates for fiscal year 2021 for the State and School (July 1, 2020 to June 30, 2021) and fiscal year 2020 for Local employers (calendar year 2020). Given the lag between the valuation date in which the employer contribution rates are determined and the effective date of those contribution rates, i.e., a two year lag for Local employers and a two and one-half year lag for the State/School and Judges groups, the UAL is projected from the valuation date to the first day of the fiscal year in which the contribution rate will apply based on the statutory contribution rates and expected payroll in the intervening years. The UAL is amortized as a level-percentage of payroll for all groups except the Judges who use a level-dollar payment. The payroll growth assumption is 3.0%, so the annual amortization payments will increase 3.0% each year. As a result, if total payroll grows 3.0% per year, as assumed, the amortization payment will remain level as a percentage of total current payroll.

A summary of the actuarial and statutory employer contribution rates for the System is shown below:

System	December 31, 2017 Valuation		
	Actuarial	Statutory	Difference
State ¹	9.22%	14.23%	(5.01%)
School ¹	15.59%	14.23%	1.36%
State/School ¹	14.23%	14.23%	0.00%
Local ¹	8.61%	8.61%	0.00%
Police & Fire - Uniform Rates ²	21.93%	21.93%	0.00%
Judges	17.26%	17.26%	0.00%

¹ By statute, rates are allowed to increase by a maximum of 1.2%, plus the cost of any benefit enhancements. The December 31, 2017 valuation sets the employer contribution rate for FY 2021 for the State and School group and calendar year 2020 for the Local group. An additional contribution of 0.68% applies to the School group in FY 2021 due to contribution reductions in FY 2017 and FY 2019.

² For KP&F, the statutory contribution rate is equal to the "Uniform" rate. The rate shown is for both State and Local employers. The uniform rate does not include the payment required to amortize the unfunded past service liability determined separately for each employer. (See Table 15)

Due to statutory caps, the full actuarial contribution rate is not necessarily contributed for all KPERS groups. The State and Local groups reached the actuarial required contribution (ARC) date (the year in which the statutory contribution rate is equal to or greater than the ARC rate) in 2010 and 2012, respectively, and remain at ARC rate in this valuation. Based on the current valuation, there is a difference (shortfall) between the actuarial and statutory contribution rates of 1.36% for the School group. However, the statutory contribution rate is set for the combined State/School group and, based on the current valuation results, the ARC date is reached in FY 2021 at a rate of 14.23% of pay.



SECTION 1 – BOARD SUMMARY

Separate employer contribution rates are calculated for two subgroups of the State: Correctional Employee Groups with normal retirement age 55 (C55) and normal retirement age 60 (C60). The contribution rates are to be calculated by increasing the state statutory contribution rate by the difference in the normal cost rate for the C55 and C60 groups over the normal cost rate for regular state members, but not to exceed the statutory cap on contribution increases. The higher contribution rates are intended to finance the earlier normal retirement age. However, SB 228 reset the statutory employer contribution rates for FY 2016 and FY 2017 for the Correctional Employee groups to be the same as the employer contribution rate for the State/School group (10.91% and 10.81% respectively), eliminating the intended rate differential. The resulting contribution rates for the Correctional Employee Groups for FY 2021 are shown in the following table:

Corrections Group	Statutory Rate
Retirement Age 55:	14.51%
Retirement Age 60:	15.37%

The change in the employer actuarial contribution rate from December 31, 2016 to December 31, 2017 and the primary components thereof are shown in the table on page 20. The employer contribution rates decreased from those in the December 31, 2016 valuation for all groups, due to various reasons. For the State/School group, the primary reason for the decrease was the combined impact of the additional contributions under H Sub for SB 109 and net favorable actuarial experience. For the Local, KPF and Judges groups, the primary reason for the decrease in contribution rates was actuarial experience that was more favorable than expected during 2017.

COMMENTS

The 2018 Legislature passed House Substitute for Senate Bill 109 that provided for the following additional funding to the KPERS School group:

- An additional payment of \$82 million in July 2018 (received by KPERS).
- A contingent additional payment of up to \$56 million to be paid in FY 2019, if actual FY 2018 receipts exceed the consensus revenue estimates (full amount received by KPERS).
- A contingent additional payment of up to \$56 million to be paid in FY 2020, if actual FY 2019 receipts exceed the consensus revenue estimates.

As a result of these additional contributions, the actuarial contribution rate for FY 2021 is lower by 0.36% for the State/School group.

Like most public retirement systems, KPERS uses an asset smoothing method to average investment experience above and below the assumed net rate of return (7.75%). Under the asset smoothing method, the difference between the dollar amount of the actual and assumed investment experience is recognized equally over a five-year period. Due to the recognition of the experience in the prior four years using the asset smoothing method, the return on the actuarial value of assets in 2017 was 8.4%. As of the valuation date, the market value of assets exceeds the actuarial value of assets by about 1.8% or \$338 million. This deferred experience will flow through the asset smoothing method in the next four years and be recognized in the valuation process, unless offset by investment experience below the 7.75% assumed net rate of return. As the deferred investment experience is recognized, the funded ratio can be expected to increase and the actuarial contribution rate to decrease.



SECTION 1 – BOARD SUMMARY

While the use of an asset smoothing method is a common procedure used by public retirement systems, it is important to identify the potential impact of the deferred (unrecognized) investment experience. This is particularly important when there are significant deferred investment losses, but it is also useful to consider the impact on the key actuarial measurements if the deferred investment gains are recognized. To illustrate the impact of the deferred investment experience, the key valuation results are shown in the following table for the State/School and KPF groups using both the actuarial value of assets and the pure market value. The impact would be similar for the other groups.

	State/School		KP&F	
	Actuarial	Market	Actuarial	Market
Actuarial Liability	\$19,348	\$19,348	\$3,320	\$3,320
Asset Value	<u>12,767</u>	<u>12,990</u>	<u>2,460</u>	<u>2,495</u>
Unfunded Actuarial Liability*	6,581	6,358	860	825
Funded Ratio	66%	67%	74%	75%
Contribution Rate:				
Normal Cost Rate	8.05%	8.05%	14.85%	14.85%
UAL Payment	<u>12.18%</u>	<u>11.75%</u>	<u>14.23%</u>	<u>13.66%</u>
Actuarial Contribution Rate	20.23%	19.80%	29.08%	28.51%
Employee Rate	<u>6.00%</u>	<u>6.00%</u>	<u>7.15%</u>	<u>7.15%</u>
Employer Rate	14.23%	13.80%	21.93%	21.36%

* May not add due to rounding

Future investment experience will impact the extent to which the deferred investment experience (which is currently a net gain) will be recognized. The ultimate impact of the deferred experience on the employer contribution rate would be similar to the column shown above based on the market value of assets, if all actuarial assumptions are met including the 7.75% return in future years. Also, please refer to the graphs later in this section that show the projected contribution rates assuming a 7.75% net rate of return in all future years.

Over the last several years, the development of a comprehensive plan to address the long-term funding of KPERs has been a high priority and significant changes have been made. HB 2014, which was passed by the 2003 Legislature, increased the statutory cap on the State/School employer contribution rate from 0.20% to 0.40% in FY2006, 0.50% in FY2007 and 0.60% in FY 2008 and beyond. It also authorized the issuance of up to \$500 million in pension obligation bonds (POBs). The POBs were sold and proceeds of \$440.2 million were received on March 10, 2004. The debt service payments on the bonds are paid by the State in addition to the regular KPERs employer contribution rate.

The 2004 Legislature passed SB 520, which continued to address issues related to the long term funding of the System. It gave the KPERs Board of Trustees the authority to establish the actuarial cost method and amortization method/period. With this authority, the Board changed both the actuarial cost method and the asset valuation method with the December 31, 2003 actuarial valuation. SB 520 also increased the statutory cap for Local employers from 0.15% to 0.40% in FY2006, 0.50% in FY2007 and 0.60% in FY2008 and beyond.

The 2007 Legislature passed SB 362 which created a new benefit structure for members first employed on or after July 1, 2009 (KPERs 2). The change was made partially due to long term funding considerations, but also in response to demographic changes in the membership.



SECTION 1 – BOARD SUMMARY

The 2011 Legislature passed Senate Substitute for House Bill 2194 (Sub HB 2194). The intent of this law was to strengthen KPERS' long term funding and improve the sustainability of the system. The bill contained significant changes for both KPERS employers and current and future members. In addition, Sub HB 2194 established a 13 member KPERS Study Commission to study alternative plan designs during the last half of 2011 and make a recommendation for KPERS plan design that would provide for the long term sustainability of the System. The Commission report was due to the Legislature by January 6, 2012. Sub HB 2194 required that the report recommendations be voted on by the 2012 Legislature for the other provisions of Senate Substitute for HB 2194 to become effective. The 2012 Legislature did not move the Study Commission recommendation forward, but some of the other provisions were included in the bill that was ultimately passed in 2012, Senate Sub for House Bill 2333.

The 2012 Legislature passed Sub House Bill 2333, affecting new hires, current members and employers. The changes were made to improve KPERS' long term sustainability. The basic provisions of Sub House Bill 2333, as amended by House Bill 2213 in 2013, included:

- ✓ Increased the statutory cap on employer contribution rates to 0.9% in FY 2014, 1.0% in FY 2015, 1.1% in FY 2016 and 1.2% in FY 2017 and beyond.
- ✓ Contingent upon IRS approval, established an election by KPERS 1 members between different contribution rate and benefit levels. The legislation provided that, if the IRS rejected or did not take action to approve the election, KPERS 1 members would default to an increase in their employee contributions to 5% of compensation effective January 1, 2014, and 6% effective January 1, 2015, with an increase in the benefit multiplier to 1.85% beginning January 1, 2014, for future years of service only. Subsequently, the IRS issued a private letter ruling stating that the election granted to KPERS 1 members under 2012 HB 2333 was impermissible.
- ✓ For KPERS 2 members retiring after July 1, 2012, the cost of living adjustment (COLA) was eliminated, but members received a 1.85% multiplier for all years of service.
- ✓ Created a Cash Balance Plan for new hires beginning January 1, 2015. A cash balance plan is a type of defined benefit plan that includes some elements of a defined contribution plan and shares risk between the employer and employee. Each member has a hypothetical account that is credited with employee contributions, employer pay credits and interest credits. At retirement, the account balance is annuitized to create a guaranteed monthly benefit payable for the member's lifetime. Up to 30% of the account value at retirement may be paid as a lump sum.
- ✓ Beginning in FY 2014, provided for the state to make additional contributions to help pay down KPERS' unfunded actuarial liability until the State/School group reaches a funded ratio of at least 80%. The revenue was to come from the Expanded Lottery Act Revenues Fund (ELARF). However, for FY 2014 through 2017, the ELARF funds were appropriated as a partial funding source to meet the statutory contribution requirements for the School group rather than contributed in addition to the statutory contributions. Therefore, no additional funding of the unfunded actuarial liability has occurred. As a result, projections assume there will not be any additional payments to the unfunded actuarial liability from the ELARF funds.
- ✓ If the State of Kansas sells surplus real estate, 80% of the proceeds is to be used to pay down KPERS' unfunded actuarial liability until the System reaches an 80% funded ratio. However, 2016 SB249 suspended this provision with respect to any sales of surplus real estate during FY 2017.

The 2014 Legislature passed HB 2533 which made changes to the KPERS 3 benefit structure, generally decreasing the portion of the benefit that is guaranteed, thereby increasing the risk-sharing portion of the benefit. The changes in House Bill 2533 were designed to further improve KPERS long term funding and to better manage the investment risk.

The 2015 Legislature passed SB 4 which revised the State/School employer contribution rate from 11.27% to 8.65% for the last half of FY 2015 to correspond with the Governor's allotment. In addition, SB 228



SECTION 1 – BOARD SUMMARY

provided for bonds to be issued to improve the funded status of the State/School group and also reduced the previously certified employer contribution rates for FY 2016 and 2017. The following provisions were included in SB 228:

- ✓ Net proceeds of up to \$1.0 billion from bonds issued by the state of Kansas were to be deposited into the KPERS trust fund for the State/School group, subject to certain criteria. The bonds had to be issued at an interest rate no greater than 5.0% and approved by the State Finance Council (approval received July 2, 2015).
- ✓ Revised the previously certified State/School employer contribution rate from 12.37% to 10.91% for fiscal year 2016 and from 13.57% to 10.81% for fiscal year 2017. The statutory cap of 1.2% per year was still applicable to employer contribution rates in fiscal year 2018 and beyond.

The 2015 Legislature also passed House Bill 2095 that contained changes to the working after retirement provisions and implemented a pilot program in KP&F for a Deferred Option Retirement Plan for the Kansas Highway Patrol. Neither of these provisions had a significant impact on the long term funding of the System.

The 2016 Legislature passed House Sub for SB 168 which revised the rules pertaining to working after retirement. The bill also made technical and clarifying amendments to statutes related to death and disability contributions, KPERS 3 members, and the Deferred Retirement Option Program (DROP) for certain members of KP&F. None of these provisions had an impact on the December 31, 2015 valuation results. The 2016 Legislature also passed House Sub for SB 161 which provided for the delay of up to \$100 million in State and School contributions for fiscal year 2016. House Sub for SB 249 provided that the delayed contributions would be repaid in full, with interest at 8%, by June 30, 2018. The Governor used this allotment authority to delay payments of \$97.4 million in State/School group and KP&F State contributions during the final quarter of FY 2016. However, S Sub for Sub HB 2052, passed in the 2017 session, provided that the repayment of these contributions will not be paid.

The 2017 Legislature passed several bills that impacted the provisions and funding of KPERS:

- Senate Substitute for Substitute HB 2052 (S Sub for Sub HB 2052) provided that a portion of the contributions for the School group for fiscal year 2017 (FY 2017) will be delayed so the total State/School contribution will be \$64.13 million less than the scheduled statutory contributions. The delayed employer contributions for fiscal year 2017 will be paid in level-dollar annual installments of \$6.4 million over twenty years beginning in fiscal year 2018. These payments are determined as a contribution rate for School employers to be paid in addition to the statutory State/School contribution rate. Further, S Sub for Sub HB 2052 provided that the repayment of the contribution reduction from FY 2016 with interest (\$115 million), scheduled in FY 2018, would not be paid.
- Senate Substitute for HB 2002 contained KPERS funding provisions for FY 2018 and FY 2019, including the following:
 - **FY 2018:** The contributions for the State/School group for fiscal year 2018 was made at the scheduled statutory rate of 12.01%. In addition, the first installment of \$6.4 million on the 20-year amortization of the delayed contributions for FY 2017 was included.
 - **FY 2019:** A portion of the employer contributions for School employers within the State/School group for fiscal year 2019 were delayed so the total employer contribution was \$420 million, including the second installment of \$6.4 million on the delayed contribution for FY 2017. This results in an expected delay of \$194 million that will be paid by the School group, as a level dollar amount over 20 years beginning in FY 2020.



SECTION 1 – BOARD SUMMARY

- **FY 2020:** The current statutory cap of 1.2% per year will apply in determining the statutory contribution rate for the State/School group for FY 2020. The certified statutory rate from FY 2019 of 13.21%, without inclusion of the \$6.4 million amortization of the delayed contributions in FY 2017 and \$19.4 million amortization of the delayed contributions in FY 2019, will be increased by 1.2%, resulting in a statutory contribution rate for FY 2020 of 14.41%. The current statutory cap of 1.2% per year applies for all subsequent years.
- SB 205 changed the duty-related death benefit for KP&F members to the greater of 50% of Final Average Salary and the member's accrued retirement benefit under the 100% joint and survivor option, payable to the member's spouse. Including any benefits that may be due to child beneficiaries, the total monthly benefits may not exceed 90% of the member's Final Average Salary. Prior to this bill, the duty-related death benefit for a KP&F member was 50% of Final Average Salary, and the maximum available to the family was 75% of the member's Final Average Salary.
- House Substitute for SB 21 included changes to the working after retirement rules for members who retire on or after January 1, 2018. The key provisions of the bill were to lengthen the waiting period for KPERS members to return to work from 60 days to 180 days for members who retire before attaining age 62, remove the earnings limitation for all retirees, and establish a single employer contribution schedule for all retirees.

The 2018 Legislature passed House Substitute for Senate Bill 109 that provided for the following additional funding to the KPERS School group:

- An additional payment of \$82 million in July 2018 (received by KPERS).
- A contingent additional payment of up to \$56 million to be paid in FY 2019, if actual FY 2018 receipts exceed the consensus revenue estimates (full amount received by KPERS).
- A contingent additional payment of up to \$56 million to be paid in FY 2020, if actual FY 2019 receipts exceed the consensus revenue estimates.

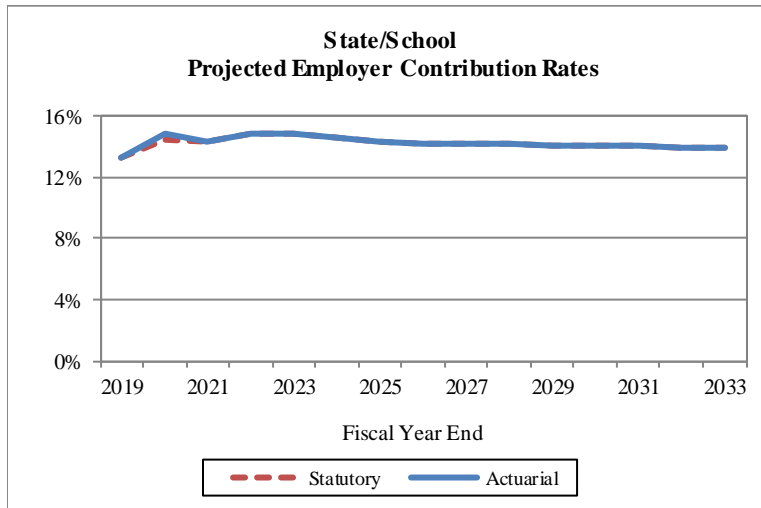
The legacy unfunded actuarial liability is amortized over a closed period ending in 2033 (15 years remaining as of this valuation date). Increases in the unfunded actuarial liability resulting from the assumption changes adopted in the December 31, 2016 valuation are amortized over a closed 25 year period, while other actuarial experience (gains/losses) is amortized over closed 20 year periods. While all of the groups (State/School, Local, KP&F, and Judges) are projected to reach a funded ratio of 100%, the actual funding progress will be heavily dependent on the actual investment experience of the System in future years, the continuation of the current statutory funding policy for the State/School group, and actual contributions at the statutory rate.

The following graphs show the preliminary projected employer contribution rates assuming all actuarial assumptions are met in the future, including a 7.75% net rate of return on the market value of assets in all years, and that the current statutory funding policy for the State/School group continues and contributions are made as scheduled, including the repayment of the reduced contributions for fiscal year 2017 and fiscal year 2019.

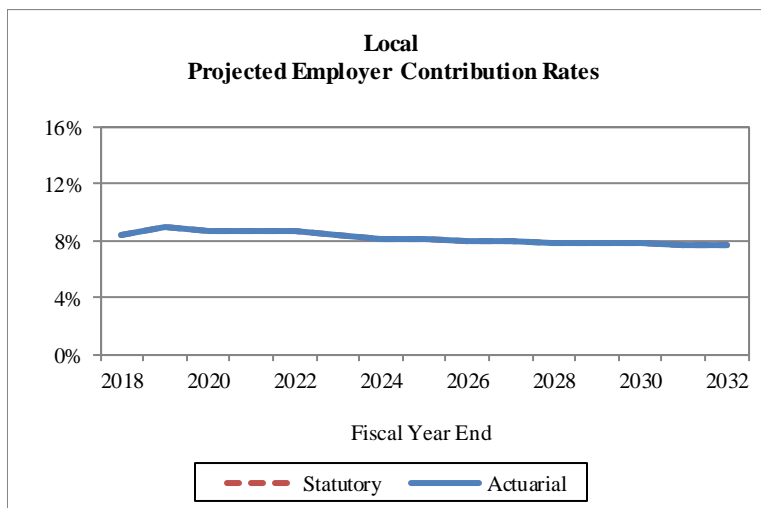
Note that although separate valuations are performed for the State and School groups, the statutory contribution rate for the two is determined using the combined valuation results for the two groups. Contributions which result from the excess of the statutory contribution rate over the actuarial required contribution rate for the State are allocated to the School to improve the funding of that group.



SECTION 1 – BOARD SUMMARY



Based on the current valuation results, the actuarial required contribution (ARC) date for the State/School group will occur in FY 2021 at an ARC rate of 14.23%, and then increase to around 14.83% before dropping to around 13.89%. The projected ARC Date in last year's valuation was FY 2021 at an ARC rate of 14.99%. Actual experience in future years, particularly investment returns, will impact the future actuarial and statutory rates.



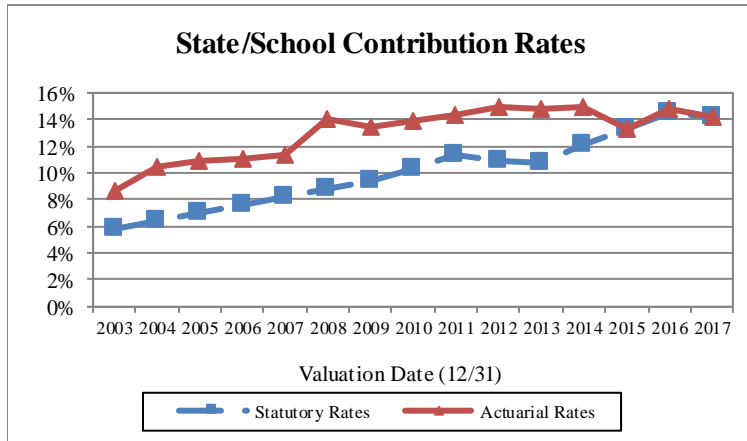
The Local group reached the ARC date in the 2012 valuation at an ARC rate of 9.48%, which has decreased and is now 8.61% in the 2017 valuation. The projected contribution rate is expected to decrease to around 7.70% as the deferred investment experience is realized, assuming all actuarial assumptions are met in future years. Actual experience in future years, particularly investment returns, will impact the future actuarial and statutory rates.

Historical contribution rates for each group are shown on the following pages. Please note that prior to the December 31, 2003 valuation, one contribution rate was developed for the State and School together as one group. Legislation passed in 2004 split the actuarial valuations into two separate groups, although the statutory contribution rate has still been determined on a combined basis. By statute, any excess of the statutory contribution over the actuarial required contribution for the State is allocated to the School group.

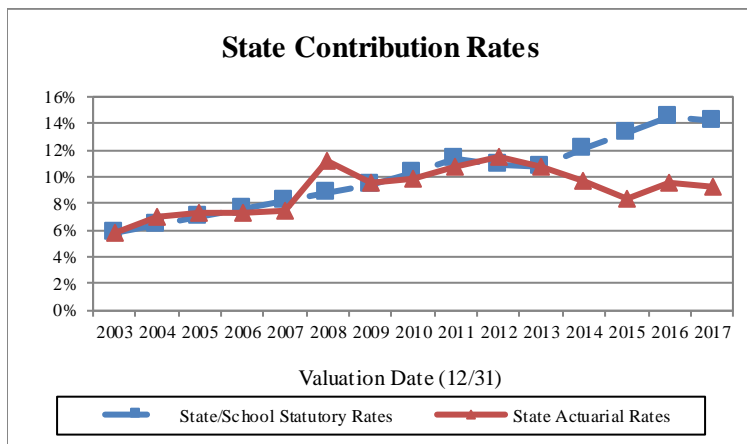
Significant changes in funding methods occurred in 2003, and the System received bond proceeds in 2004 and 2015. Actuarial assumptions were changed in the 2004, 2007, 2011, 2014 and 2016 valuations. These changes impact the comparability of contribution rates between various valuation dates.



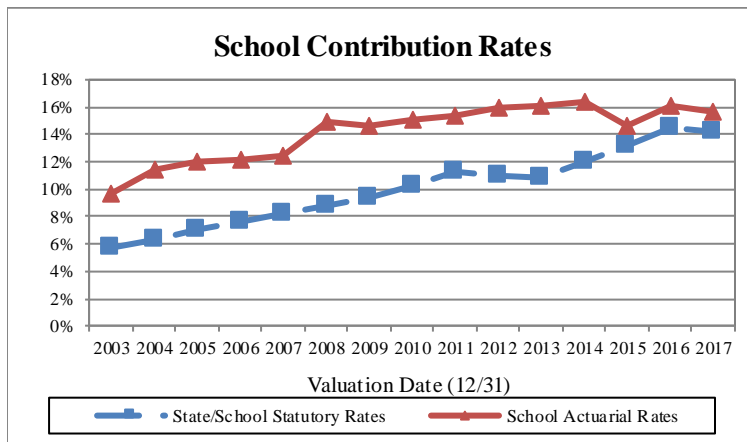
SECTION 1 – BOARD SUMMARY



Numerous factors have contributed to the increase in the ARC rate for the State/School group over much of this period including investment experience, changes in actuarial assumptions, and contributions significantly below the actuarial rate. Due to favorable actuarial experience during 2017, the ARC rate decreased to 14.23% and the State/School group reached the full ARC rate in the current valuation.



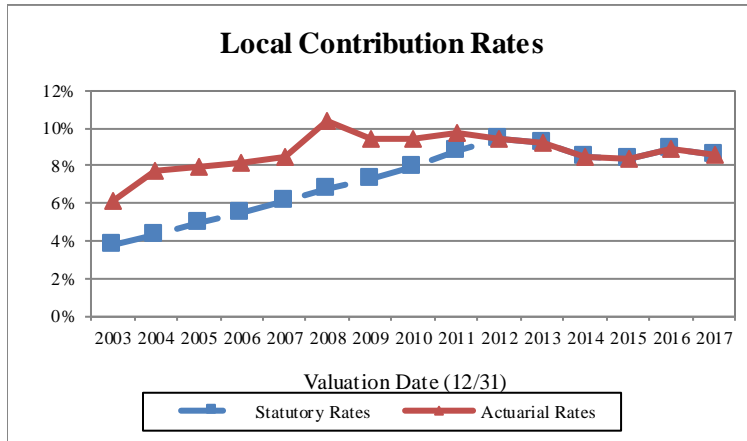
The split of the State group into a separate group with the 2003 valuation, coupled with the bond issue, lowered the State ARC rate. The State reached the full ARC rate in the 2010 valuation and has remained at ARC except for the recertification of the statutory contribution rate for FY 2016 from 12.37% to 10.91%. In this valuation, the State's ARC rate decreased to 9.22%, due to favorable actuarial experience in 2017.



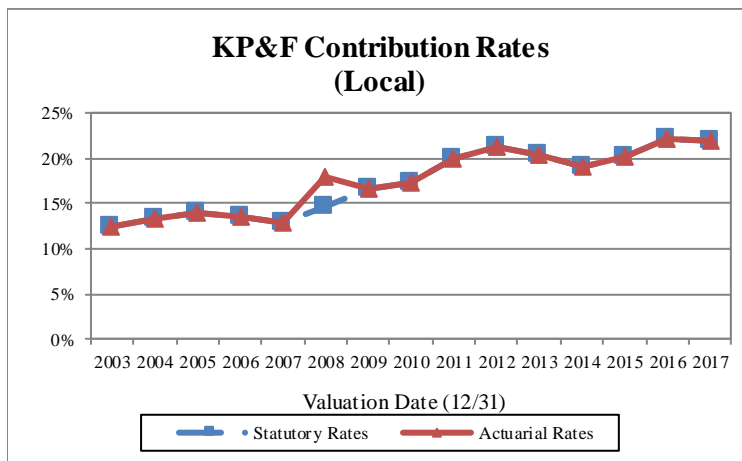
Due to investment experience, changes in actuarial assumptions, and the magnitude of the difference between the actuarial and statutory contribution rates, the funded status of the School group has declined and the ARC rate has increased during the early part of this period. Increases to the statutory contribution rate and contribution sharing from the State group helped to stabilize ARC rate and improve the funded ratio.



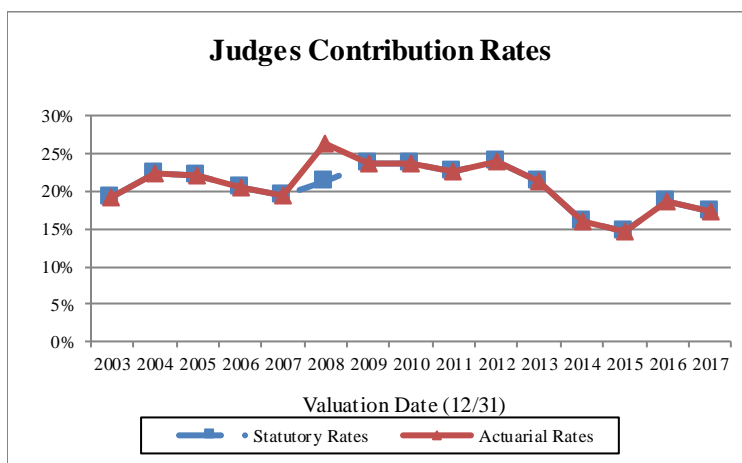
SECTION 1 – BOARD SUMMARY



The Local contribution rate has also been impacted by changes in actuarial assumptions and methods as well as investment performance. With the significant changes in 2012 Sub House Bill 2333 and favorable investment returns, the statutory contribution rate was equal to the ARC rate in the 2012 valuation. In this valuation, the Local group's ARC rate decreased to 8.61%, due to favorable actuarial experience in 2017.



Investment experience in 2008 and 2011 resulted in higher contribution rates in the latter part of the period. The assumption changes reflected in the 2016 valuation increased the contribution rate. Favorable investment experience during 2017 resulted in a decrease in the ARC rate for the KP&F System.



Investment experience in 2008 and 2011 resulted in higher contribution rates in the middle of the period. The assumption changes reflected in the 2016 valuation increased the contribution rate. Favorable actuarial experience during 2017 resulted in a decrease in the ARC rate for the Judges System.



SECTION 1 – BOARD SUMMARY

SUMMARY OF CHANGE IN UNFUNDED ACTUARIAL LIABILITY
BY SYSTEM
DECEMBER 31, 2017 VALUATION
(\$ millions)

	State	School	State/School	Local	KP&F	Judges	Total
UAL in 12/31/2016 Valuation Report	\$921.7	\$5,768.3	\$6,690.0	\$1,514.7	\$845.5	\$11.1	\$9,061.4
· Effect of contribution cap/time lag	(9.4)	138.7	129.3	6.0	13.7	(0.3)	148.7
· Expected decrease due to UAL amortization	(13.8)	(86.1)	(99.9)	(22.6)	(12.6)	(0.4)	(135.5)
· Actual vs. expected experience							
Investment return	(24.7)	(54.0)	(78.7)	(24.9)	(13.1)	(0.8)	(117.5)
Demographic experience	(7.4)	(57.7)	(65.1)	(9.6)	30.5	(1.7)	(45.8)
All other experience	2.4	3.3	5.7	(5.3)	(4.1)	(0.2)	(4.0)
· Change in actuarial assumptions/methods	0.0	0.0	0.0	0.0	0.0	0.0	0.0
· Change in benefit provisions	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UAL in 12/31/2017 Valuation Report	\$868.8	\$5,712.5	\$6,581.3	\$1,458.3	\$859.9	\$7.7	\$8,907.2

Note: Numbers may not add due to rounding.



SECTION 1 – BOARD SUMMARY

**SUMMARY OF
CHANGES IN EMPLOYER ACTUARIAL CONTRIBUTION RATE
BY SYSTEM
AS OF DECEMBER 31, 2017**

Percentage of Payroll	State	School	State/School	Local	KP&F ¹	Judges
Actuarial Contribution Rate in 12/31/2016 Valuation	9.49%	16.15%	14.74%	8.89%	22.13%	18.65%
Change Due to Amortization of UAL						
· effect of contribution cap/time lag	(0.07)	0.28	0.21	0.02	0.19	(0.09)
· UAL amortization	0.00	0.00	0.00	0.00	0.00	(0.12)
· investment experience	(0.19)	(0.11)	(0.13)	(0.10)	(0.18)	(0.25)
· liability experience	(0.06)	(0.12)	(0.10)	(0.04)	0.43	(0.54)
· all other experience	0.13	(0.08)	(0.04)	(0.08)	(0.61)	(0.47)
· additional contributions in FY 2019/2020	0.00	(0.45)	(0.36)	0.00	0.00	0.00
· change in assumptions/methods	0.00	0.00	0.00	0.00	0.00	0.00
· change in benefit provisions	0.00	0.00	0.00	0.00	0.00	0.00
Change in Employer Normal Cost Rate						
· change in benefit provisions	0.00	0.00	0.00	0.00	0.00	0.00
· change in assumptions/methods	0.00	0.00	0.00	0.00	0.00	0.00
· all other experience	(0.08)	(0.08)	(0.09)	(0.08)	(0.03)	0.08
Actuarial Contribution Rate in 12/31/2017 Valuation	9.22%	15.59%	14.23%	8.61%	21.93%	17.26%

¹ Contribution rate for Local employers only.

Note: Numbers may not add due to rounding.



SECTION 1 – BOARD SUMMARY

**SUMMARY OF HISTORICAL CHANGES IN TOTAL SYSTEM UAL
as of
DECEMBER 31, 2017 VALUATION**

%(millions)	As Reported on Valuation Date							
	6/30/94	6/30/95	6/30/96	6/30/97	6/30/98	6/30/99	6/30/00	12/31/00
Actual Experience vs. Assumed								
• Investment	\$(102)	\$(143)	\$(280)	\$(323)	\$(413)	\$(369)	\$(441)	\$(23)
• Other	320	72	136	157	104	46	99	84
Assumption Changes	0	(96)	0	0	350	0	0	(206)
Changes in Data/Procedures	244	0	0	0	0	21	71	145**
Change in Cost Method	0	0	0	0	0	0	0	0
Effect of Contribution Cap/Lag	*	95	70	63	54	78	66	60
Amortization Method	*	47	38	35	32	30	22	12
Change in Benefit Provisions	75	0	0	0	88	0	19	0
Change in Actuarial Firm/Software	0	0	0	0	0	0	0	0
Bond Issue	0	0	0	0	0	0	0	0
Non-Collectible Pension Contributions	0	0	0	0	0	0	0	0
Total	\$537	\$(25)	\$(36)	\$(68)	\$215	\$(194)	\$(164)	\$72

* Not calculated for this year.

** Reflects the impact of re-establishing the KP&F Supplemental Actuarial Liability at December 31, 2002. The additional unfunded actuarial liability as of December 31, 2000 for the State/School and Local groups not recognized in the prior valuation due to the phase-in of the change in actuarial procedures is included.

Unfunded actuarial liability 6/30/93: \$ 968 million

Unfunded actuarial liability 12/31/17: \$ 8,907 million



SECTION 1 – BOARD SUMMARY

**SUMMARY OF HISTORICAL CHANGES IN TOTAL SYSTEM UAL
as of
DECEMBER 31, 2017 VALUATION (continued)**

%(millions)	As Reported on Valuation Date							
	12/31/01	12/31/02	12/31/03	12/31/04	12/31/05	12/31/06	12/31/07	12/31/08
Actual Experience vs. Assumed								
• Investment	\$350	\$644	\$140	\$456	\$167	\$(293)	\$(626)	\$2,332
• Other	(9)	68	(32)	16	(84)	140	99	78
Assumption Changes	0	0	0	437	(5)	0	384	0
Changes in Data/Procedures	5	177**	(286)***	0	0	0	0	0
Change in Cost Method	0	0	1,147	0	0	0	0	0
Effect of Contribution Cap/Lag	115	143	178	179	247	258	251	246
Amortization Method	14	21	47	68	84	83	78	71
Change in Benefit Provisions	0	37	3	1	0	24	2	0
Change in Actuarial Firm/Software	0	0	0	0	0	0	0	0
Bond Issue	0	(41)	(440)	0	0	0	0	0
Non-Collectible Pension Contributions	0	0	0	0	0	0	0	0
Total	\$475	\$1,049	\$757	\$1,157	\$409	\$212	\$188	\$2,727

** Reflects the impact of re-establishing the KP&F Supplemental Actuarial Liability at December 31, 2002. The additional unfunded actuarial liability as of December 31, 2000 for the State/School and Local groups not recognized in the prior valuation due to the phase-in of the change in actuarial procedures is included.

*** Change in asset valuation method.

Unfunded actuarial liability 6/30/93: \$ 968 million
 Unfunded actuarial liability 12/31/17: \$ 8,907 million



SECTION 1 – BOARD SUMMARY

SUMMARY OF HISTORICAL CHANGES IN TOTAL SYSTEM UAL
as of
DECEMBER 31, 2017 VALUATION (continued)

\$(millions)	As Reported on Valuation Date							
	12/31/09	12/31/10	12/31/11	12/31/12	12/31/13	12/31/14	12/31/15	12/31/16
Actual Experience vs. Assumed								
• Investment	\$(1,011)	\$560	\$852	\$732	\$(653)	\$(368)	\$52	\$(59)
• Other	(70)	(334)	(190)	(78)	(125)	(78)	(130)	(144)
Assumption Changes	0	0	(64)	0	0	(50)	0	593
Changes in Data/Procedures	0	0	0	0	0	0	0	0
Change in Cost Method	0	0	0	0	0	0	0	0
Effect of Contribution Cap/Lag	383	320	289	303	246	178	160	70
Amortization Method	96	68	62	49	46	18	(11)	(38)
Change in Benefit Provisions	0	0	15	19	0	1	0	1
Change in Actuarial Firm/Software	0	(27)	0	0	0	0	0	0
Bond Issue	0	0	0	0	0	0	(1,000)	0
Non-Collectible Pension Contributions	0	0	0	0	0	0	0	99
Total	\$(602)	\$587	\$964	\$1,025	\$(487)	\$(298)	\$(929)	\$522

Unfunded actuarial liability 6/30/93: \$ 968 million

Unfunded actuarial liability 12/31/17: \$ 8,907 million

Note: Although a total column is shown, the amounts in each year are not additive because they are calculated on each valuation date and, therefore, represent a value at a different point in time.



SECTION 1 – BOARD SUMMARY

SUMMARY OF HISTORICAL CHANGES IN TOTAL SYSTEM UAL
as of
DECEMBER 31, 2017 VALUATION (continued)

\$(millions)	As Reported on Valuation Date	
	12/31/17	Total
Actual Experience vs. Assumed		
• Investment	\$(117)	\$1,064
• Other	(50)	95
Assumption Changes	0	1,343
Changes in Data/Procedures	0	377
Change in Cost Method	0	1,147
Effect of Contribution Cap/Lag	149	4,201
Amortization Method	(136)	836
Change in Benefit Provisions	0	285
Change in Actuarial Firm/Software	0	(27)
Bond Issue	0	(1,481)
Non-Collectible Pension Contributions	0	99
Total	\$(154)	\$7,939

Unfunded actuarial liability 6/30/93: \$ 968 million

Unfunded actuarial liability 12/31/17: \$ 8,907 million

Note: Although a total column is shown, the amounts in each year are not additive because they are calculated on each valuation date and, therefore, represent a value at a different point in time.



SECTION 1 – BOARD SUMMARY

SUMMARY OF PRINCIPAL RESULTS

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
(STATE)

	12/31/2017 Valuation	12/31/2016 Valuation	% Change
1. PARTICIPANT DATA			
Number of:			
Active Members	21,427	21,879	(2.1%)
Retired Members and Beneficiaries	20,075	19,652	2.2%
Inactive Members	8,901	8,477	5.0%
Total Members	<u>50,403</u>	<u>50,008</u>	0.8%
Projected Annual Salaries of Active Members	\$ 946,342,010	\$ 939,183,195	0.8%
Annual Retirement Payments for Retired Members and Beneficiaries	\$ 286,058,578	\$ 276,258,764	3.5%
2. ASSETS AND LIABILITIES			
a. Total Actuarial Liability	\$ 4,457,117,349	\$ 4,385,680,350	1.6%
b. Assets for Valuation Purposes	\$ 3,588,341,301	\$ 3,463,997,332	3.6%
c. Unfunded Actuarial Liability (a) - (b)	\$ 868,776,048	\$ 921,683,018	(5.7%)
d. Funded Ratio (b) / (a)	80.5%	79.0%	1.9%
e. Market Value of Assets	\$ 3,653,660,034	\$ 3,354,619,933	8.9%
f. Funded Ratio on Market Value (e) / (a)	82.0%	76.5%	7.2%
3. EMPLOYER CONTRIBUTION RATES AS A PERCENT OF PAYROLL			
Normal Cost			
Total	7.66%	7.74%	
Member	<u>6.00%</u>	<u>6.00%</u>	
Employer	1.66%	1.74%	
Amortization of Unfunded Actuarial Liability	<u>7.56%</u>	<u>7.75%</u>	
Actuarial Contribution Rate	9.22%	9.49%	
Statutory Employer Contribution Rate*	<u>14.23%</u>	<u>14.41%</u>	

* The rate in this valuation may not exceed last year's rate by more than the statutory rate increase limit of 1.20% for FY 2017 and later. This rate excludes the contribution rate for the Death and Disability Program. Any excess of the statutory over actuarial contribution rates applied to actual State payroll is deposited to the School assets.



SECTION 1 – BOARD SUMMARY

SUMMARY OF PRINCIPAL RESULTS

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
(SCHOOL)

	12/31/2017 Valuation	12/31/2016 Valuation	% Change
1. PARTICIPANT DATA			
Number of:			
Active Members	84,239	84,321	(0.1%)
Retired Members and Beneficiaries	53,521	51,813	3.3%
Inactive Members	31,307	28,490	9.9%
Total Members	<u>169,067</u>	<u>164,624</u>	2.7%
Projected Annual Salaries of Active Members	\$ 3,497,953,735	\$ 3,469,951,831	0.8%
Annual Retirement Payments for Retired Members and Beneficiaries	\$ 825,729,117	\$ 786,385,615	5.0%
2. ASSETS AND LIABILITIES			
a. Total Actuarial Liability	\$ 14,890,672,923	\$ 14,481,094,448	2.8%
b. Assets for Valuation Purposes	\$ 9,178,189,403	\$ 8,712,789,560	5.3%
c. Unfunded Actuarial Liability (a) - (b)	\$ 5,712,483,520	\$ 5,768,304,888	(1.0%)
d. Funded Ratio (b) / (a)	61.6%	60.2%	2.3%
e. Market Value of Assets	\$ 9,335,940,612	\$ 8,444,384,754	10.6%
f. Funded Ratio on Market Value (e) / (a)	62.7%	58.3%	7.5%
3. EMPLOYER CONTRIBUTION RATES AS A PERCENT OF PAYROLL			
Normal Cost			
Total	8.16%	8.24%	
Member	<u>6.00%</u>	<u>6.00%</u>	
Employer	2.16%	2.24%	
Amortization of Unfunded Actuarial Liability	<u>13.43%</u>	<u>13.91%</u>	
Actuarial Contribution Rate	15.59%	16.15%	
Statutory Employer Contribution Rate*	<u>14.23%</u>	<u>14.41%</u>	

* The rate in this valuation may not exceed last year's rate by more than the statutory rate increase limit of 1.20% for FY 2017 and later. This rate excludes the contribution rate for the Death and Disability Program. An additional contribution rate of 0.18% applies for FY 2019, 0.69% for FY 2020 and 0.68% for FY 2021.



SECTION 1 – BOARD SUMMARY

SUMMARY OF PRINCIPAL RESULTS

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM (STATE/SCHOOL)

Table with 4 columns: Description, 12/31/2017 Valuation, 12/31/2016 Valuation, % Change. Rows include Participant Data (Active/Retired/Inactive Members, Projected Annual Salaries, Retirement Payments), Assets and Liabilities (Actuarial Liability, Assets, Funded Ratio, Market Value), and Employer Contribution Rates (Normal Cost, Amortization, Actuarial Rate, Statutory Rate).

* The rate in this valuation may not exceed last year's rate by more than the statutory rate increase limit of 1.20% for FY 2017 and later. This rate excludes the contribution rate for the Death and Disability Program. For the School group only, an additional contribution rate of 0.18% applies for FY 2019, 0.69% for FY 2020 and 0.68% for FY 2021.



SECTION 1 – BOARD SUMMARY

SUMMARY OF PRINCIPAL RESULTS

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM (LOCAL)

Table with 4 columns: Description, 12/31/2017 Valuation, 12/31/2016 Valuation, % Change. Rows include Participant Data (Active/Retired/Inactive Members, Projected Annual Salaries, Annual Retirement Payments), Assets and Liabilities (Total Actuarial Liability, Assets, Unfunded Actuarial Liability, Funded Ratio, Market Value of Assets), and Employer Contribution Rates (Normal Cost, Amortization of Unfunded Actuarial Liability, Actuarial Contribution Rate, Statutory Employer Contribution Rate*).

* The Statutory Employer Contribution Rate in this valuation may not exceed last year's rate by more than the statutory rate increase limit of 1.20% for FY 2017 and later. This rate excludes the contribution rate for the Death and Disability Program.



SECTION 1 – BOARD SUMMARY

SUMMARY OF PRINCIPAL RESULTS

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
(TOTAL KPERS)

	12/31/2017 Valuation	12/31/2016 Valuation	% Change
1. PARTICIPANT DATA			
Number of:			
Active Members	143,947	144,564	(0.4%)
Retired Members and Beneficiaries	94,130	91,270	3.1%
Inactive Members	58,306	54,191	7.6%
Total Members	<u>296,383</u>	<u>290,025</u>	2.2%
Projected Annual Salaries of Active Members	\$ 6,208,194,467	\$ 6,138,111,984	1.1%
Annual Retirement Payments for Retired Members and Beneficiaries	\$ 1,360,837,162	\$ 1,295,094,927	5.1%
2. ASSETS AND LIABILITIES			
a. Total Actuarial Liability	\$ 24,647,338,285	\$ 23,961,501,936	2.9%
b. Assets for Valuation Purposes	\$ 16,607,745,264	\$ 15,756,774,777	5.4%
c. Unfunded Actuarial Liability (a) - (b)	\$ 8,039,593,021	\$ 8,204,727,159	(2.0%)
d. Funded Ratio (b) / (a)	67.4%	65.8%	2.4%
e. Market Value of Assets	\$ 16,909,742,530	\$ 15,268,924,728	10.7%
f. Funded Ratio on Market Value (e) / (a)	68.6%	63.7%	7.7%



SECTION 1 – BOARD SUMMARY

SUMMARY OF PRINCIPAL RESULTS

KANSAS POLICE AND FIREMEN'S RETIREMENT SYSTEM

	12/31/2017 Valuation	12/31/2016 Valuation	% Change
1. PARTICIPANT DATA			
Number of:			
Active Members	7,481	7,303	2.4%
Retired Members and Beneficiaries	5,398	5,232	3.2%
Inactive Members	1,654	1,555	6.4%
Total Members	<u>14,533</u>	<u>14,090</u>	3.1%
Projected Annual Salaries of Active Members			
	\$ 507,774,486	\$ 485,215,228	4.6%
Annual Retirement Payments for Retired Members and Beneficiaries			
	\$ 179,970,191	\$ 170,130,904	5.8%
2. ASSETS AND LIABILITIES			
a. Total Actuarial Liability	\$ 3,320,247,686	\$ 3,174,533,709	4.6%
b. Assets for Valuation Purposes	\$ 2,460,340,659	\$ 2,329,029,290	5.6%
c. Unfunded Actuarial Liability (a) - (b)	\$ 859,907,027	\$ 845,504,419	1.7%
d. Funded Ratio (b) / (a)	74.1%	73.4%	1.0%
e. Market Value of Assets	\$ 2,495,082,288	\$ 2,256,070,037	10.6%
f. Funded Ratio on Market Value (e) / (a)	75.1%	71.1%	5.6%
3. EMPLOYER CONTRIBUTION RATES AS A PERCENT OF PAYROLL			
Normal Cost			
Total	14.85%	14.88%	
Member	<u>7.15%</u>	<u>7.15%</u>	
Employer	7.70%	7.73%	
Amortization of Unfunded Actuarial and Supplemental Liability			
	<u>14.23%</u>	<u>14.40%</u>	
Actuarial Contribution Rate (Local Employers)			
	21.93%	22.13%	
Statutory Employer Contribution Rate*			
	<u>21.93%</u>	<u>22.13%</u>	

* The Statutory Employer Contribution Rate is equal to the Actuarial Rate. This is referred to as the "Uniform" rate, and varies for State and Local employers. The total contribution is equal to the appropriate uniform rate plus the payment required to amortize any unfunded past service liability, determined separately for each employer.



SECTION 1 – BOARD SUMMARY

SUMMARY OF PRINCIPAL RESULTS

KANSAS RETIREMENT SYSTEM FOR JUDGES

	12/31/2017 Valuation	12/31/2016 Valuation	% Change
1. PARTICIPANT DATA			
Number of:			
Active Members	259	252	2.8%
Retired Members and Beneficiaries	279	272	2.6%
Inactive Members	6	9	(33.3%)
Total Members	<u>544</u>	<u>533</u>	2.1%
Projected Annual Salaries of Active Members			
	\$ 28,332,177	\$ 27,123,449	4.5%
Annual Retirement Payments for Retired Members and Beneficiaries			
	\$ 11,707,915	\$ 11,272,287	3.9%
2. ASSETS AND LIABILITIES			
a. Total Actuarial Liability	\$ 186,241,018	\$ 181,718,728	2.5%
b. Assets for Valuation Purposes	\$ 178,527,349	\$ 170,569,206	4.7%
c. Unfunded Actuarial Liability (a) - (b)	\$ 7,713,669	\$ 11,149,522	(30.8%)
d. Funded Ratio (b) / (a)	95.9%	93.9%	2.1%
e. Market Value of Assets	\$ 180,462,402	\$ 165,322,736	9.2%
f. Funded Ratio on Market Value (e) / (a)	96.9%	91.0%	6.5%
3. EMPLOYER CONTRIBUTION RATES AS A PERCENT OF PAYROLL			
Normal Cost			
Total	20.38%	20.30%	
Member	<u>5.65%</u>	<u>5.64%</u>	
Employer	14.73%	14.66%	
Amortization of Unfunded Actuarial and Supplemental Liability			
	<u>2.53%</u>	<u>3.99%</u>	
Actuarial Contribution Rate	17.26%	18.65%	
Statutory Employer Contribution Rate*	<u>17.26%</u>	<u>18.65%</u>	

* Statutory Employer Contribution Rate is equal to the Actuarial Rate. This rate excludes the contribution for the Death and Disability Program.



SECTION 1 – BOARD SUMMARY

SUMMARY OF PRINCIPAL RESULTS

ALL SYSTEMS COMBINED

	12/31/2017 Valuation	12/31/2016 Valuation	% Change
1. PARTICIPANT DATA			
Number of:			
Active Members	151,687	152,119	(0.3%)
Retired Members and Beneficiaries	99,807	96,774	3.1%
Inactive Members	59,966	55,755	7.6%
Total Members	<u>311,460</u>	<u>304,648</u>	2.2%
Projected Annual Salaries of Active Members	\$ 6,744,301,130	\$ 6,650,450,661	1.4%
Annual Retirement Payments for Retired Members and Beneficiaries	\$ 1,552,515,268	\$ 1,476,498,118	5.1%
2. ASSETS AND LIABILITIES			
a. Total Actuarial Liability	\$ 28,153,826,989	\$ 27,317,754,373	3.1%
b. Assets for Valuation Purposes	\$ 19,246,613,272	\$ 18,256,373,273	5.4%
c. Unfunded Actuarial Liability (a) - (b)	\$ 8,907,213,717	\$ 9,061,381,100	(1.7%)
d. Funded Ratio (b) / (a)	68.4%	66.8%	2.4%
e. Market Value of Assets	\$ 19,585,287,220	\$ 17,690,317,501	10.7%
f. Funded Ratio on Market Value (e) / (a)	69.6%	64.8%	7.4%



SECTION 2 – SCOPE OF THE REPORT

This report presents the actuarial valuation of the Kansas Public Employees Retirement System (KPERs) as of December 31, 2017. This valuation was prepared at the request of the System’s Board of Trustees.

The reader is encouraged to review the actuarial certification letter, where the guidelines employed in the preparation of this report are outlined. Also included in this letter are comments on the sources and reliability of both the data and the actuarial assumptions upon which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the findings resulting from this valuation is presented in the previous section. Section 3 describes the assets and investment experience of the System. Sections 4 and 5 describe how the obligations of the System are to be met under the actuarial cost method in use.

This report includes several appendices:

- Appendix A Schedules of valuation data classified by various categories of members.
- Appendix B A summary of the current benefit structure, as determined by the provisions of governing law on December 31, 2017, as amended by legislation in the 2018 Session.
- Appendix C A summary of the actuarial methods and assumptions used to estimate liabilities and determine contribution rates.
- Appendix D A glossary of actuarial terms.



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SECTION 3 – ASSETS

Market Value of Assets

The current market value represents the "snapshot" or "cash-out" value of System assets as of the valuation date. In addition, the market value of assets provides a basis for measuring investment performance from time to time. At December 31, 2017, the market value of assets for the Retirement System was \$19.585 billion. Table 1 shows the market value of assets as of December 31, 2017 in total and by investment category. Table 2 summarizes the change in the market value of assets, from December 31, 2016 to December 31, 2017, by group.

Actuarial Value of Assets

Neither the market value of assets, representing a "cash-out" value of System assets, nor the book value of assets, representing the cost of investments, may be the best measure of the System's ongoing ability to meet its obligations.

To arrive at a suitable value for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens swings in the market value while still indirectly recognizing market values. The current asset smoothing method was implemented with the December 31, 2003 actuarial valuation.

Under the asset smoothing method, the difference between the actual return and the expected return (based on the actuarial assumed rate of return) on the market value of assets is calculated each year and recognized equally over a five-year period.

Tables 3A through 3F and Table 4 show the development of the actuarial value of assets (AVA) as of December 31, 2017.



SECTION 3 – ASSETS

TABLE 1
ANALYSIS OF NET ASSETS AT MARKET VALUE

	<u>December 31, 2017</u>	
	<u>Amount</u>	<u>% of</u>
	(\$ Millions)	<u>Total</u>
Cash & Equivalents	\$ 361	1.8 %
Alternative Investments	1,102	5.6
Real Estate	2,086	10.7
Fixed Income	5,263	26.9
Domestic Equity	6,244	31.9
International Equity	4,529	23.1
Net Assets	\$ 19,585	100.0 %
Allocation of Net Assets on December 31, 2017:		
State	\$ 3,654	
School	9,336	
Local	3,920	
KP&F	2,495	
Judges	180	
Total Net Assets*	<u>\$ 19,585</u>	

* May not add due to rounding



SECTION 3 – ASSETS

TABLE 2
SUMMARY OF CHANGES IN TOTAL SYSTEM ASSETS
DURING PERIOD ENDED DECEMBER 31, 2017

(Market Value)

Table with 5 columns: State, School, State/School, Local. Rows include Market Value of Assets as of January 1, 2017; Contributions (Employee, Employer, etc.); Total Investment Income; Less Benefits (Annuity Retirement, etc.); Administrative Expenses; Net Increase in Assets; Market Value of Assets as of December 31, 2017.

**SECTION 3 – ASSETS**

**TABLE 2 (cont.)
SUMMARY OF CHANGES IN TOTAL SYSTEM ASSETS
DURING PERIOD ENDED DECEMBER 31, 2017**

(Market Value)

	KPERS	KP&F	Judges	Total
Market Value of Assets as of January 1, 2017	\$ 15,268,924,728	\$ 2,256,070,037	\$ 165,322,736	\$ 17,690,317,501
Contributions:				
Employee	369,535,882	35,719,698	1,480,307	406,735,887
Employee service purchases	6,833,372	1,343,417	27,598	8,204,387
Employer	674,600,521	97,351,840	5,200,285	777,152,646
Miscellaneous	5,470,765	447,396	102	5,918,263
Total Contributions	<u>1,056,440,540</u>	<u>134,862,351</u>	<u>6,708,292</u>	<u>1,198,011,183</u>
Total Investment Income	2,107,142,998	300,389,947	21,118,000	2,428,650,945
Total Income	<u>3,163,583,538</u>	<u>435,252,298</u>	<u>27,826,292</u>	<u>3,626,662,128</u>
Less Benefits:				
Annuity Retirement Benefits	(1,334,249,765)	(174,615,006)	(11,485,883)	(1,520,350,654)
Partial Lump Sum Benefits	(105,863,478)	(13,606,973)	(1,083,127)	(120,553,578)
Retirant Dividends	(731,125)	(706,203)	(13,350)	(1,450,678)
Withdrawals	(61,405,604)	(5,274,972)	(858)	(66,681,434)
Death Benefits	(10,596,881)	(622,878)	(4,000)	(11,223,759)
Total Benefits	<u>(1,512,846,853)</u>	<u>(194,826,032)</u>	<u>(12,587,218)</u>	<u>(1,720,260,103)</u>
Administrative Expenses	(9,918,883)	(1,414,015)	(99,408)	(11,432,306)
Net Increase in Assets	1,640,817,802	239,012,251	15,139,666	1,894,969,719
Market Value of Assets as of December 31, 2017	\$ 16,909,742,530	\$ 2,495,082,288	\$ 180,462,402	\$ 19,585,287,220



SECTION 3 – ASSETS

TABLE 3A
CALCULATION OF EXCESS (SHORTFALL) INVESTMENT INCOME FOR
ACTUARIAL VALUE OF NET ASSETS
State

	Plan Year End			
	12/31/2014	12/31/2015	12/31/2016	12/31/2017
1. Market Value of Assets, beginning of year	\$ 3,187,375,166	\$ 3,256,683,036	\$ 3,244,225,487	\$ 3,354,619,933
2. Contributions during year	156,723,044	141,600,641	159,716,397	155,642,178
3. Bond Proceeds*	0	143,398,079	0	0
4. Benefits paid during year	(285,452,283)	(302,430,038)	(308,919,134)	(318,261,310)
5. Administrative expenses paid during year	(1,949,366)	(2,119,586)	(2,575,374)	(2,183,431)
6. Expected investment income	249,863,428	258,216,000	253,583,710	253,716,102
7. Transfers and receivables	0	0	0	0
8. Non-collectible Pension Contributions	0	0	(4,147,707)	0
9. Expected Value of Assets, end of year	3,306,559,989	3,495,348,132	3,341,883,379	3,443,533,472
10. Market Value of Assets, end of year	3,256,683,036	3,244,225,487	3,354,619,933	3,653,660,034
11. Excess (shortfall) of net investment income	\$ (49,876,953)	\$ (251,122,645)	\$ 12,736,554	\$ 210,126,562

* Received on August 20, 2015



SECTION 3 – ASSETS

TABLE 3B
CALCULATION OF EXCESS (SHORTFALL) INVESTMENT INCOME FOR
ACTUARIAL VALUE OF NET ASSETS
School

	Plan Year End			
	12/31/2014	12/31/2015	12/31/2016	12/31/2017
1. Market Value of Assets, beginning of year	\$ 7,331,598,583	\$ 7,540,084,183	\$ 8,151,104,207	\$ 8,444,384,754
2. Contributions during year	527,536,210	576,909,041	591,436,507	644,270,462
3. Bond Proceeds*	0	856,601,921	0	0
4. Benefits paid during year	(776,083,270)	(834,096,709)	(865,178,991)	(898,475,592)
5. Administrative expenses paid during year	(4,498,772)	(4,945,832)	(5,968,861)	(5,418,910)
6. Expected investment income	576,600,776	617,259,082	641,115,125	644,567,102
7. Transfers and receivables	0	0	0	0
8. Non-collectible Pension Contributions	0	0	(94,386,288)	0
9. Expected Value of Assets, end of year	7,655,153,527	8,751,811,686	8,418,121,699	8,829,327,816
10. Market Value of Assets, end of year	7,540,084,183	8,151,104,207	8,444,384,754	9,335,940,612
11. Excess (shortfall) of net investment income	\$ (115,069,344)	\$ (600,707,479)	\$ 26,263,055	\$ 506,612,796

* Received on August 20, 2015



SECTION 3 – ASSETS

**TABLE 3C
CALCULATION OF EXCESS (SHORTFALL) INVESTMENT INCOME FOR
ACTUARIAL VALUE OF NET ASSETS
State/School**

	Plan Year End			
	12/31/2014	12/31/2015	12/31/2016	12/31/2017
1. Market Value of Assets, beginning of year	\$ 10,518,973,749	\$ 10,796,767,219	\$ 11,395,329,694	\$ 11,799,004,687
2. Contributions during year	684,259,254	718,509,682	751,152,904	799,912,640
3. Bond Proceeds*	0	1,000,000,000	0	0
4. Benefits paid during year	(1,061,535,553)	(1,136,526,747)	(1,174,098,125)	(1,216,736,902)
5. Administrative expenses paid during year	(6,448,138)	(7,065,418)	(8,544,235)	(7,602,341)
6. Expected investment income	826,464,204	875,475,082	894,698,835	898,283,204
7. Transfers and receivables	0	0	0	0
8. Non-collectible Pension Contributions	0	0	(98,533,995)	0
9. Expected Value of Assets, end of year	10,961,713,516	12,247,159,818	11,760,005,078	12,272,861,288
10. Market Value of Assets, end of year	10,796,767,219	11,395,329,694	11,799,004,687	12,989,600,646
11. Excess (shortfall) of net investment income	\$ (164,946,297)	\$ (851,830,124)	\$ 38,999,609	\$ 716,739,358

* Received on August 20, 2015



SECTION 3 – ASSETS

**TABLE 3D
CALCULATION OF EXCESS (SHORTFALL) INVESTMENT INCOME FOR
ACTUARIAL VALUE OF NET ASSETS
Local**

	Plan Year End			
	12/31/2014	12/31/2015	12/31/2016	12/31/2017
1. Market Value of Assets, beginning of year	\$ 3,016,067,035	\$ 3,205,746,273	\$ 3,216,043,938	\$ 3,469,920,041
2. Contributions during year	238,652,131	265,369,903	266,851,517	256,527,900
3. Benefits paid during year	(240,180,030)	(260,096,296)	(281,130,118)	(296,109,951)
4. Administrative expenses paid during year	(1,882,135)	(2,141,017)	(2,585,342)	(2,316,542)
5. Expected investment income	241,151,586	256,582,595	256,621,934	267,325,526
6. Transfers and receivables	0	0	0	0
7. Expected Value of Assets, end of year	3,253,808,587	3,465,461,458	3,455,801,929	3,695,346,974
8. Market Value of Assets, end of year	3,205,746,273	3,216,043,938	3,469,920,041	3,920,141,884
9. Excess (shortfall) of net investment income	\$ (48,062,314)	\$ (249,417,520)	\$ 14,118,112	\$ 224,794,910



SECTION 3 – ASSETS

**TABLE 3E
CALCULATION OF EXCESS (SHORTFALL) INVESTMENT INCOME FOR
ACTUARIAL VALUE OF NET ASSETS
KP&F**

	Plan Year End			
	12/31/2014	12/31/2015	12/31/2016	12/31/2017
1. Market Value of Assets, beginning of year	\$ 2,057,050,931	\$ 2,160,304,791	\$ 2,126,561,947	\$ 2,256,070,037
2. Contributions during year	138,573,664	139,181,817	137,488,402	134,862,351
3. Benefits paid during year	(164,926,476)	(176,278,471)	(183,384,046)	(194,826,032)
4. Administrative expenses paid during year	(1,275,775)	(1,429,236)	(1,727,067)	(1,414,015)
5. Expected investment income	163,480,192	171,312,994	168,256,694	172,511,420
6. Transfers and receivables	0	0	0	0
7. Non-collectible Pension Contributions	0	0	(409,785)	0
8. Expected Value of Assets, end of year	2,192,902,536	2,293,091,895	2,246,786,145	2,367,203,761
9. Market Value of Assets, end of year	2,160,304,791	2,126,561,947	2,256,070,037	2,495,082,288
10. Excess (shortfall) of net investment income	\$ (32,597,745)	\$ (166,529,948)	\$ 9,283,892	\$ 127,878,527



SECTION 3 – ASSETS

**TABLE 3F
CALCULATION OF EXCESS (SHORTFALL) INVESTMENT INCOME FOR
ACTUARIAL VALUE OF NET ASSETS
Judges**

	Plan Year End			
	12/31/2014	12/31/2015	12/31/2016	12/31/2017
1. Market Value of Assets, beginning of year	\$ 152,430,594	\$ 159,205,632	\$ 155,264,020	\$ 165,322,736
2. Contributions during year	7,639,189	8,084,034	7,857,606	6,708,292
3. Benefits paid during year	(10,441,274)	(12,271,670)	(10,769,054)	(12,587,218)
4. Administrative expenses paid during year	(94,272)	(104,844)	(127,650)	(99,408)
5. Expected investment income	12,080,822	12,568,054	12,301,896	12,585,174
6. Transfers and receivables	0	0	0	0
7. Expected Value of Assets, end of year	161,615,059	167,481,206	164,526,818	171,929,576
8. Market Value of Assets, end of year	159,205,632	155,264,020	165,322,736	180,462,402
9. Excess (shortfall) of net investment income	\$ (2,409,427)	\$ (12,217,186)	\$ 795,918	\$ 8,532,826



SECTION 3 – ASSETS

TABLE 4
DEVELOPMENT OF ACTUARIAL VALUE OF NET ASSETS

Table with 5 columns: State, School, State/School, Local, Total KPERS. Rows include: 1. Excess (shortfall) of investment income (a-e), 2. Deferral of excess (shortfall) of investment income (a-e), 3. Market Value of Assets, end of year, 4. Actuarial Value of Assets, end of year (3) - (2e), 5. Actuarial Value divided by market value (4)/(3).



SECTION 3 – ASSETS

TABLE 4 (cont.)
DEVELOPMENT OF ACTUARIAL VALUE OF NET ASSETS

Table with 5 columns: Description, Total KPERS, KP&F, Judges, Total. Rows include: 1. Excess (shortfall) of investment income (a-e), 2. Deferral of excess (shortfall) of investment income (a-e), 3. Market Value of Assets, end of year, 4. Actuarial Value of Assets, end of year (3) - (2e), 5. Actuarial Value divided by Market Value (4)/(3).



SECTION 4 – SYSTEM LIABILITIES

In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of assets of the System as of the valuation date, December 31, 2017. In this section, the discussion will focus on the commitments of the System, which are referred to as its liabilities.

Table 5 contains an analysis of the actuarial present value of all future benefits (PVFB) for contributing members, inactive members, retirees and their beneficiaries. The analysis is provided for each group.

The liabilities summarized in Table 5 include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes measures of both benefits already earned and future benefits expected to be earned. For all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and, if an optional benefit is chosen, for the lives of the surviving beneficiaries.

The actuarial assumptions used to determine liabilities are based on the results of the last Triennial Experience Study. This set of assumptions, as shown in Appendix C, was adopted by the Board in November 2016.

The liabilities reflect the benefit structure in place as of December 31, 2017, as amended by any legislation in the 2018 Session.

Actuarial Liabilities

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to the period in which benefits are earned, rather than to the period of benefit distribution. An actuarial cost method is a mathematical technique that allocates the present value of future benefits into annual costs. In order to do this allocation, it is necessary for the funding method to “breakdown” the present value of future benefits into two components:

- (1) that which is attributable to the past and
- (2) that which is attributable to the future.

Actuarial terminology calls the part attributable to the past the “past service liability” or the “actuarial liability”. The portion allocated to the future is known as the present value of future normal costs, with the specific piece of it allocated to the current year being called the “normal cost”. Table 6 contains the calculation of actuarial liabilities for all groups.



SECTION 4 – SYSTEM LIABILITIES

TABLE 5
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
PRESENT VALUE OF FUTURE BENEFITS (PVFB)
AS OF DECEMBER 31, 2017

	State	School	State/School	Local
1. Active employees				
a. Retirement Benefits	\$ 1,890,813,862	\$ 8,133,053,255	\$ 10,023,867,117	\$ 3,175,827,116
b. Pre-Retirement Death Benefits	35,849,619	68,747,598	104,597,217	66,966,028
c. Termination Benefits	133,397,134	430,697,832	564,094,966	275,517,328
d. Disability Benefits	65,733,905	116,953,840	182,687,745	78,572,812
e. Total	<u>2,125,794,520</u>	<u>8,749,452,525</u>	<u>10,875,247,045</u>	<u>3,596,883,284</u>
2. Inactive Vested Members	165,901,621	466,308,042	632,209,663	248,118,416
3. Inactive Nonvested Members	13,464,069	36,665,725	50,129,794	29,521,219
4. Disabled Members	71,130,950	91,653,065	162,784,015	62,847,196
5. Retirees	2,406,837,221	7,549,364,716	9,956,201,937	2,152,724,715
6. Beneficiaries	130,187,102	197,855,805	328,042,907	116,343,103
7. Unclaimed Account Reserve	<u>668,200</u>	<u>1,331,800</u>	<u>2,000,000</u>	<u>500,000</u>
8. Total PVFB	<u>\$ 4,913,983,683</u>	<u>\$ 17,092,631,678</u>	<u>\$ 22,006,615,361</u>	<u>\$ 6,206,937,933</u>



SECTION 4 – SYSTEM LIABILITIES

TABLE 5 (cont.)
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
PRESENT VALUE OF FUTURE BENEFITS (PVFB)
AS OF DECEMBER 31, 2017

Table with 5 columns: Category, Total KPERS, KP&F, Judges, Total. Rows include Active employees (a-e), Inactive Vested Members, Inactive Nonvested Members, Disabled Members, Retirees, Beneficiaries, Unclaimed Account Reserve, and Total PVFB.



SECTION 4 – SYSTEM LIABILITIES

TABLE 6
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
ACTUARIAL LIABILITIES
AS OF DECEMBER 31, 2017

	State	School	State/School	Local
1. Present Value of Future Benefits	\$ 4,913,983,683	\$ 17,092,631,678	\$ 22,006,615,361	\$ 6,206,937,933
2. Present Value of Future Normal Costs for Active Members				
a. Retirement Benefits	\$ 282,587,249	\$ 1,673,619,770	\$ 1,956,207,019	\$ 577,293,726
b. Pre-Retirement Death Benefits	8,166,165	21,055,521	29,221,686	18,409,977
c. Termination Benefits	141,566,332	464,994,588	606,560,920	283,215,521
d. Disability Benefits	24,546,588	42,288,876	66,835,464	28,470,696
e. Total	<u>456,866,334</u>	<u>2,201,958,755</u>	<u>2,658,825,089</u>	<u>907,389,920</u>
3. Total Actuarial Liability (1) - (2e)	<u>\$ 4,457,117,349</u>	<u>\$ 14,890,672,923</u>	<u>\$ 19,347,790,272</u>	<u>\$ 5,299,548,013</u>



SECTION 4 – SYSTEM LIABILITIES

**TABLE 6 (cont.)
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
ACTUARIAL LIABILITIES
AS OF DECEMBER 31, 2017**

	Total KPERS	KP&F	Judges	Total
1. Present Value of Future Benefits	\$ 28,213,553,294	\$ 3,942,791,431	\$ 223,498,389	\$ 32,379,843,114
2. Present Value of Future Normal Costs for Active Members				
a. Retirement Benefits	\$ 2,533,500,745	\$ 446,099,964	\$ 36,570,068	\$ 3,016,170,777
b. Pre-Retirement Death Benefits	47,631,663	13,846,048	687,303	62,165,014
c. Termination Benefits	889,776,441	68,463,178	0	958,239,619
d. Disability Benefits	95,306,160	94,134,555	0	189,440,715
e. Total	<u>3,566,215,009</u>	<u>622,543,745</u>	<u>37,257,371</u>	<u>4,226,016,125</u>
3. Total Actuarial Liability (1) - (2e)	<u>\$ 24,647,338,285</u>	<u>\$ 3,320,247,686</u>	<u>\$ 186,241,018</u>	<u>\$ 28,153,826,989</u>



SECTION 4 – SYSTEM LIABILITIES

**TABLE 7
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
ACTUARIAL BALANCE SHEET
AS OF DECEMBER 31, 2017**

	State	School	State/School	Local
<u>ASSETS</u>				
Actuarial Value of Assets	\$ 3,588,341,301	\$ 9,178,189,403	\$ 12,766,530,704	\$ 3,841,214,560
Present Value of Future Normal Costs	456,866,334	2,201,958,755	2,658,825,089	907,389,920
Unfunded Actuarial Liability	<u>868,776,048</u>	<u>5,712,483,520</u>	<u>6,581,259,568</u>	<u>1,458,333,453</u>
Total Net Assets	<u>\$ 4,913,983,683</u>	<u>\$ 17,092,631,678</u>	<u>\$ 22,006,615,361</u>	<u>\$ 6,206,937,933</u>
<u>LIABILITIES</u>				
Present Value of Future Benefits				
Active employees	\$ 2,125,794,520	\$ 8,749,452,525	\$ 10,875,247,045	\$ 3,596,883,284
Inactive Members *	180,033,890	504,305,567	684,339,457	278,139,635
In-pay Members	<u>2,608,155,273</u>	<u>7,838,873,586</u>	<u>10,447,028,859</u>	<u>2,331,915,014</u>
Total Liabilities	<u>\$ 4,913,983,683</u>	<u>\$ 17,092,631,678</u>	<u>\$ 22,006,615,361</u>	<u>\$ 6,206,937,933</u>

*Includes Unclaimed Account Reserves



SECTION 4 – SYSTEM LIABILITIES

**TABLE 7 (cont.)
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
ACTUARIAL BALANCE SHEET
AS OF DECEMBER 31, 2017**

	Total KPERS	KP&F	Judges	Total
<u>ASSETS</u>				
Actuarial Value of Assets	\$ 16,607,745,264	\$ 2,460,340,659	\$ 178,527,349	\$ 19,246,613,272
Present Value of Future Normal Costs	3,566,215,009	622,543,745	37,257,371	4,226,016,125
Unfunded Actuarial Liability	<u>8,039,593,021</u>	<u>859,907,027</u>	<u>7,713,669</u>	<u>8,907,213,717</u>
Total Net Assets	\$ <u>28,213,553,294</u>	\$ <u>3,942,791,431</u>	\$ <u>223,498,389</u>	\$ <u>32,379,843,114</u>
<u>LIABILITIES</u>				
Present Value of Future Benefits				
Active employees	\$ 14,472,130,329	\$ 2,018,948,942	\$ 113,823,699	\$ 16,604,902,970
Inactive Members *	962,479,092	59,319,748	1,429,802	1,023,228,642
In-pay Members	<u>12,778,943,873</u>	<u>1,864,522,741</u>	<u>108,244,888</u>	<u>14,751,711,502</u>
Total Liabilities	\$ <u>28,213,553,294</u>	\$ <u>3,942,791,431</u>	\$ <u>223,498,389</u>	\$ <u>32,379,843,114</u>

*Includes Unclaimed Account Reserves



SECTION 4 – SYSTEM LIABILITIES

TABLE 8
ANALYSIS OF ACTUARIAL GAIN OR LOSS

Table with 5 columns: Description, State, School, State/School, Local. Rows include: 1. Expected Actuarial Liability (a-e), 2. Actuarial Liability at 12/31/2017, 3. Actuarial Liability Gain/(Loss) (1e) - (2), 4. Expected Actuarial Value of Assets (a-e), 5. Actuarial Value of Assets as of 12/31/17, 6. Actuarial Value of Assets Gain/(Loss) (5) - (4e), 7. Net Actuarial Gain/(Loss) (3) + (6).



SECTION 4 – SYSTEM LIABILITIES

TABLE 8 (cont.)
ANALYSIS OF ACTUARIAL GAIN OR LOSS

Table with 5 columns: Description, Total KPERS, KP&F, Judges, Total. Rows include: 1. Expected Actuarial Liability (a-e), 2. Actuarial Liability at 12/31/2017, 3. Actuarial Liability Gain/(Loss) (1e) - (2), 4. Expected Actuarial Value of Assets (a-e), 5. Actuarial Value of Assets as of 12/31/17, 6. Actuarial Value of Assets Gain/(Loss) (5) - (4e), 7. Net Actuarial Gain/(Loss) (3) + (6).



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SECTION 5 – EMPLOYER CONTRIBUTIONS

The previous two sections were devoted to a discussion of the assets and liabilities of the System. A comparison of Tables 4 and 6 indicates that current assets fall short of meeting the present value of future benefits (total liability). This is expected in all but a fully closed down fund, where no further contributions are anticipated.

In an active system, there will almost always be a difference between the actuarial value of assets and total liabilities. This deficiency has to be made up by future contributions and investment returns. An actuarial valuation sets out a schedule of future contributions that will deal with this deficiency in an orderly fashion.

The method used to determine the incidence of the contributions in various years is called the actuarial cost method. Under an actuarial cost method, the contributions required to meet the difference between current assets and current liabilities are allocated each year between two elements: (1) the normal cost and (2) the payment on the unfunded actuarial liability.

The term “fully funded” is often applied to a system in which contributions at the normal cost rate are sufficient to pay for the benefits of existing employees as well as for those of new employees. More often than not, systems are not fully funded, either because of past benefit improvements that have not been completely funded and/or because of actuarial deficiencies that have occurred because experience has not been as favorable as anticipated. Under these circumstances, an unfunded actuarial liability (UAL) exists.

Description of Rate Components

The actuarial cost method for all three systems is the traditional Entry Age Normal (EAN) – level percent of pay cost method. Under the EAN cost method, the actuarial present value of each member’s projected benefits allocates on a level basis over the member’s compensation between the entry age of the member and the assumed exit ages. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The actuarial present value of benefits allocated to prior years of service is called the actuarial liability. The unfunded actuarial liability represents the difference between the actuarial liability and the actuarial value of assets as of the valuation date. The unfunded actuarial liability is calculated each year and reflects experience gains/losses.

The contribution rates based on the December 31, 2017 actuarial valuation will be used to determine employer contribution rates to the Kansas Public Employees Retirement System for fiscal years beginning in 2020 (July 1, 2020 to June 30, 2021 for the State and calendar year 2020 for Local employers).

KPERS

The law provides for the calculation of separate employer contribution rates for three groups: State, School and Local (for all other covered employers).

SB 4 and SB 228, as passed by the 2015 Legislature, reset the statutory employer contribution rate from 11.27% to 8.65% for the last half of fiscal year 2015, from 12.37% to 10.91% for fiscal year 2016, and from 13.57% to 10.81% for fiscal year 2017 for the State/School group. For fiscal year 2018 and beyond, the statutory cap described below applies.

Legislation provides that the employer contribution rates recommended by the Board of Trustees for all groups cannot increase more than the statutory cap. This cap was increased in Senate Substitute for House Bill 2333, passed by the 2012 Legislature, to 0.90% for FY 2014, 1.0% for FY 2015, 1.1% for FY 2016 and 1.2% for FY 2017 and later. The prior limit on the statutory cap for the State/School group was 0.40%



SECTION 5 – EMPLOYER CONTRIBUTIONS

in FY 2006, 0.50% in FY 2007, and 0.60% in FY 2008 through FY 2013. The prior limit for the Local group was 0.40% in 2006, 0.50% in 2007, and 0.60% in 2008 through 2013. The limits on the increase in the statutory contribution rate do not apply to the increase in the employer contribution rate for benefit enhancements. Although not shown in these rates, the total contribution rates for KPERS employers include the statutory employer contribution to the KPERS Group Life Insurance and disability benefits plan.

The 2016 Legislature passed House Sub for SB 161 and House Sub for SB 249 which impacted KPERS' funding by authorizing a delay of up to \$100 million in State/School and KP&F contributions for FY 2016 and providing that the delayed contributions must be paid to KPERS by June 30, 2018 with interest at 8%. Ultimately, a total of \$97.4 million in FY 2016 State/School and KP&F contributions was delayed. However, the 2017 Legislature passed Senate Substitute for Substitute for HB 2052, which cancelled payment of the \$97.4 million delayed contribution.

Senate Substitute for Substitute HB 2052 (S Sub for Sub HB 2052) provided that a portion of the contributions for the School group for fiscal year 2017 (FY 2017) will be delayed so the total State/School contribution will be \$64.13 million less than the scheduled statutory contributions. The delayed employer contributions for fiscal year 2017 will be paid in level-dollar annual installments of \$6.4 million over twenty years beginning in fiscal year 2018. These payments are determined as a contribution rate for School employers to be paid in addition to the statutory State/School contribution rate. Further, S Sub for Sub HB 2052 provided that the repayment of the contribution reduction from FY 2016 with interest (\$115 million), scheduled in FY 2018, would not be paid.

Senate Substitute for HB 2002 contained KPERS funding provisions for FY 2018 and FY 2019, including the following:

- **FY 2018:** The contributions for the State/School group for fiscal year 2018 was made at the scheduled statutory rate of 12.01%. In addition, the first installment of \$6.4 million on the 20-year amortization of the delayed contributions for FY 2017 was included.
- **FY 2019:** A portion of the employer contributions for School employers within the State/School group for fiscal year 2019 were delayed so the total employer contribution was \$420 million, including the second installment of \$6.4 million on the delayed contribution for FY 2017. This results in an expected delay of \$194 million that will be paid by the School group, as a level dollar amount over 20 years beginning in FY 2020.
- **FY 2020:** The current statutory cap of 1.2% per year will apply in determining the statutory contribution rate for the State/School group for FY 2020. The certified statutory rate from FY 2019 of 13.21%, without inclusion of the \$6.4 million amortization of the delayed contributions in FY 2017 and \$19.4 million amortization of the delayed contributions in FY 2019, will be increased by 1.2%, resulting in a statutory contribution rate for FY 2020 of 14.41%. The current statutory cap of 1.2% per year applies for all subsequent years.

The 2018 Legislature passed House Substitute for Senate Bill 109 that provided for the following additional funding to the KPERS School group:

- An additional payment of \$82 million in July 2018 (received by KPERS).
- A contingent additional payment of up to \$56 million to be paid in FY 2019, if actual FY 2018 receipts exceed the consensus revenue estimates (full amount received by KPERS).
- A contingent additional payment of up to \$56 million to be paid in FY 2020, if actual FY 2019 receipts exceed the consensus revenue estimates.



SECTION 5 – EMPLOYER CONTRIBUTIONS

For the purposes of determining the State/School actuarial contribution rate in this report, which is applicable for FY 2021, the \$82 million payment and the first payment of \$56 million already received were reflected. In addition, it was assumed that the additional contribution of \$56 million for FY 2020 will be made on July 1, 2019. As a result of these three additional contributions, the State/School actuarial contribution rate for FY 2021 is lower by 0.36%.

Beginning with the December 31, 2016 valuation, the unfunded actuarial liability is amortized using a “layered” approach. The unfunded actuarial liability in the December 31, 2015 valuation, which was projected to June 30, 2018 for the State/School group and to December 31, 2017 for the Local group, serves as the initial or “legacy” amortization base and continues to be amortized over the original period, set at 40 years beginning July 1, 1993 (15 years remaining in the December 31, 2017 valuation). The change in the unfunded actuarial liability in the December 31, 2016 valuation as a result of the assumption changes, which is projected to June 30, 2019 for State/School and December 31, 2018 for Local, is amortized over a closed 25-year period. Changes in the unfunded actuarial liability that result from actuarial experience each year are amortized over a closed 20-year period beginning with the fiscal year in which the contribution rates will apply.

The unfunded actuarial liability is amortized as a level-percent of payroll using a payroll growth assumption of 3.0%. Therefore, the dollar amount of the annual amortization payment will increase 3.0% each year. As a result, if all assumptions are met in the future (including a 3.0% payroll growth), the amortization payment will remain level as a percentage of total payroll. If payroll increases less/more than 3.0% each year, the amortization payment will increase/decrease as a percentage of total payroll.

The actuarial contribution rate for KPERS is comprised of the normal cost rate and a contribution toward the unfunded actuarial liability. Local employers who affiliate with KPERS for prior service on or after January 1, 1999 pay an additional employer contribution to finance the unfunded actuarial liability as of their affiliation date.

KP&F

The actuarially determined contribution requirements for employers in KP&F are comprised of:

- (a) a “uniform” rate, determined separately for State and Local employers, which includes the normal cost and an unfunded actuarial liability payment for the entire group, plus
- (b) any payment required to amortize the unfunded past service liability or any 15% excess benefit liability, which is determined separately for each participating employer.

For employers who enter KP&F for future service only, the total cost is the uniform contribution rate.

Beginning with the December 31, 2016 valuation, the unfunded actuarial liability is amortized using a “layered” approach. The unfunded actuarial liability in the December 31, 2015 valuation, which was projected to December 31, 2017 for the KP&F group, serves as the initial or “legacy” amortization base and continues to be amortized over the original period, set at 40 years beginning July 1, 1993 (15 years in the December 31, 2017 valuation). The change in the unfunded actuarial liability in the December 31, 2016 valuation as a result of the assumption changes, which is projected to December 31, 2018 for KP&F, is amortized over a closed 25-year period. Changes in the unfunded actuarial liability that result from actuarial experience are amortized over a closed 20-year period beginning with the fiscal year in which the contribution rates will apply.



SECTION 5 – EMPLOYER CONTRIBUTIONS

The unfunded actuarial liability is amortized as a level-percent of payroll using a payroll growth assumption of 3.0%. Therefore, the dollar amount of the annual amortization payment will increase 3.0% each year. As a result, if all assumptions are met in the future (including a 3.0% payroll growth), the amortization payment will remain level as a percentage of total payroll. If payroll increases less/more than 3.0% each year, the amortization payment will increase/decrease as a percentage of total payroll.

Judges

The actuarial contribution rate for the Judges is comprised of the normal cost rate and a contribution toward the unfunded actuarial liability. Beginning with the December 31, 2016 valuation, the unfunded actuarial liability is amortized using a “layered” approach. The unfunded actuarial liability in the December 31, 2015 valuation, which was projected to June 30, 2018 for the Judges group, serves as the initial or “legacy” amortization base and continues to be amortized over the original period, set at 40 years beginning July 1, 1993 (15 years in the December 31, 2017 valuation). The change in the unfunded actuarial liability in the December 31, 2016 valuation as a result of the assumption changes, which is projected to June 30, 2019 for Judges, is amortized over a closed 25-year period. Changes in the unfunded actuarial liability that result from actuarial experience are amortized over a closed 20-year period beginning with the fiscal year in which the contribution rates will apply. The unfunded actuarial liability is amortized with payments determined as level-dollar amounts.

Contribution Rate Summary

The normal cost rate for each group is shown in Table 9. The unfunded actuarial liability for each group is shown in Table 10. Tables 11A and 11B project each group’s unfunded actuarial liability to the beginning of the fiscal year in which the contribution rates from the December 31, 2017 actuarial valuation will be applied. Tables 12A-F develop the actuarial contribution rates for the unfunded actuarial liability using the projected unfunded actuarial liability amounts from Tables 11A and 11B. The total actuarial contribution rates determined as of December 31, 2017 are presented in Table 13. The contribution rates for local employers who affiliated with KPERS for prior service and are amortizing the payment of that liability over a period of years (ending no later than 2034) are shown in Tables 14A and 14B. Table 15 shows the KP&F individual employer contribution rates for fiscal years beginning in 2019 and 2020 while Tables 16 and 17 show the calculation of the additional contribution rate due to amortization of prior service unfunded actuarial liability for fiscal years beginning in 2020.

The rates shown in this report, which are based on the actuarial assumptions and cost methods described in Appendix C, are applicable for determining employer contribution rates for fiscal years commencing in 2020.



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 9
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
NORMAL COST RATE
AS OF DECEMBER 31, 2017**

	State	School	State/School	Local
1. Normal Cost Rate				
a. Retirement Benefits	4.74%	6.14%	5.85%	4.82%
b. Pre-Retirement Death Benefits	0.14%	0.08%	0.09%	0.16%
c. Termination Benefits	2.22%	1.62%	1.74%	2.22%
d. Disability Benefits	0.40%	0.16%	0.21%	0.23%
e. Administrative Expenses	0.16%	0.16%	0.16%	0.16%
f. Total	<hr/> 7.66%	<hr/> 8.16%	<hr/> 8.05%	<hr/> 7.59%



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 9 (cont.)
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
NORMAL COST RATE
AS OF DECEMBER 31, 2017**

	KP&F	Judges
1. Normal Cost Rate		
a. Retirement Benefits	10.48%	19.85%
b. Pre-Retirement Death Benefits	0.35%	0.37%
c. Termination Benefits	1.63%	0.00%
d. Disability Benefits	2.23%	0.00%
e. Administrative Expenses	0.16%	0.16%
f. Total	<u>14.85%</u>	<u>20.38%</u>



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 10
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
UNFUNDED ACTUARIAL LIABILITY (UAL)
AS OF DECEMBER 31, 2017**

	State	School	State/School	Local	KP&F	Judges
1. Actuarial Liability	\$ 4,457,117,349	\$ 14,890,672,923	\$ 19,347,790,272	\$ 5,299,548,013	\$ 3,320,247,686	\$ 186,241,018
2. Actuarial Value of Assets	<u>3,588,341,301</u>	<u>9,178,189,403</u>	<u>12,766,530,704</u>	<u>3,841,214,560</u>	<u>2,460,340,659</u>	<u>178,527,349</u>
3. Unfunded Actuarial Liability (UAL)	868,776,048	5,712,483,520	6,581,259,568	1,458,333,453	859,907,027	7,713,669
a. UAL for 2008 One Time Payment	0	0	0	0	0	0
b. Other local employer UAL*	0	0	0	2,491,325	2,376,237	0
c. Remaining UAL	868,776,048	5,712,483,520	6,581,259,568	1,455,842,128	857,530,790	7,713,669

*These amounts are paid directly by the employer and do not enter into the overall unfunded actuarial liability and amortization calculations.



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 11A
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
PROJECTED UNFUNDED ACTUARIAL LIABILITY AT JUNE 30, 2020
EMPLOYERS CONTRIBUTING ON JUNE 30 FISCAL YEARS**

	State*	School*	State/School*	Judges
1. Unfunded Actuarial Liability at December 31, 2017	\$868,776,048	\$5,712,483,520	\$6,581,259,568	\$7,713,669
2. FY 2018 Expected Contribution Rate	15.62%	18.01%	18.01%	21.50%
3. Normal Cost Rate	<u>7.66%</u>	<u>8.16%</u>	<u>8.05%</u>	<u>20.38%</u>
4. Contribution Rate Applied to UAL for 2018 [(2) – (3)]	7.96%	9.85%	9.96%	1.12%
5. Expected Payroll for January to June, 2018	\$473,171,005	\$1,748,976,868	\$2,222,147,873	\$14,166,089
6. Statutory Excess State Contributions	\$0	\$11,308,787	\$0	N/A
7. Expected UAL Contribution [(4) * (5)] + (6)	\$37,664,412	\$183,583,008	\$221,325,928	\$158,660
8. Projected UAL at June 30, 2018	\$863,439,111	\$5,742,670,992	\$6,606,030,116	\$7,845,348
9. FY 2019 Expected Contribution Rate	14.28%	19.21%	19.21%	20.30%
10. Normal Cost Rate	<u>7.66%</u>	<u>8.16%</u>	<u>8.05%</u>	<u>20.38%</u>
11. Contribution Rate Applied to UAL for 2019 [(9) – (10)]	6.62%	11.05%	11.16%	(0.08%)
12. Expected Payroll for FY 2019	\$960,537,140	\$3,550,423,042	\$4,510,960,182	\$28,332,178
13. Statutory Excess State Contributions	\$0	\$47,354,481	\$0	N/A
14. Expected UAL Contribution [(11) * (12)] + (13)	\$63,587,559	\$439,676,227	\$503,423,156	(\$22,666)
15. Additional contribution for FY 2019	\$0	\$138,000,000	\$138,000,000	\$0
16. Projected UAL at June 30, 2019	\$864,350,041	\$5,582,637,210	\$6,446,735,634	\$8,476,890
17. FY 2020 Expected Contribution Rate	15.49%	20.41%	20.41%	24.29%
18. Normal Cost Rate	<u>7.66%</u>	<u>8.16%</u>	<u>8.05%</u>	<u>20.38%</u>
19. Contribution Rate Applied to UAL for 2020 [(17) – (18)]	7.83%	12.25%	12.36%	3.91%
20. Expected Payroll for FY 2020	\$989,353,254	\$3,656,935,733	\$4,646,288,987	\$28,332,178
21. Statutory Excess State Contributions	\$0	\$48,676,180	\$0	N/A
22. Expected UAL Contribution [(19) * (20)] + (21)	\$77,466,360	\$496,650,807	\$574,281,319	\$1,107,788
23. Additional contribution for FY 2020	\$0	\$56,000,000	\$56,000,000	\$0
24. Projected UAL at June 30, 2020	\$850,924,998	\$5,439,414,659	\$6,289,898,146	\$7,983,935

Note: The projected unfunded actuarial liability amount for State/School may not equal the sum of State and School due to rounding. Note that the excess of the State/School statutory contribution rate over the actuarial required contribution rate for the State alone is allocated to the School group.

* Because the FY 2019 delayed contributions of \$194.4M for the School group are to be repaid over 20 years with interest, it is treated as a long-term receivable and is reflected in total FY2019 contributions.



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 11B
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
PROJECTED UAL AT DECEMBER 31, 2019
EMPLOYERS CONTRIBUTING ON DECEMBER 31 FISCAL YEARS

Table with 3 columns: Description, KPERS - Local, and KP&F. Rows include actuarial liability, contribution rates, payroll, and projected UAL for 2018 and 2019.



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 12A
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
AMORTIZATION OF THE UNFUNDED ACTUARIAL LIABILITY
STATE

Amortization Base	Original Amount	Remaining Payments	Projected June 30, 2020 Balance	Annual Payment*
2015 Legacy UAL	\$ 805,072,157	15	\$ 789,508,475	\$ 73,506,672
2016 Assumption Changes	138,527,291	24	139,529,857	9,658,032
2016 Experience	(30,061,574)	19	(29,987,913)	(2,384,847)
2017 Experience	(48,125,421)	20	(48,125,421)	(3,706,689)
Total			\$ 850,924,998	\$ 77,073,168

* Payment amount reflects mid-year timing.

1. Total UAL Amortization Payments	\$ 77,073,168
2. Projected Payroll for FY 2021	\$ 1,019,033,852
3. UAL Amortization Payment Rate (1) / (2)	7.56%



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 12B
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
AMORTIZATION OF THE UNFUNDED ACTUARIAL LIABILITY
SCHOOL

Amortization Base	Original Amount	Remaining Payments	Projected June 30, 2020 Balance	Annual Payment*
2015 Legacy UAL	\$ 5,683,566,131	15	\$ 5,573,691,245	\$ 518,934,890
2016 Assumption Changes	311,625,331	24	313,880,664	21,726,313
2016 Experience	(67,865,818)	19	(67,699,524)	(5,383,937)
2017 Experience	(380,457,726)	20	(380,457,726)	(29,303,404)
Total			\$ 5,439,414,659	\$ 505,973,862

* Payment amount reflects mid-year timing.

- 1. Total UAL Amortization Payments \$ 505,973,862
- 2. Projected Payroll for FY 2021 \$ 3,766,643,805
- 3. UAL Amortization Payment Rate 13.43%
(1) / (2)



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 12C
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
AMORTIZATION OF THE UNFUNDED ACTUARIAL LIABILITY
STATE/SCHOOL

Amortization Base	Original Amount	Remaining Payments	Projected June 30, 2020 Balance	Annual Payment*
2015 Legacy UAL	\$ 6,489,108,272	15	\$ 6,363,660,619	\$ 592,484,474
2016 Assumption Changes	451,174,445	24	454,439,740	31,455,585
2016 Experience	(98,610,703)	19	(98,369,073)	(7,822,993)
2017 Experience	(429,833,140)	20	(429,833,140)	(33,106,370)
Total			\$ 6,289,898,146	\$ 583,010,696

* Payment amount reflects mid-year timing.

Note: Projected UAL contributions and amounts for State/School may not equal the sum of State and School due to rounding.

1. Total UAL Amortization Payments	\$ 583,010,696
2. Projected Payroll for FY 2021	\$ 4,785,677,657
3. UAL Amortization Payment Rate (1) / (2)	12.18%



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 12D
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
AMORTIZATION OF THE UNFUNDED ACTUARIAL LIABILITY

LOCAL

Amortization Base	Original Amount	Remaining Payments	Projected December 31, 2019 Balance	Annual Payment*
2015 Legacy UAL	\$ 1,467,792,387	15	\$ 1,439,416,977	\$ 134,015,979
2016 Assumption Changes	107,171,397	24	107,947,031	7,471,919
2016 Experience	(68,664,163)	19	(68,495,913)	(5,447,271)
2017 Experience	(60,452,753)	20	(60,452,753)	(4,656,158)
Total			\$ 1,418,415,342	\$ 131,384,469

* Payment amount reflects mid-year timing.

1. Total UAL Amortization Payments	\$ 131,384,469
2. Projected Payroll for FY 2020	\$ 1,871,320,155
3. UAL Amortization Payment Rate (1) / (2)	7.02%



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 12E
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
AMORTIZATION OF THE UNFUNDED ACTUARIAL LIABILITY

KP&F

Amortization Base	Original Amount	Remaining Payments	Projected December 31, 2019 Balance	Annual Payment*
2015 Legacy UAL	\$ 770,980,567	15	\$ 756,075,946	\$ 70,393,958
2016 Assumption Changes	90,081,927	24	90,733,879	6,280,453
2016 Plan Changes	801,442	19	799,478	63,580
2016 Experience	(6,054,297)	19	(6,039,462)	(480,300)
2017 Experience	5,430,585	20	5,430,585	418,272
Total			\$ 847,000,426	\$ 76,675,963

* Payment amount reflects mid-year timing.

- 1. Total UAL Amortization Payments \$ 76,675,963
- 2. Projected Payroll for FY 2020 \$ 538,697,953
- 3. UAL Amortization Payment Rate 14.23%
(1) / (2)



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 12F
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
AMORTIZATION OF THE UNFUNDED ACTUARIAL LIABILITY
JUDGES

Amortization Base	Original Amount	Remaining Payments	Projected June 30, 2020 Balance	Annual Payment*
2015 Legacy UAL	\$ 2,439,245	15	\$ 2,287,258	\$ 253,514
2016 Assumption Changes	12,158,838	24	11,986,347	1,073,961
2016 Experience	(2,548,598)	19	(2,491,344)	(245,437)
2017 Experience	(3,798,326)	20	(3,798,326)	(365,789)
Total			\$ 7,983,935	\$ 716,249

* Payment amount reflects mid-year timing.

1. Total UAL Amortization Payments	\$	716,249
2. Projected Payroll for 2018	\$	28,332,178
3. UAL Amortization Payment Rate (1) / (2)		2.53%



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 13
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
ACTUARIAL EMPLOYER CONTRIBUTION RATES
FISCAL YEAR COMMENCING IN 2020**

	Total Normal Cost	Employee Normal Cost	Employer Normal Cost	Unfunded Actuarial Liability	Total Employer Contribution*
State	7.66%	6.00%	1.66%	7.56%	9.22%
Correctional Employees - Age 55	7.94%	6.00%	1.94%	7.56%	9.50%
Correctional Employees - Age 60	8.80%	6.00%	2.80%	7.56%	10.36%
School	8.16%	6.00%	2.16%	13.43%	15.59%
State/School	8.05%	6.00%	2.05%	12.18%	14.23%
Local	7.59%	6.00%	1.59%	7.02%	8.61%
KP&F Uniform Contribution Rate					
State **	14.85%	7.15%	7.70%	14.23%	21.93%
Local **	14.85%	7.15%	7.70%	14.23%	21.93%
Judges	20.38%	5.65%	14.73%	2.53%	17.26%

* Does not include the contribution to the Death and Disability Program.

** The total contribution rate for each employer is equal to the appropriate uniform contribution rate (state or local) plus an additional rate, if applicable, required to amortize the unfunded past service liability, determined separately for each employer. (See Table 15)



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 14A
LOCAL KPERS AFFILIATION COST FACTORS
FOR FISCAL YEAR BEGINNING IN 2020**

Employer	Year Affiliated	Projected 2020 Annual Payroll	Projected 1/1/2020 Unfunded Actuarial Liability	Payment on 1/1/2020 Unfunded Liability	Payment on Unfunded Liability as % of Payroll	Total Rate for Years Commencing¹ in 2020
St. Francis Housing Authority	1999	\$23,150	\$8,169	\$756	3.27%	11.88%
City of Burden	1999	120,524	16,140	1,489	1.24%	9.85%
City of Longton	1999	74,749	19,586	1,813	2.42%	11.03%
Bourbon County RWD#2	1999	218,698	113,560	10,502	4.80%	13.41%
Towanda Township	1999	58,492	9,300	856	1.46%	10.07%
Hays Housing Authority	2000	55,788	1,761	173	0.31%	8.92%
Haysville Community Library	2000	224,071	206,443	19,071	8.51%	17.12%
Hamilton County Library	2000	115,588	13,664	1,263	1.09%	9.70%
Ellis Public Library	2000	34,083	5,191	480	1.41%	10.02%
Bucklin Public Library	2000	34,866	12,892	1,195	3.43%	12.04%
Elkhart Cemetery District	2000	34,556	1,791	171	0.49%	9.10%
City of Linn Valley	2000	177,549	1,010	94	0.05%	8.66%
City of Blue Mound	2000	77,145	2,972	263	0.34%	8.95%
Kansas Workers' Risk Coop for Counties	2000	314,833	52,649	4,828	1.53%	10.14%
Lindsborg Community Library	2002	29,873	3,795	329	1.10%	9.71%
City of North Newton	2002	452,993	170,377	15,168	3.35%	11.96%
City of Arcadia	2002	45,095	16,678	1,482	3.29%	11.90%
City of Linwood	2003	82,158	2,493	223	0.27%	8.88%
Johnson County Fire District #2 Rural ²	2003	70,241	464,430	N/A	N/A	N/A
Basehor Community Library	2003	369,692	59,057	5,257	1.42%	10.03%
City of Gypsum	2003	93,791	5,013	448	0.48%	9.09%
City of Bentley	2004	127,095	37,701	3,741	2.94%	11.55%
Mulvane Public Library	2004	162,642	13,514	1,342	0.82%	9.43%
The Center for Counseling and Consultation	2004	2,792,765	1,136,207	112,779	4.04%	12.65%
Doniphan County RFD #2	2005	120,758	9,032	895	0.74%	9.35%
City of Denison	2005	29,455	19,921	1,978	6.71%	15.32%
Stanton County Recreation Commission	2005	57,383	24,544	2,435	4.24%	12.85%
Total		\$5,998,033	\$2,427,889	\$189,030		

¹ Basic local employer contribution rates excluding Death and Disability contribution: FY 2019: 8.89% FY 2020: 8.61%

² As of December 31, 2018, employer will move to KPF and pay off their remaining UAL.



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 14B
LOCAL KPERS AFFILIATION COST FACTORS - AFFILIATION AFTER 1/1/06
FOR FISCAL YEAR BEGINNING IN 2020**

Effective for affiliations on or after January 1, 2006, the payment on the unfunded actuarial liability due to affiliation for prior service is amortized as a fixed level dollar payment. No adjustment is made to the employer contribution rate for these payments.

Employer	Year Affiliated	Unfunded Actuarial Liability on Jan 1 Following Affiliation	Annual Payment Due Jan 1, 2019 to Amortize Unfunded Liability	Final Payment Year
Nippawalla Township	2006	\$4,158	\$356	2032
City of Vermillion	2006	3,950	338	2032
Stockton Recreation Commission	2010	1,245	113	2032



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 15
KP&F
EMPLOYER CONTRIBUTION RATES FOR FISCAL YEARS
COMMENCING IN CALENDAR YEARS 2019 AND 2020**

Employer	Total Rate for Fiscal Year Commencing in 2019	Recommended Total Rate for Fiscal Year Commencing in 2020
Douglas County Law Enforcement	24.87 %	24.58 %
Ford County	22.13	21.93
Franklin County Sheriff's Dept	22.13	21.93
Gray County Sheriff's Dept.	22.13	21.93
Harvey County Sheriff's Dept.	22.13	21.93
Johnson County Fire Dept.	22.13	21.93
Johnson County Fire No. 1	22.13	21.93
Johnson County Fire No. 2	22.13	21.93
Johnson County Park Commission	22.13	21.93
Johnson County Sheriff's Dept.	22.13	21.93
Labette County Sheriff's Dept.	24.25	24.08
Reno County Sheriff's Dept.	22.13	21.93
Riley County Law Enforcement	22.13	21.93
Sedgwick County Fire No. 1	22.13	21.93
Sedgwick County Sheriff's Dept.	22.13	21.93
Sedgwick County EMT's	22.13	21.93
Shawnee County Sheriff's Dept.	22.13	21.93
Sumner County Sheriff's Dept.	23.21	22.52
Unified Gov't of Wyandotte County	22.13	21.93
City of Abilene	22.13	21.93
City of Arkansas City	22.13	21.93
City of Atchison	22.13	21.93
City of Bonner Springs	22.13	21.93
City of Chanute	22.13	21.93
City of Cimarron	22.13	21.93
City of Coffeyville	22.13	21.93
City of Concordia	22.13	21.93
City of Derby	22.13	21.93
City of Dodge City	27.78	27.56
City of Emporia	22.13	21.93
City of Erie	22.13	21.93
City of Eudora	22.13	21.93
City of Fairway	22.13	21.93
City of Fort Scott	22.13	21.93
City of Herington	22.13	21.93
City of Hutchinson	22.13	21.93
City of Junction City	22.13	21.93



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 15 (cont.)
KP&F
EMPLOYER CONTRIBUTION RATES FOR FISCAL YEARS
COMMENCING IN CALENDAR YEARS 2019 AND 2020**

Employer	Total Rate for Fiscal Year Commencing in 2019	Recommended Total Rate for Fiscal Year Commencing in 2020
City of Lawrence	22.13 %	21.93 %
City of Leavenworth	22.13	21.93
City of Leawood	22.60	21.93
City of Lenexa	22.13	21.93
City of Manhattan	22.13	21.93
City of Merriam	22.13	21.93
City of McPherson	22.13	21.93
City of Mission	22.13	21.93
City of Newton EMTs	30.60	30.09
City of Newton	22.13	21.93
City of Olathe	22.13	21.93
City of Ottawa	22.13	21.93
City of Parsons	22.13	21.93
City of Pittsburg	22.13	21.93
City of Salina	22.13	21.93
City of Shawnee	22.13	21.93
City of Topeka	22.13	21.93
City of Wellington	22.13	21.93
City of Westwood	22.13	21.93
City of Winfield	22.13	21.93
Board of Regents Campus Police	22.11	21.93
Kansas Bureau of Investigation	22.11	21.93
Kansas Highway Patrol	22.11	21.93
Cowley County Sheriff's Dept	22.13	21.93
City of Gardner Public Safety Officers	22.13	21.93
City of Liberal Police & Firemen	22.13	21.93
City of Oswego	22.13	21.93
Leavenworth County	22.13	21.93
Pottawatomie County	22.13	21.93
City of Roeland Park	22.13	21.93
City of Edwardsville Police	24.09	23.68
City of Garden City	22.13	21.93
City of Lake Quivira	22.13	21.93
City of Paola	22.13	21.93
City of Winfield (EMS)	22.13	21.93
Miami County	22.13	21.93
Atchinson County	22.13	21.93



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 15 (cont.)
KP&F
EMPLOYER CONTRIBUTION RATES FOR FISCAL YEARS
COMMENCING IN CALENDAR YEARS 2019 AND 2020**

Employer	Total Rate for Fiscal Year Commencing in 2019	Recommended Total Rate for Fiscal Year Commencing in 2020
City of Park City	22.13 %	21.93 %
Dickinson County	22.13	21.93
Leavenworth County (EMS)	22.13	21.93
City of Basehor	22.13	21.93
City of Edwardsville Firemen	25.87	25.56
City of Marion	22.13	21.93
City of Overbrook	22.13	21.93
Leavenworth County Fire District #1	22.13	21.93
Shawnee Heights Fire District	22.13	21.93
City of Lansing	22.13	21.93
State Fire Marshall	22.11	21.93
Seward County	22.13	21.93
City of Hays	22.13	21.93
Ellis County	22.13	21.93
City of Baldwin City	22.13	21.93
McPherson County Rural Fire District #9	22.13	21.93
City of Spring Hill	22.13	21.93
City of Andover	22.13	21.93
Kearny County	22.13	21.93
Neosho County	22.13	21.93
Clark County	22.13	21.93
City of Wakefield	22.13	21.93
Russell County	22.13	21.93
City of Rossville	22.13	21.93
City of Goddard	22.13	21.93
City of El Dorado	22.13	21.93
Northwest Consolidated Fire District	22.13	21.93
City of Girard	22.13	21.93
City of Overland Park	22.13	21.93
City of Victoria	22.13	21.93
City of Burden	22.13	21.93
City of Augusta	22.13	21.93
Ottawa County	22.13	21.93



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 16A
KP&F EMPLOYER ADDITIONAL CONTRIBUTION RATES
PRIOR SERVICE LIABILITY
FOR FISCAL YEARS BEGINNING IN 2020

Table with 3 columns: Employer, 1/1/2018 Unfunded Prior Service Liability, and Payment on Unfunded Liability. Lists various employers like Douglas County Law Enforcement, Johnson County Sheriff's Dept, etc.



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 16A (cont.)
KP&F EMPLOYER ADDITIONAL CONTRIBUTION RATES
PRIOR SERVICE LIABILITY
FOR FISCAL YEARS BEGINNING IN 2020

Table with 3 columns: Employer, 1/1/2018 Unfunded Prior Service Liability, and Payment on Unfunded Liability. Lists various employers and their corresponding liability values.



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 16A (cont.)
KP&F EMPLOYER ADDITIONAL CONTRIBUTION RATES
PRIOR SERVICE LIABILITY
FOR FISCAL YEARS BEGINNING IN 2020

Table with 3 columns: Employer, 1/1/2018 Unfunded Prior Service Liability, and Payment on Unfunded Liability. Rows list various employers like City of Park City, Dickinson County, etc., and a Total row at the bottom.



SECTION 5 – EMPLOYER CONTRIBUTIONS

**TABLE 16B
KP&F EMPLOYER ADDITIONAL CONTRIBUTION RATES
PRIOR SERVICE LIABILITY - AFFILIATION AFTER 1/1/06
FOR FISCAL YEAR BEGINNING IN 2020**

Effective for affiliations on or after January 1, 2006, the payment on the unfunded actuarial liability due to affiliation for prior service is amortized as a fixed level dollar payment. No adjustment is made to the employer contribution rate for these payments.

Employer	Year Affiliated	Unfunded Actuarial Liability on Jan 1 Following Affiliation	Annual Payment Due Jan 1, 2019 to Amortize Unfunded Liability	Final Payment Year
None				

Note: Only employers with remaining obligations as of the valuation date are shown.



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 17
KP&F EMPLOYER ADDITIONAL CONTRIBUTION RATES
FOR FISCAL YEARS BEGINNING IN 2020

Table with 5 columns: Employer, Number of Employees, Total Estimated 2020 Payroll, Payment on Unfunded Liability (Table 16), and As Percent of Payroll. Rows list various employers like Douglas County Law Enforcement, Ford County, etc., with their respective employee counts and payroll values.



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 17 (cont.)
KP&F EMPLOYER ADDITIONAL CONTRIBUTION RATES
FOR FISCAL YEARS BEGINNING IN 2020

Table with 5 columns: Employer, Number of Employees, Total Estimated 2020 Payroll, Payment on Unfunded Liability (Table 16), and As Percent of Payroll. Lists various employers like City of Lenexa, City of Manhattan, etc., with their respective employee counts and payroll values.



SECTION 5 – EMPLOYER CONTRIBUTIONS

TABLE 17 (cont.)
KP&F EMPLOYER ADDITIONAL CONTRIBUTION RATES
FOR FISCAL YEARS BEGINNING IN 2020

Table with 5 columns: Employer, Number of Employees, Total Estimated 2020 Payroll, Payment on Unfunded Liability (Table 16), and As Percent of Payroll. Rows include various cities and counties like City of Overbrook, Leavenworth County Fire District #1, etc., ending with a Total row.



SECTION 6 – HISTORICAL FUNDING AND OTHER INFORMATION

SECTION 6

HISTORICAL FUNDING AND OTHER INFORMATION

The actuarial liability is a measure intended to help the reader assess (i) a retirement system’s funded status on a “going concern” basis and (ii) progress being made toward accumulating the assets needed to pay benefits as due. Allocation of the actuarial present value of projected benefits between past and future service was based on service using the Entry Age Normal actuarial cost method. Assumptions, including projected pay increases, were the same as used to determine the System's level percent of payroll annual required contribution between entry age and assumed exit age. Entry age was established by subtracting credited service from current age on the valuation date. The Entry Age Normal actuarial liability was determined as part of an actuarial valuation of the System as of December 31, 2017. The actuarial assumptions used in determining the actuarial liability can be found in Appendix C.



SECTION 6 – HISTORICAL FUNDING AND OTHER INFORMATION

TABLE 18
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
HISTORICAL FUNDING INFORMATION
(All Groups Combined)

Schedule of Funding Progress

(\$ in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Liability (AL) (b)	Unfunded AL (UAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAL as a Percent of Covered Payroll ((b-a)/c)
12/31/2003	\$10,853,462	\$14,439,546	\$3,586,084	75%	\$4,978,132	72%
12/31/2004	10,971,427	15,714,092	4,742,666	70%	5,102,016	93%
12/31/2005	11,339,293	16,491,762	5,152,469	69%	5,270,351	98%
12/31/2006	12,189,197	17,552,791	5,363,593	69%	5,599,193	96%
12/31/2007	13,433,115	18,984,915	5,551,800	71%	5,949,228	93%
12/31/2008	11,827,619	20,106,787	8,279,168	59%	6,226,526	133%
12/31/2009	13,461,221	21,138,206	7,676,985	64%	6,532,496	118%
12/31/2010	13,589,658	21,853,783	8,264,125	62%	6,494,048	127%
12/31/2011	13,379,020	22,607,170	9,228,150	59%	6,401,462	144%
12/31/2012	13,278,490	23,531,423	10,252,933	56%	6,498,962	158%
12/31/2013	14,562,765	24,328,670	9,765,906	60%	6,509,809	150%
12/31/2014	15,662,010	25,130,467	9,468,457	62%	6,560,105	144%
12/31/2015	17,408,578	25,947,781	8,539,203	67%	6,603,613	129%
12/31/2016	18,256,373	27,317,754	9,061,381	67%	6,650,451	136%
12/31/2017	19,246,613	28,153,827	8,907,214	68%	6,744,301	132%



SECTION 6 – HISTORICAL FUNDING AND OTHER INFORMATION

TABLE 19
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
HISTORICAL FUNDING INFORMATION
(All Groups Combined)

Schedule of Employer Contributions

For the Fiscal Year Ended June 30

<u>Year</u>	<u>Actuarial Required Contribution</u>	<u>Percentage Contributed</u>
2001	\$277,096,692	77.6%
2002	289,519,647	79.7%
2003	311,365,296	78.9%
2004	317,900,432	74.0%
2005	381,791,085	68.6%
2006	471,424,006	63.4%
2007	531,292,151	63.9%
2008	607,662,300	65.1%
2009	660,833,664	68.0%
2010	682,062,413	72.1%
2011	709,964,322	74.1%
2012	843,361,836	67.4%
2013	825,196,972	74.9%
2014	842,285,931	79.4%
2015	908,019,000	74.5%
2016	891,638,000	80.9% *
2017	920,789,000	80.9%

This information is as reported by KPERS. Cavanaugh Macdonald Consulting has relied on the accuracy of the numbers as provided and has not verified them.

* Includes the long-term receivable contribution of \$97.4 million for the State/School group which was subsequently written off in FY 2017.



SECTION 6 – HISTORICAL FUNDING AND OTHER INFORMATION

TABLE 20
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
HISTORICAL FUNDING INFORMATION

Historical Contribution Rates

Table with 7 columns: Valuation Date, Actuarial, State/School Statutory, Local Actuarial, Local Statutory, KP&F*, Judges*. Rows show contribution rates from 12/31/2000 to 12/31/2017.

* KP&F and Judges contribute the full actuarial contribution rate.

(1) Actuarial cost method changed to Entry Age Normal for valuations on or after 12/31/2003.

(2) Recertified from 9.97% after passage of Sub HB 2333 in the 2012 session.

(3) 11.27% for the first half of the fiscal year. Reduced by the governor's allotment and SB 4 to 8.65% for the second half of the fiscal year.

(4) Recertified from 12.37% to 10.91% and 13.57% to 10.81% after passage of SB 228 in the 2015 session.

(5) Although the rates were not revised, the full contribution amounts were not made.



SECTION 6 – ACCOUNTING AND OTHER INFORMATION

TABLE 21
KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
PROJECTED BENEFIT PAYMENTS

Table with 8 columns: Year, State, School, Local, Total KPERS, KP&F, Judges, Total. Rows represent years from 2018 to 2042.

Note: Cash flows are the expected future non-discounted payments to current members. These numbers exclude refund payouts to current non-vested inactives and assume future retirees elect the normal form of payment and future withdrawals elect refunds according to valuation assumptions.



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APPENDIX A - SUMMARY OF MEMBERSHIP DATA

HISTORICAL SUMMARY OF MEMBERS

The following tables display selected historical data for KPERS, KP&F and Judges as available.

KPERS

Valuation		Active Members						Number			Act/Ret Ratio
		Average						Deferred Disabled*	Inactives	Retired	
Date December 31	Total Count	Number	Age	Entry Age	Service	Annual Pay (\$)	Pay Increase				
2000	222,968	137,086	44.2	34.1	10.1	30,307	N/A		34,667	51,215	2.68
2001	229,185	139,253	44.4	34.2	10.2	31,279	3.2%		37,175	52,757	2.64
2002	234,023	140,498	44.7	34.3	10.4	31,634	1.1%		39,420	54,105	2.60
2003	237,123	141,401	45.0	34.4	10.6	32,111	1.5%	2,933	37,280	55,509	2.55
2004	238,375	140,779	45.3	34.4	10.8	32,937	2.6%	3,004	37,191	57,401	2.45
2005	241,684	142,047	45.3	34.4	10.9	33,724	2.4%	3,099	37,015	59,523	2.39
2006	245,555	144,227	45.4	34.6	10.8	35,284	4.6%	3,007	36,513	61,808	2.33
2007	249,624	146,406	45.5	34.7	10.8	36,924	4.6%	2,911	37,140	63,167	2.32
2008	255,427	148,569	45.6	34.7	10.9	38,087	3.1%	2,823	37,567	66,468	2.24
2009	264,280	153,386	45.4	34.7	10.7	38,749	1.7%	2,781	39,212	68,901	2.23
2010	265,477	150,482	45.6	34.9	10.7	40,109	3.5%	2,749	40,122	72,124	2.09
2011	267,713	147,647	45.6	34.4	11.2	40,166	0.1%	2,711	41,358	75,997	1.94
2012	272,561	148,605	45.5	34.3	11.2	40,522	0.9%	2,575	41,991	79,390	1.87
2013	275,983	147,957	45.5	34.2	11.3	40,684	0.4%	2,436	43,660	81,930	1.81
2014	281,172	146,746	45.4	34.2	11.2	41,367	1.7%	2,340	46,503	85,583	1.71
2015	284,912	144,669	45.4	34.2	11.2	42,149	1.9%	2,210	49,488	88,545	1.63
2016	290,025	144,564	45.4	34.2	11.2	42,460	0.7%	2,051	52,140	91,270	1.58
2017	296,383	143,947	45.3	34.2	11.1	43,128	1.6%	1,904	56,402	94,130	1.53

*Prior to 2003, deferred disabled members were included in the Inactives count.



APPENDIX A - SUMMARY OF MEMBERSHIP DATA

**HISTORICAL SUMMARY OF MEMBERS
(continued)**

KP&F

Valuation		Active Members						Number			Act/Ret Ratio
Date December 31	Total Count	Average						Deferred Disabled*	Inactives	Retired	
		Number	Age	Entry Age	Service	Annual Pay (\$)	Pay Increase				
2000	10,083	6,258	38.1	27.7	10.4	44,511	N/A		794	3,031	2.06
2001	10,471	6,405	38.3	27.7	10.6	46,483	4.4%		855	3,211	1.99
2002	10,847	6,548	38.4	27.8	10.6	47,580	2.4%		961	3,338	1.96
2003	11,007	6,464	38.8	27.9	11.0	49,017	3.0%		1,087	3,456	1.87
2004	11,528	6,721	38.9	28.0	11.0	51,014	4.1%	187	1,062	3,558	1.89
2005	11,719	6,772	38.9	27.9	11.0	52,222	2.4%	194	1,099	3,654	1.85
2006	12,070	6,965	39.0	28.1	11.0	53,939	3.3%	186	1,134	3,785	1.84
2007	12,210	7,137	39.1	28.1	11.0	56,068	3.9%	175	1,143	3,755	1.90
2008	12,499	7,242	39.1	28.0	11.1	57,800	3.1%	173	1,175	3,909	1.85
2009	12,556	7,179	39.5	28.1	11.4	60,287	4.3%	181	1,136	4,060	1.77
2010	12,691	7,173	39.6	28.2	11.4	61,805	2.5%	181	1,169	4,168	1.72
2011	12,863	7,143	39.6	27.9	11.7	61,907	0.2%	197	1,208	4,315	1.66
2012	13,109	7,187	39.5	27.8	11.7	62,489	0.9%	203	1,194	4,525	1.59
2013	13,276	7,224	39.6	27.8	11.8	63,928	2.3%	208	1,174	4,670	1.55
2014	13,463	7,204	39.7	27.8	11.9	64,156	0.4%	210	1,196	4,853	1.48
2015	13,762	7,244	39.5	27.8	11.7	65,925	2.8%	210	1,243	5,065	1.43
2016	14,090	7,303	39.3	27.7	11.6	66,441	0.8%	204	1,351	5,232	1.40
2017	14,533	7,481	39.1	27.8	11.3	67,875	2.2%	200	1,454	5,398	1.39

*Prior to 2003, deferred disabled members were included in the Inactives count.



APPENDIX A - SUMMARY OF MEMBERSHIP DATA

**HISTORICAL SUMMARY OF MEMBERS
(continued)**

JUDGES

Valuation		Active Members						Number		Act/Ret Ratio
Date December 31	Total Count	Average						Inactives	Retired	
		Number	Age	Entry Age	Service	Annual Pay (\$)	Pay Increase			
2000	411	247	54.2	43.5	10.8	84,794		14	150	1.65
2001	417	252	54.4	43.9	10.5	85,625	1.0%	18	147	1.71
2002	417	248	55.0	43.9	11.1	86,116	0.6%	15	154	1.64
2003	424	250	55.1	43.8	11.3	86,770	0.8%	15	159	1.56
2004	435	251	55.5	43.9	11.6	88,761	2.3%	18	166	1.51
2005	444	254	55.7	44.1	11.6	90,585	2.1%	19	171	1.47
2006	447	257	56.2	44.2	11.9	96,743	6.8%	18	172	1.49
2007	455	261	56.6	44.8	11.8	101,732	5.2%	14	180	1.45
2008	463	262	57.1	45.2	11.9	104,159	2.4%	11	190	1.38
2009	483	266	57.1	45.6	11.5	105,709	1.5%	14	203	1.31
2010	480	264	57.8	45.7	12.1	107,019	1.2%	10	206	1.28
2011	486	264	58.1	45.5	12.6	109,387	2.2%	7	215	1.23
2012	494	261	58.3	46.0	12.3	107,584	(1.6)%	6	227	1.15
2013	514	265	57.8	46.1	11.7	107,364	(0.2)%	6	243	1.09
2014	516	253	58.2	46.3	11.9	108,411	1.0%	6	257	0.98
2015	526	262	58.4	46.4	12.0	108,166	(0.2)%	8	256	1.02
2016	533	252	58.1	46.5	11.6	107,633	(0.5)%	9	272	0.93
2017	544	259	58.0	46.6	11.4	109,391	1.6%	6	279	0.93



APPENDIX A - SUMMARY OF MEMBERSHIP DATA

SUMMARY OF DATA FILE RECONCILIATION

The following table reconciles the data Cavanaugh Macdonald Consulting received from KPERS to the final membership counts used in the valuation.

Records on the in-pay data file	120,354
Removed deaths prior to 12/31/17	(20,579)
Records removed because the member has received all benefits or is not eligible for KPERS benefits	(583)
Removed certain periods ending within six months	(27)
Added new retirees from supplemental file	<u>642</u>
Records used in the valuation	99,807
Records on the not-in-pay data file	240,682
Records removed because the member has received all benefits or is not eligible for KPERS benefits	(28,450)
Records removed because the member began receiving benefits	<u>(579)</u>
Records used in the valuation	211,653

These records are allocated as follows:

	State	School	Local	KP&F	Judges
Active members	21,427	84,239	38,281	7,481	259
Inactive vested members	3,663	13,051	6,212	198	6
Inactive nonvested members	4,660	17,491	11,325	1,256	0
Deferred disabled members	<u>578</u>	<u>765</u>	<u>561</u>	<u>200</u>	<u>0</u>
Total	30,328	115,546	56,379	9,135	265
Retirees and beneficiaries	20,075	53,521	20,534	5,398	279
GRAND TOTAL	50,403	169,067	76,913	14,533	544



APPENDIX A – SUMMARY OF MEMBERSHIP DATA

SUMMARY OF MEMBERSHIP DATA

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
ACTIVE MEMBER DATA

	12/31/2017	12/31/2016	Change
State			
Number	21,427	21,879	(2.1%)
KPERs 1	11,288	12,384	(8.9%)
KPERs 2	5,278	5,878	(10.2%)
KPERs 3	4,861	3,617	34.4%
Average Current Age	46.67	46.69	(0.0%)
Average Service	12.12	12.16	(0.3%)
Average Pay	\$44,166	\$42,926	2.9%
School			
Number	84,239	84,321	(0.1%)
KPERs 1	41,670	45,149	(7.7%)
KPERs 2	20,218	22,981	(12.0%)
KPERs 3	22,351	16,191	38.0%
Average Current Age	44.99	45.02	(0.1%)
Average Service	11.24	11.34	(0.9%)
Average Pay	\$41,524	\$41,152	0.9%
State/School			
Number	105,666	106,200	(0.5%)
KPERs 1	52,958	57,533	(8.0%)
KPERs 2	25,496	28,859	(11.7%)
KPERs 3	27,212	19,808	37.4%
Average Current Age	45.33	45.36	(0.1%)
Average Service	11.42	11.51	(0.8%)
Average Pay	\$42,060	\$41,517	1.3%
Local			
Number	38,281	38,364	(0.2%)
KPERs 1	17,914	19,476	(8.0%)
KPERs 2	8,827	10,185	(13.3%)
KPERs 3	11,540	8,703	32.6%
Average Current Age	45.37	45.37	0.0%
Average Service	10.27	10.27	0.0%
Average Pay	\$46,078	\$45,068	2.2%



APPENDIX A – SUMMARY OF MEMBERSHIP DATA

SUMMARY OF MEMBERSHIP DATA

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
ACTIVE MEMBER DATA

	12/31/2017	12/31/2016	Change
KPERS Total			
Number	143,947	144,564	(0.4%)
KPERS 1	70,872	77,009	(8.0%)
KPERS 2	34,323	39,044	(12.1%)
KPERS 3	38,752	28,511	35.9%
Average Current Age	45.34	45.37	(0.1%)
Average Service	11.11	11.18	(0.6%)
Average Pay	\$43,128	\$42,460	1.6%
KP&F			
Number	7,481	7,303	2.4%
Tier 1	111	149	(25.5%)
Tier 2	7,370	7,154	3.0%
Average Current Age	39.06	39.34	(0.7%)
Average Service	11.33	11.58	(2.2%)
Average Pay	\$67,875	\$66,441	2.2%
Judges			
Number	259	252	2.8%
Average Current Age	58.03	58.14	(0.2%)
Average Service	11.42	11.59	(1.5%)
Average Pay	\$109,391	\$107,633	1.6%
System Total			
Number	151,687	152,119	(0.3%)
Average Current Age	45.05	45.10	(0.1%)
Average Service	11.12	11.20	(0.7%)
Average Pay	\$44,462	\$43,719	1.7%



APPENDIX A – SUMMARY OF MEMBERSHIP DATA

SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
INACTIVE MEMBER DATA**

	12/31/2017	12/31/2016	Change
State			
Inactive Vested	3,663	3,571	2.6%
Inactive Nonvested	4,660	4,274	9.0%
Deferred Disabled	578	632	(8.5%)
School			
Inactive Vested	13,051	11,828	10.3%
Inactive Nonvested	17,491	15,837	10.4%
Deferred Disabled	765	825	(7.3%)
Local			
Inactive Vested	6,212	5,810	6.9%
Inactive Nonvested	11,325	10,820	4.7%
Deferred Disabled	561	594	(5.6%)
KPERS Total			
Inactive Vested	22,926	21,209	8.1%
Inactive Nonvested	33,476	30,931	8.2%
Deferred Disabled	1,904	2,051	(7.2%)
KP&F			
Inactive Vested	198	181	9.4%
Inactive Nonvested	1,256	1,170	7.4%
Deferred Disabled	200	204	(2.0%)
Judges			
Inactive Vested	6	9	(33.3%)
Inactive Nonvested	0	0	0.0%
Deferred Disabled	0	0	0.0%
System Total			
Inactive Vested	23,130	21,399	8.1%
Inactive Nonvested	34,732	32,101	8.2%
Deferred Disabled	2,104	2,255	(6.7%)



APPENDIX A – SUMMARY OF MEMBERSHIP DATA

SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
RETIREE MEMBER DATA**

	12/31/2017	12/31/2016	Change
State			
Number	18,083	17,700	2.2%
Average Benefit	\$14,803	\$14,596	1.4%
Average Age	72.20	72.07	0.2%
School			
Number	50,692	49,108	3.2%
Average Benefit	\$15,763	\$15,504	1.7%
Average Age	72.17	72.01	0.2%
Local			
Number	18,522	17,849	3.8%
Average Benefit	\$12,629	\$12,214	3.4%
Average Age	71.96	71.85	0.2%
KPERS Total			
Number	87,297	84,657	3.1%
Average Benefit	\$14,899	\$14,620	1.9%
Average Age	72.13	71.99	0.2%
KP&F			
Number	4,466	4,306	3.7%
Average Benefit	\$36,665	\$35,848	2.3%
Average Age	64.97	64.74	0.4%
Judges			
Number	219	211	3.8%
Average Benefit	\$45,325	\$44,603	1.6%
Average Age	74.71	74.24	0.6%
System Total			
Number	91,982	89,174	3.1%
Average Benefit	\$16,028	\$15,716	2.0%
Average Age	71.79	71.65	0.2%



APPENDIX A – SUMMARY OF MEMBERSHIP DATA

SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
BENEFICIARY MEMBER DATA**

	12/31/2017	12/31/2016	Change
State			
Number	1,992	1,952	2.0%
Average Benefit	\$9,220	\$9,175	0.5%
Average Age	76.73	76.64	0.1%
School			
Number	2,829	2,705	4.6%
Average Benefit	\$9,425	\$9,246	1.9%
Average Age	76.37	76.15	0.3%
Local			
Number	2,012	1,956	2.9%
Average Benefit	\$7,527	\$7,388	1.9%
Average Age	74.97	74.69	0.4%
KPERS Total			
Number	6,833	6,613	3.3%
Average Benefit	\$8,806	\$8,675	1.5%
Average Age	76.06	75.86	0.3%
KP&F			
Number	932	926	0.6%
Average Benefit	\$17,408	\$17,030	2.2%
Average Age	68.94	68.16	1.1%
Judges			
Number	60	61	(1.6%)
Average Benefit	\$29,696	\$30,509	(2.7%)
Average Age	76.55	77.48	(1.2%)
System Total			
Number	7,825	7,600	3.0%
Average Benefit	\$9,991	\$9,868	1.2%
Average Age	75.22	74.93	0.4%



APPENDIX A – SUMMARY OF MEMBERSHIP DATA

SUMMARY OF MEMBERSHIP DATA

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM RETIREE AND BENEFICIARY MEMBER DATA

	12/31/2017	12/31/2016	Change
State			
Number	20,075	19,652	2.2%
Average Benefit	\$14,249	\$14,058	1.4%
Average Age	72.64	72.52	0.2%
School			
Number	53,521	51,813	3.3%
Average Benefit	\$15,428	\$15,177	1.7%
Average Age	72.39	72.22	0.2%
Local			
Number	20,534	19,805	3.7%
Average Benefit	\$12,129	\$11,737	3.3%
Average Age	72.25	72.13	0.2%
KPERS Total			
Number	94,130	91,270	3.1%
Average Benefit	\$14,457	\$14,190	1.9%
Average Age	72.41	72.27	0.2%
KP&F			
Number	5,398	5,232	3.2%
Average Benefit	\$33,340	\$32,517	2.5%
Average Age	65.66	65.35	0.5%
Judges			
Number	279	272	2.6%
Average Benefit	\$41,964	\$41,442	1.3%
Average Age	75.11	74.97	0.2%
System Total			
Number	99,807	96,774	3.1%
Average Benefit	\$15,555	\$15,257	2.0%
Average Age	72.05	71.90	0.2%



APPENDIX A – SUMMARY OF MEMBERSHIP DATA

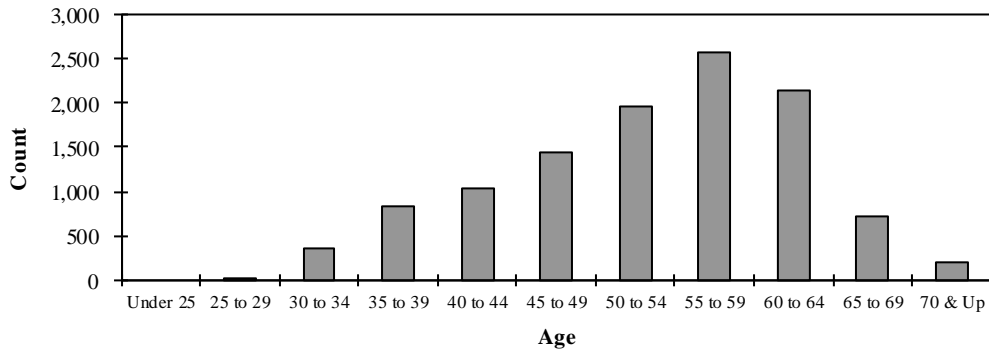
**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS
as of December 31, 2017**

STATE - KPERS 1*

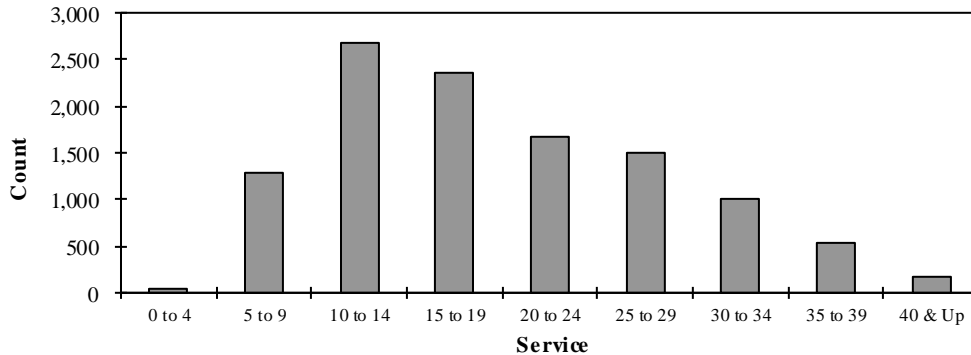
Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	0	0	0	0	0	0	0	0	0	0
25 to 29	0	17	2	0	0	0	0	0	0	19
30 to 34	0	197	155	0	0	0	0	0	0	352
35 to 39	1	225	464	133	1	0	0	0	0	824
40 to 44	1	146	419	411	60	0	0	0	0	1,037
45 to 49	1	137	362	453	384	104	7	0	0	1,448
50 to 54	8	147	341	388	393	459	230	3	0	1,969
55 to 59	19	166	422	455	401	494	401	200	12	2,570
60 to 64	10	163	341	377	320	315	273	255	87	2,141
65 to 69	1	69	140	115	96	95	78	65	66	725
70 & Up	0	23	42	34	25	34	16	15	14	203
Total	41	1,290	2,688	2,366	1,680	1,501	1,005	538	179	11,288

* Closed effective July 1, 2009.

Age Distribution



Service Distribution





APPENDIX A – SUMMARY OF MEMBERSHIP DATA

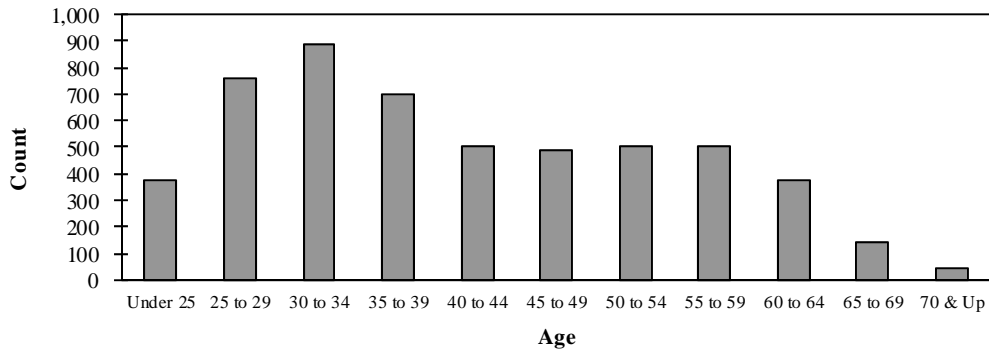
**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS
as of December 31, 2017**

STATE - KPERS 2*

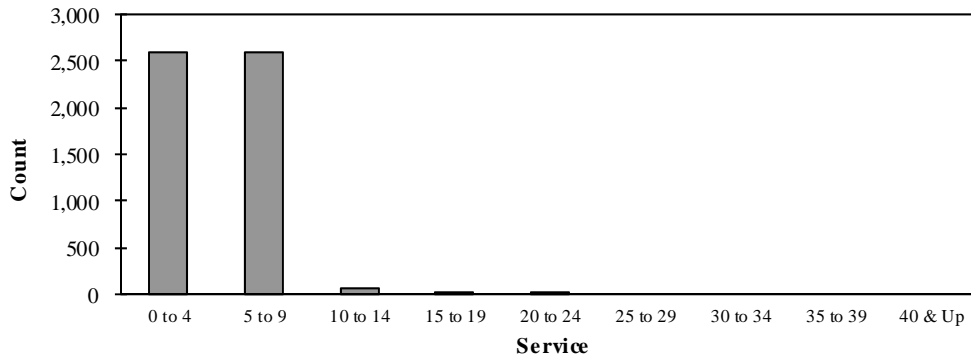
Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	369	3	0	0	0	0	0	0	0	372
25 to 29	540	219	0	0	0	0	0	0	0	759
30 to 34	425	458	1	0	0	0	0	0	0	884
35 to 39	280	405	16	1	0	0	0	0	0	702
40 to 44	214	279	6	1	0	0	0	0	0	500
45 to 49	205	273	10	2	0	0	0	0	0	490
50 to 54	214	280	9	2	2	0	0	0	0	507
55 to 59	184	305	12	2	1	0	0	0	0	504
60 to 64	113	250	7	7	0	0	0	0	0	377
65 to 69	35	102	4	1	0	0	0	0	0	142
70 & Up	13	26	2	0	0	0	0	0	0	41
Total	2,592	2,600	67	16	3	0	0	0	0	5,278

* Effective date of KPERS 2 was July 1, 2009. Closed effective January 1, 2015.

Age Distribution



Service Distribution





APPENDIX A – SUMMARY OF MEMBERSHIP DATA

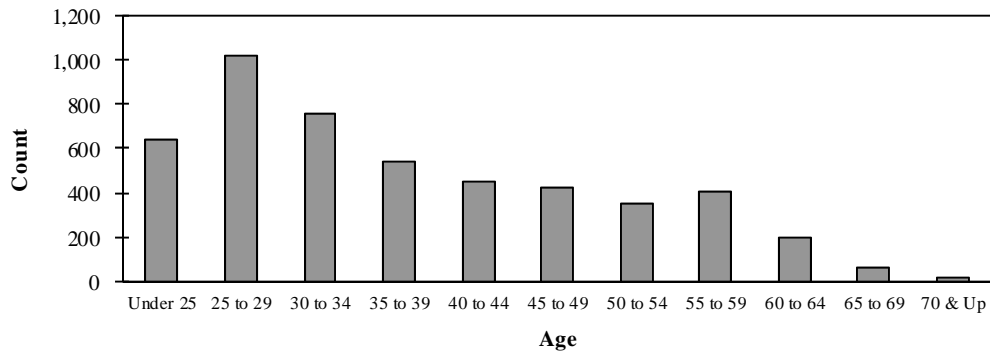
**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS
as of December 31, 2017**

STATE - KPERS 3*

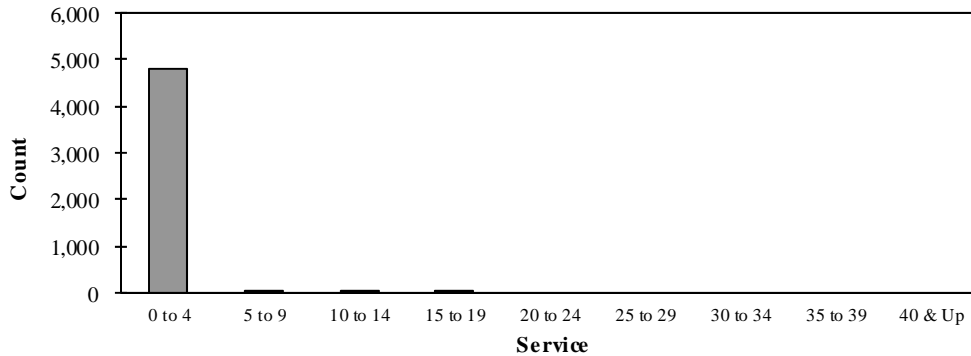
Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	638	0	0	0	0	0	0	0	0	638
25 to 29	1,014	2	0	0	0	0	0	0	0	1,016
30 to 34	753	8	0	0	0	0	0	0	0	761
35 to 39	531	7	0	0	0	0	0	0	0	538
40 to 44	445	7	0	0	0	0	0	0	0	452
45 to 49	418	2	0	0	0	0	0	0	0	420
50 to 54	341	11	1	1	0	0	0	0	0	354
55 to 59	399	2	3	0	0	0	0	0	0	404
60 to 64	196	2	0	0	0	0	0	0	0	198
65 to 69	65	0	0	0	0	0	0	0	0	65
70 & Up	15	0	0	0	0	0	0	0	0	15
Total	4,815	41	4	1	0	0	0	0	0	4,861

* Effective date of KPERS 3 was January 1, 2015

Age Distribution



Service Distribution





APPENDIX A – SUMMARY OF MEMBERSHIP DATA

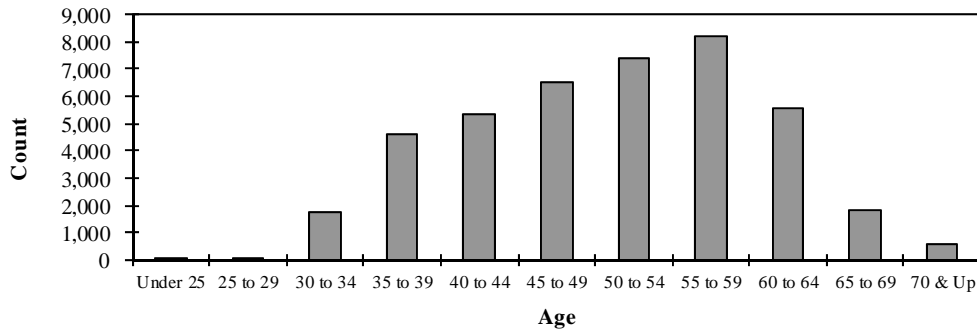
**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS
as of December 31, 2017**

SCHOOL - KPERS 1*

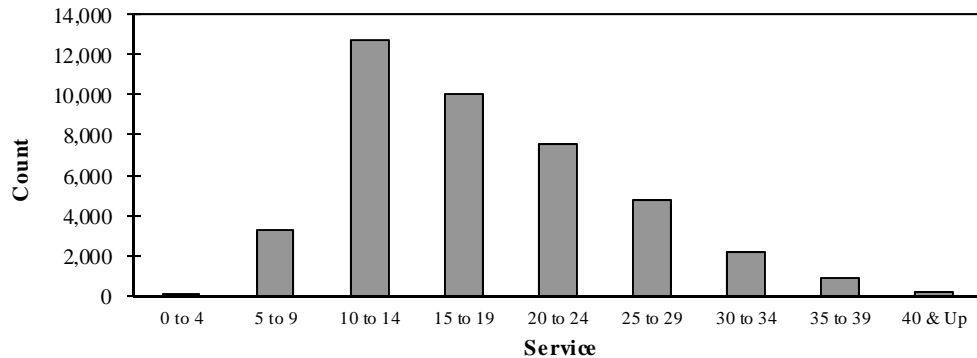
Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	0	0	1	0	0	0	0	0	0	1
25 to 29	1	21	12	0	0	0	0	0	0	34
30 to 34	6	739	978	7	0	1	0	0	0	1,731
35 to 39	0	486	3,376	732	6	0	0	0	0	4,600
40 to 44	2	420	1,711	2,666	505	4	0	0	0	5,308
45 to 49	2	417	1,695	1,605	2,324	446	3	0	0	6,492
50 to 54	2	359	1,698	1,577	1,442	1,925	422	5	0	7,430
55 to 59	5	358	1,627	1,784	1,632	1,282	1,179	309	6	8,182
60 to 64	4	250	1,081	1,146	1,282	783	412	501	104	5,563
65 to 69	0	123	393	363	322	259	148	82	97	1,787
70 & Up	0	68	152	113	80	52	34	14	29	542
Total	22	3,241	12,724	9,993	7,593	4,752	2,198	911	236	41,670

* Closed effective July 1, 2009.

Age Distribution



Service Distribution





APPENDIX A – SUMMARY OF MEMBERSHIP DATA

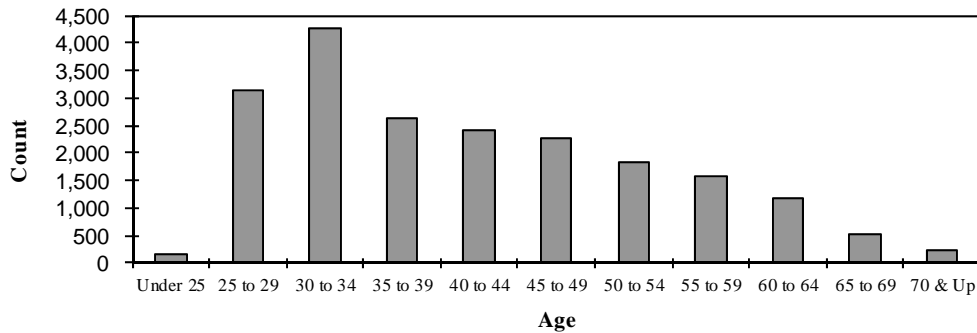
**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS
as of December 31, 2017**

SCHOOL - KPERS 2*

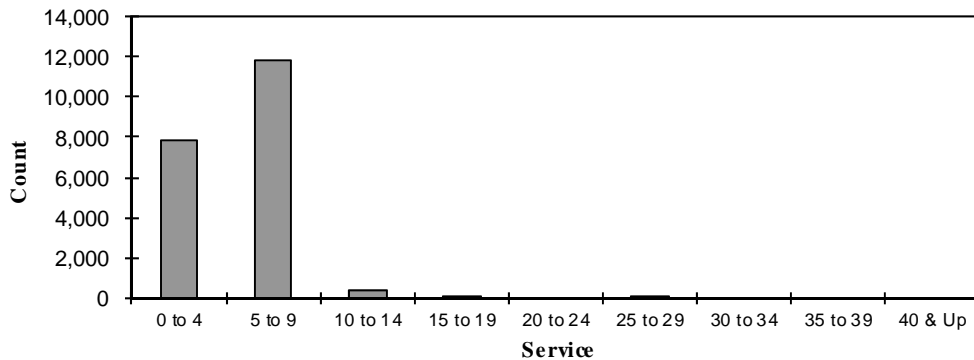
Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	150	14	0	0	0	0	0	0	0	164
25 to 29	1,965	1,162	1	0	0	0	0	0	0	3,128
30 to 34	1,188	3,042	44	0	0	0	0	0	0	4,274
35 to 39	984	1,554	108	1	0	0	0	0	0	2,647
40 to 44	873	1,422	93	25	0	0	0	0	0	2,413
45 to 49	819	1,358	62	14	0	0	0	0	0	2,253
50 to 54	621	1,135	48	7	0	1	0	0	0	1,812
55 to 59	578	949	45	12	0	0	0	0	0	1,584
60 to 64	431	720	24	11	0	2	0	0	0	1,188
65 to 69	182	327	8	0	0	0	0	0	0	517
70 & Up	86	151	1	0	0	0	0	0	0	238
Total	7,877	11,834	434	70	0	3	0	0	0	20,218

* Effective date of KPERS 2 was July 1, 2009. Closed effective January 1, 2015.

Age Distribution



Service Distribution





APPENDIX A – SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

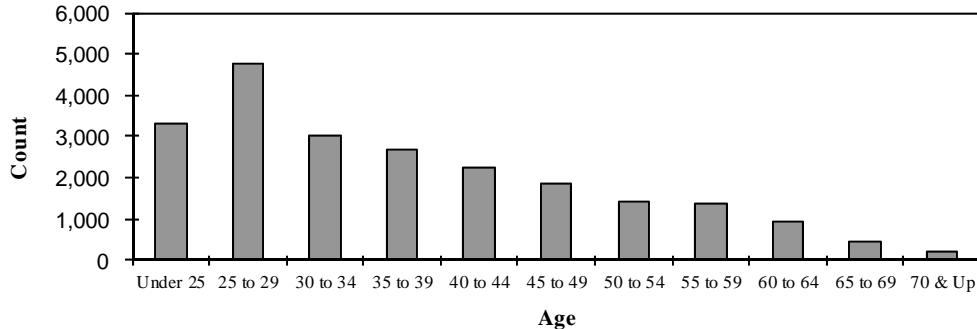
as of December 31, 2017

SCHOOL - KPERS 3*

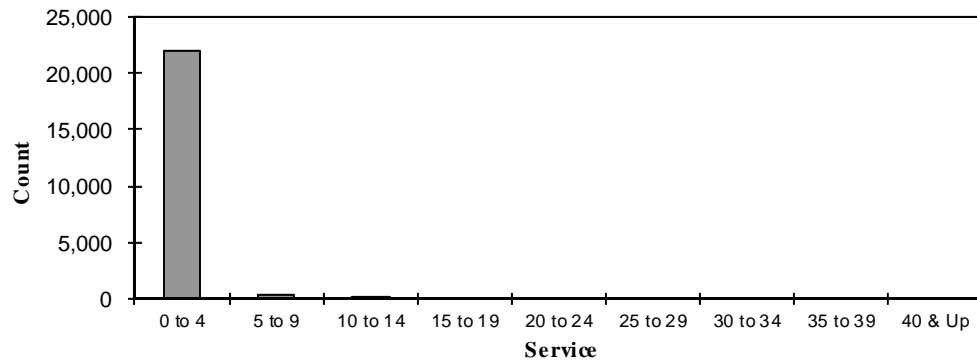
Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	3,316	1	0	0	0	0	0	0	0	3,317
25 to 29	4,754	35	0	0	0	0	0	0	0	4,789
30 to 34	2,923	84	0	0	0	0	0	0	0	3,007
35 to 39	2,675	30	0	0	0	0	0	0	0	2,705
40 to 44	2,218	29	0	0	0	0	0	0	0	2,247
45 to 49	1,841	30	0	0	0	0	0	0	0	1,871
50 to 54	1,425	20	1	0	0	0	0	0	0	1,446
55 to 59	1,351	20	1	0	0	0	0	0	0	1,372
60 to 64	942	10	1	0	0	0	0	0	0	953
65 to 69	425	8	0	0	0	0	0	0	0	433
70 & Up	211	0	0	0	0	0	0	0	0	211
Total	22,081	267	3	0	0	0	0	0	0	22,351

* Effective date of KPERS 3 was January 1, 2015

Age Distribution



Service Distribution





APPENDIX A – SUMMARY OF MEMBERSHIP DATA

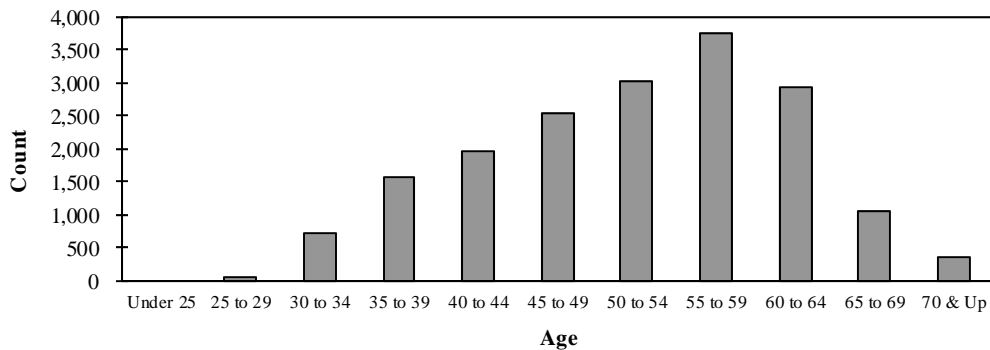
**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS
as of December 31, 2017**

LOCAL - KPERS 1*

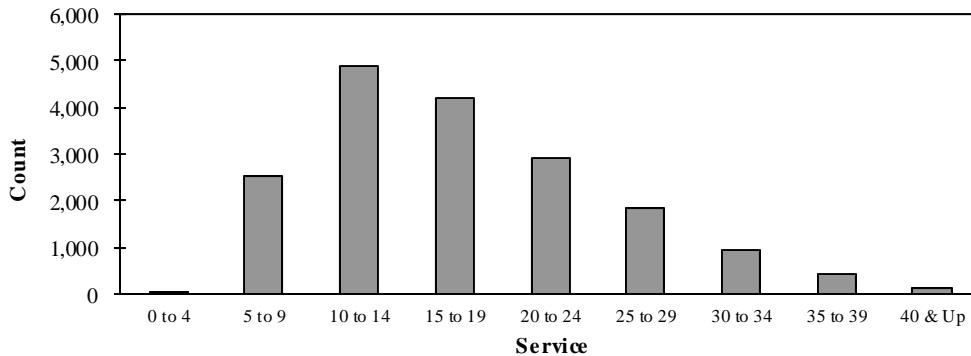
Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	0	0	0	0	0	0	0	0	0	0
25 to 29	0	55	5	0	0	0	0	0	0	60
30 to 34	2	425	294	5	0	0	0	0	0	726
35 to 39	3	435	882	248	7	0	0	0	0	1,575
40 to 44	7	319	719	748	178	0	0	0	0	1,971
45 to 49	1	300	697	780	571	168	6	0	0	2,523
50 to 54	1	282	654	703	636	519	213	6	0	3,014
55 to 59	2	297	722	792	738	591	394	195	11	3,742
60 to 64	0	259	567	630	569	418	243	172	66	2,924
65 to 69	0	98	260	213	198	126	80	32	33	1,040
70 & Up	0	56	82	75	41	31	24	12	18	339
Total	16	2,526	4,882	4,194	2,938	1,853	960	417	128	17,914

* Closed effective July 1, 2009.

Age Distribution



Service Distribution





APPENDIX A – SUMMARY OF MEMBERSHIP DATA

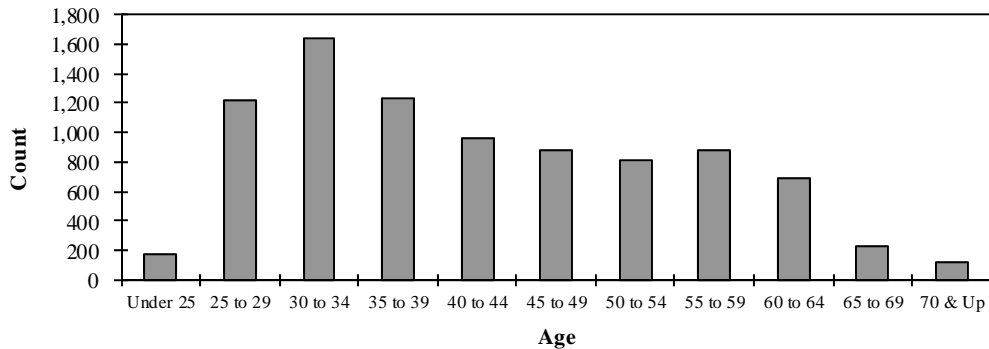
**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS
as of December 31, 2017**

LOCAL - KPERS 2*

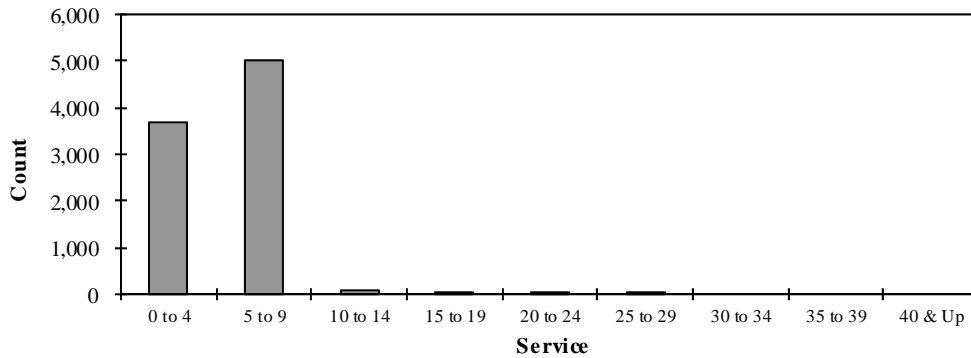
Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	163	16	0	0	0	0	0	0	0	179
25 to 29	702	511	0	0	0	0	0	0	0	1,213
30 to 34	643	976	14	0	0	0	0	0	0	1,633
35 to 39	497	718	15	1	0	0	0	0	0	1,231
40 to 44	399	545	20	0	0	0	0	0	0	964
45 to 49	343	513	15	2	1	0	0	0	0	874
50 to 54	311	484	17	4	0	0	0	0	0	816
55 to 59	316	552	10	3	0	0	0	0	0	881
60 to 64	226	453	9	4	1	2	0	0	0	695
65 to 69	56	164	6	0	0	0	0	0	0	226
70 & Up	28	82	5	0	0	0	0	0	0	115
Total	3,684	5,014	111	14	2	2	0	0	0	8,827

* Effective date of KPERS 2 was July 1, 2009. Closed effective January 1, 2015.

Age Distribution



Service Distribution





APPENDIX A – SUMMARY OF MEMBERSHIP DATA

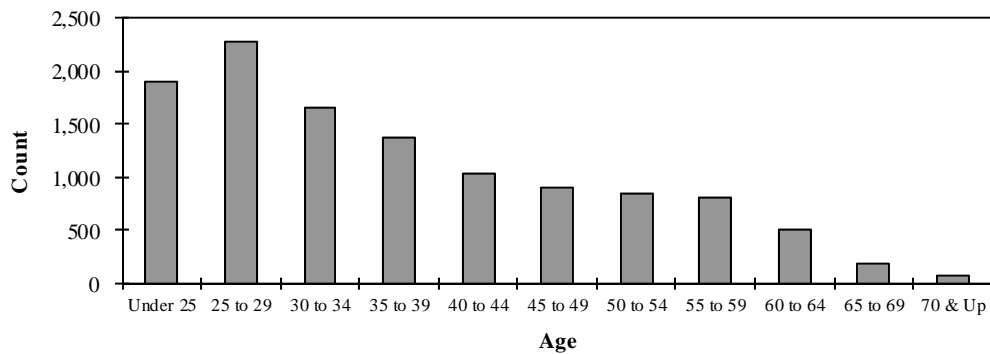
**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS
as of December 31, 2017**

LOCAL - KPERS 3*

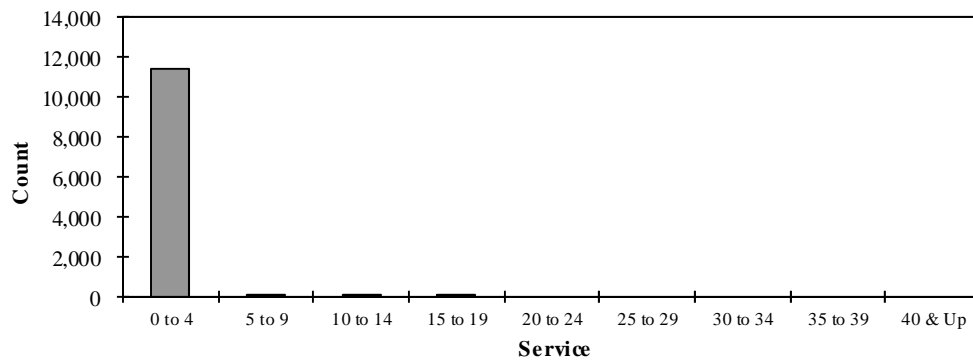
Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	1,890	1	0	0	0	0	0	0	0	1,891
25 to 29	2,255	22	0	0	0	0	0	0	0	2,277
30 to 34	1,630	25	0	0	0	0	0	0	0	1,655
35 to 39	1,359	15	0	0	0	0	0	0	0	1,374
40 to 44	1,028	13	0	0	0	0	0	0	0	1,041
45 to 49	890	8	1	0	0	0	0	0	0	899
50 to 54	836	7	1	0	0	0	0	0	0	844
55 to 59	791	6	1	0	0	0	0	0	0	798
60 to 64	495	6	0	0	0	0	0	0	0	501
65 to 69	181	1	0	1	0	0	0	0	0	183
70 & Up	77	0	0	0	0	0	0	0	0	77
Total	11,432	104	3	1	0	0	0	0	0	11,540

* Effective date of KPERS 3 was January 1, 2015

Age Distribution



Service Distribution





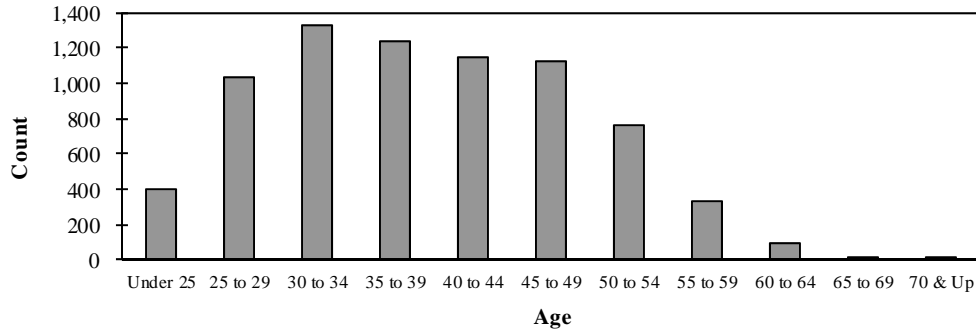
APPENDIX A – SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS
as of December 31, 2017**

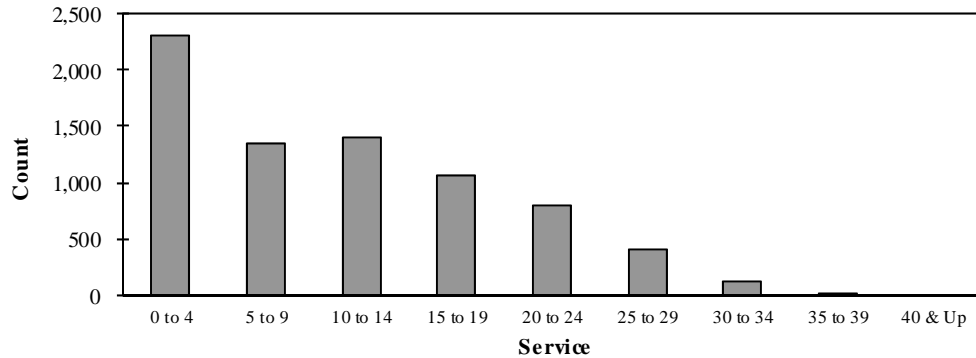
KP&F

Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	404	0	1	0	0	0	0	0	0	405
25 to 29	855	181	0	0	0	0	0	0	0	1,036
30 to 34	559	569	196	0	0	0	0	0	0	1,324
35 to 39	235	303	547	148	0	0	0	0	0	1,233
40 to 44	117	143	322	420	141	1	0	0	0	1,144
45 to 49	68	78	178	315	389	91	5	0	0	1,124
50 to 54	37	40	86	120	199	214	65	0	0	761
55 to 59	22	22	39	53	66	84	45	6	0	337
60 to 64	10	9	24	14	8	17	12	6	0	100
65 to 69	0	0	4	2	2	4	2	1	0	15
70 & Up	0	0	1	0	0	0	0	1	0	2
Total	2,307	1,345	1,398	1,072	805	411	129	14	0	7,481

Age Distribution



Service Distribution





APPENDIX A – SUMMARY OF MEMBERSHIP DATA

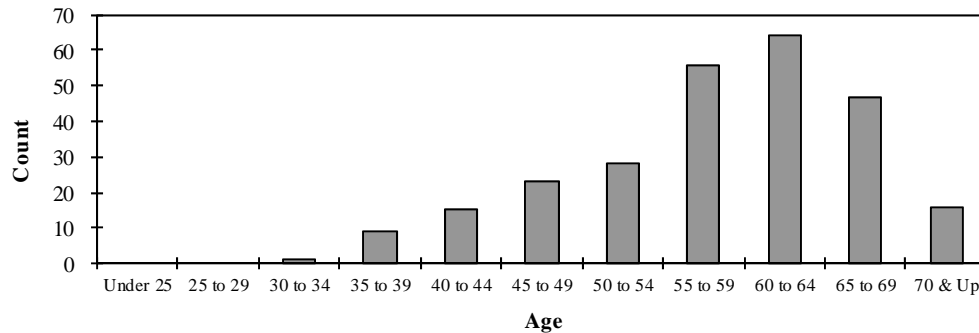
**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF ACTIVE MEMBERS**

as of December 31, 2017

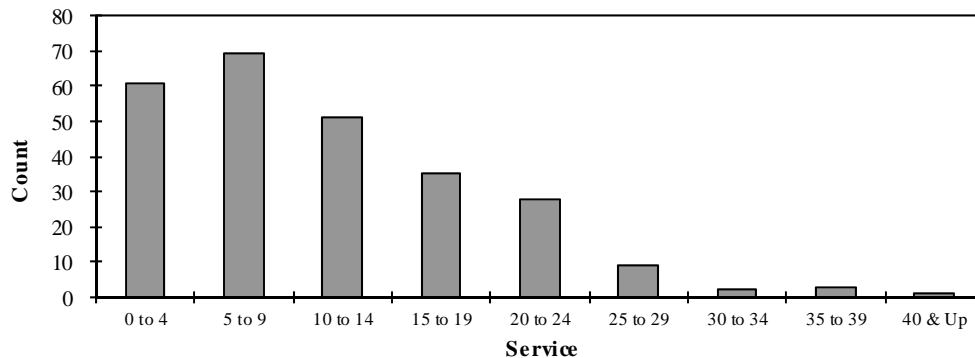
JUDGES

Age	Service										Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	1	0	0	0	0	0	0	0	0	1
35 to 39	6	3	0	0	0	0	0	0	0	0	9
40 to 44	10	5	0	0	0	0	0	0	0	0	15
45 to 49	16	4	2	0	1	0	0	0	0	0	23
50 to 54	6	13	7	1	1	0	0	0	0	0	28
55 to 59	8	15	19	11	3	0	0	0	0	0	56
60 to 64	9	17	12	11	7	7	1	0	0	0	64
65 to 69	5	10	7	9	12	2	1	1	0	0	47
70 & Up	1	1	4	3	4	0	0	2	1	0	16
Total	61	69	51	35	28	9	2	3	1	0	259

Age Distribution



Service Distribution





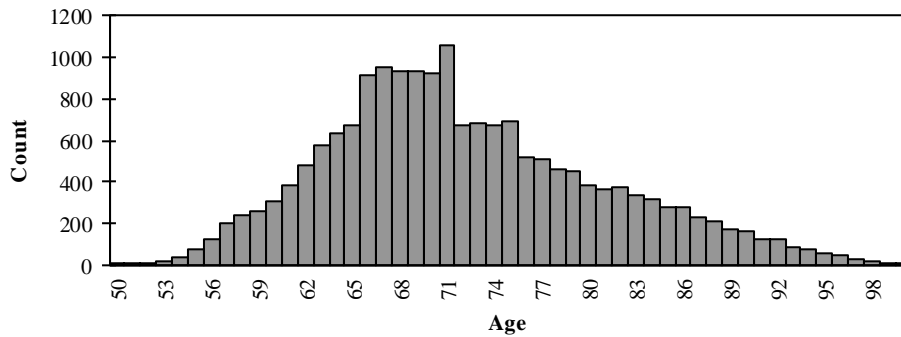
APPENDIX A – SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF RETIREES AND BENEFICIARIES**

as of December 31, 2017

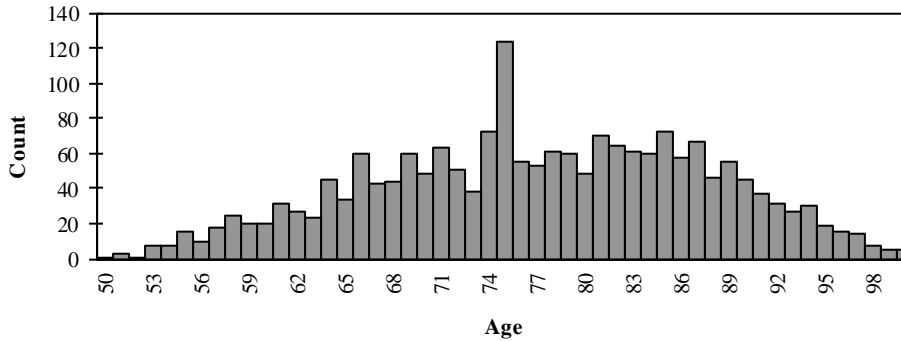
STATE

Retirees



Count: 18,083 Average age: 72.2 Average benefit: \$14,803

Beneficiaries



Count: 1,992 Average age: 76.7 Average benefit: \$9,220



APPENDIX A – SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF RETIREES AND BENEFICIARIES**

as of December 31, 2017

SCHOOL

Retirees



Count: 50,692 Average age: 72.2 Average benefit: \$15,763

Beneficiaries



Count: 2,829 Average age: 76.4 Average benefit: \$9,425



APPENDIX A – SUMMARY OF MEMBERSHIP DATA

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF RETIREES AND BENEFICIARIES
as of December 31, 2017

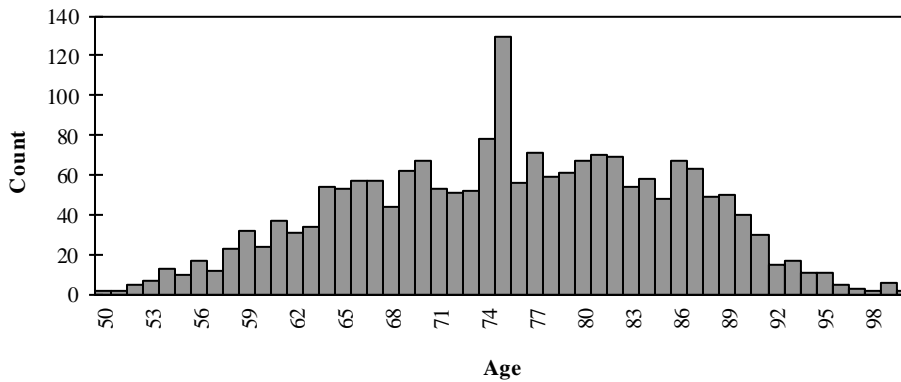
LOCAL

Retirees



Count: 18,522 Average age: 72.0 Average benefit: \$12,629

Beneficiaries



Count: 2,012 Average age: 75.0 Average benefit: \$7,527



APPENDIX A – SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF RETIREES AND BENEFICIARIES**

as of December 31, 2017

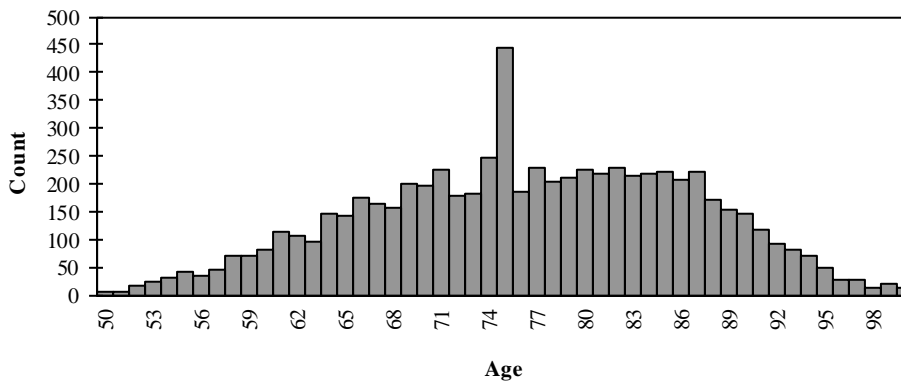
TOTAL KPERS

Retirees



Count: 87,297 Average age: 72.1 Average benefit: \$14,899

Beneficiaries



Count: 6,833 Average age: 76.1 Average benefit: \$8,806



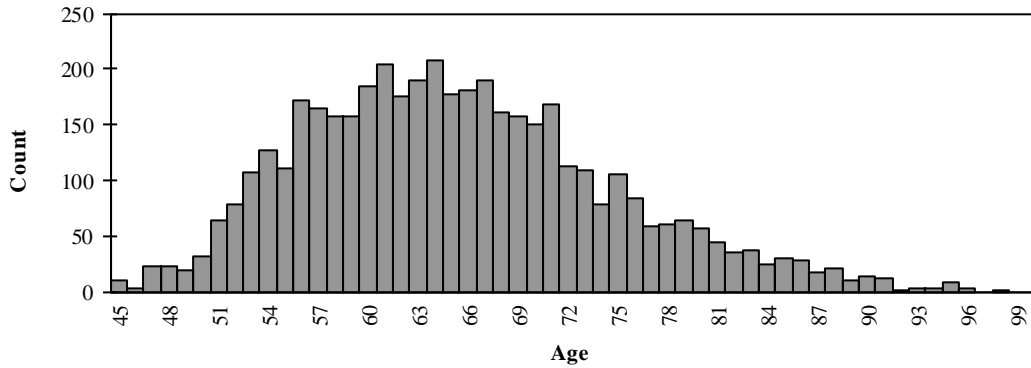
APPENDIX A – SUMMARY OF MEMBERSHIP DATA

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF RETIREES AND BENEFICIARIES

as of December 31, 2017

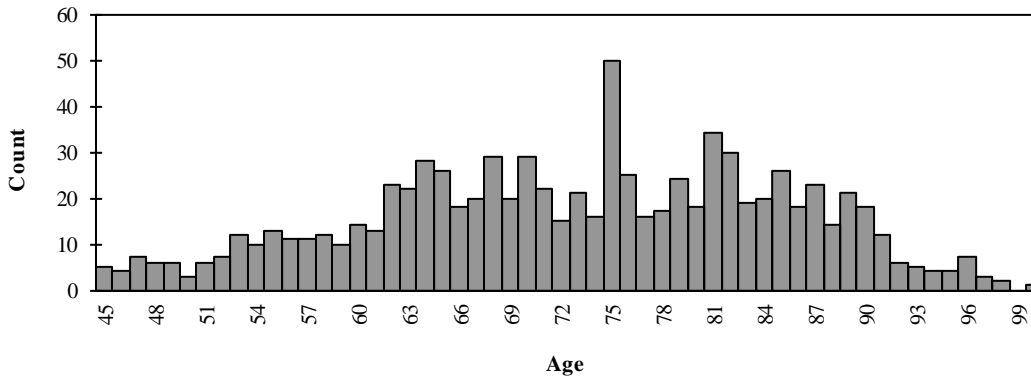
KP&F

Retirees



Count: 4,466 Average age: 65.0 Average benefit: \$36,665

Beneficiaries



Count: 932 Average age: 68.9 Average benefit: \$17,408



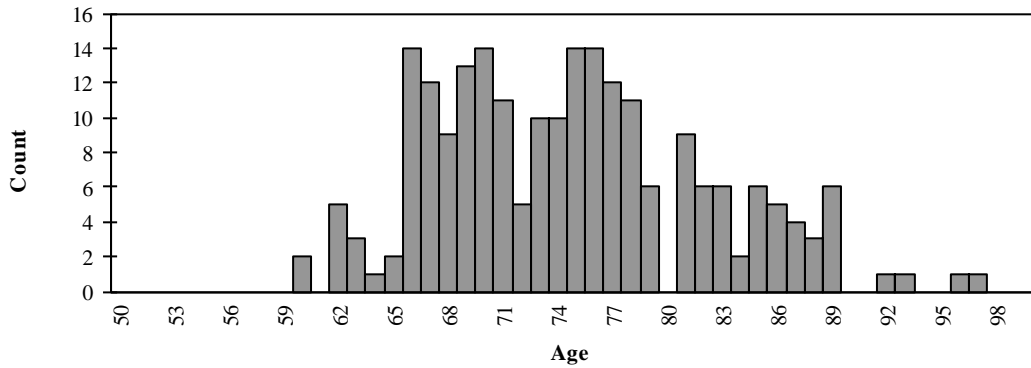
APPENDIX A – SUMMARY OF MEMBERSHIP DATA

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF RETIREES AND BENEFICIARIES

as of December 31, 2017

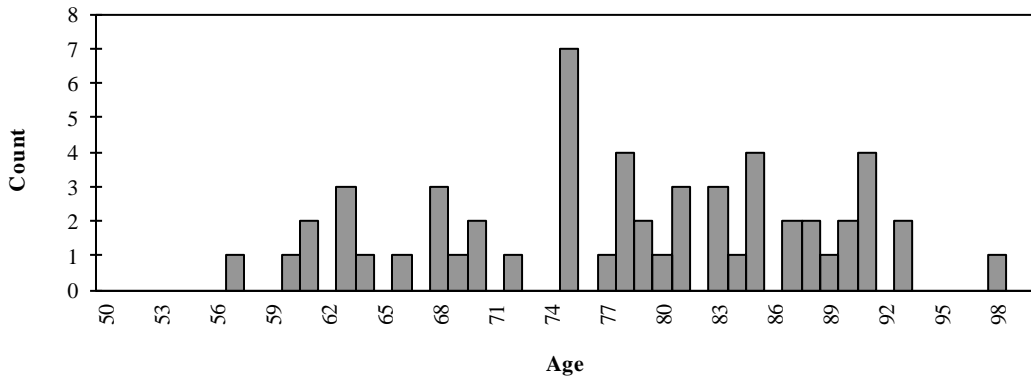
JUDGES

Retirees



Count: 219 Average age: 74.7 Average benefit: \$45,325

Beneficiaries



Count: 60 Average age: 76.6 Average benefit: \$29,696



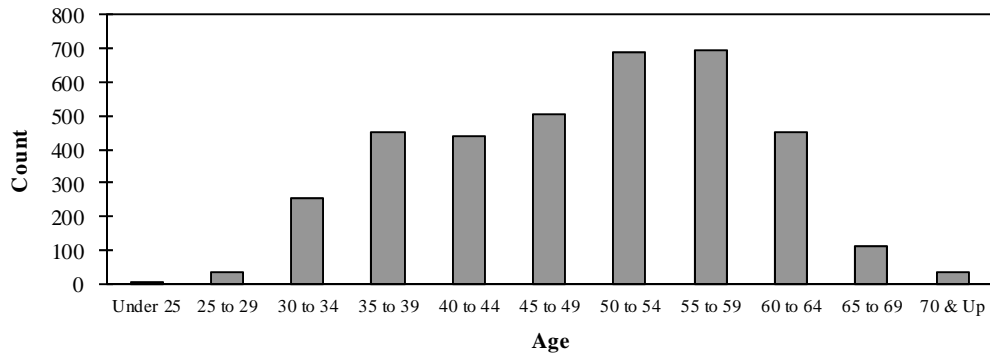
APPENDIX A – SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF INACTIVE VESTED MEMBERS
as of December 31, 2017**

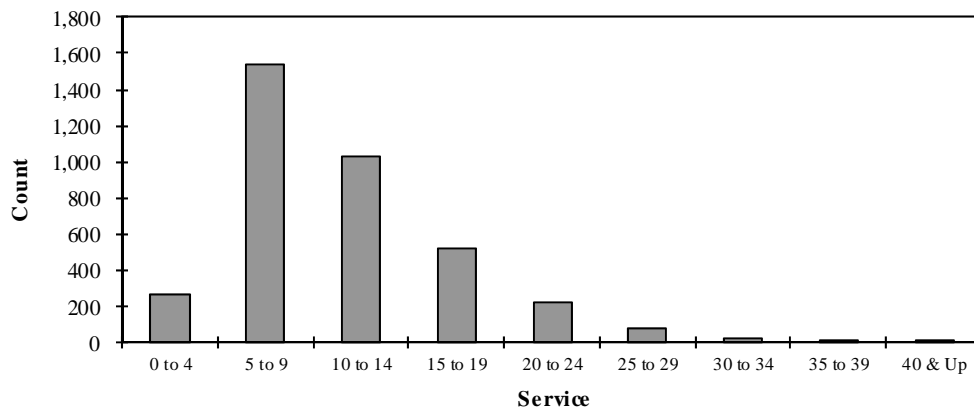
STATE

Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	2	0	0	0	0	0	0	0	0	2
25 to 29	8	29	0	0	0	0	0	0	0	37
30 to 34	58	185	13	0	0	0	0	0	0	256
35 to 39	45	314	83	7	0	0	0	0	0	449
40 to 44	31	237	130	38	1	0	0	0	0	437
45 to 49	25	188	180	78	33	3	0	0	0	507
50 to 54	15	187	229	144	74	31	6	0	0	686
55 to 59	17	188	229	151	74	30	2	1	0	692
60 to 64	23	170	139	79	27	5	8	1	0	452
65 to 69	20	32	19	16	10	9	3	3	1	113
70 & Up	16	5	8	2	1	0	0	0	0	32
Total	260	1,535	1,030	515	220	78	19	5	1	3,663

Age Distribution



Service Distribution





APPENDIX A – SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF INACTIVE VESTED MEMBERS
as of December 31, 2017**

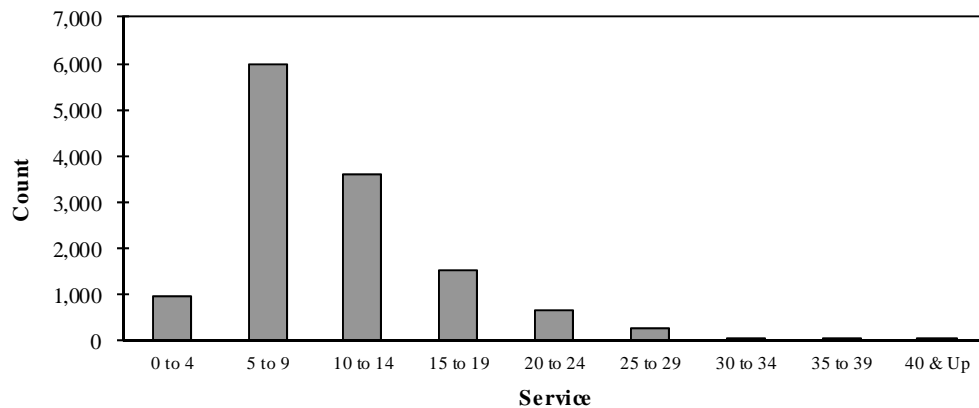
SCHOOL

Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	3	3	0	0	0	0	0	0	0	6
25 to 29	102	247	2	0	0	0	0	0	0	351
30 to 34	149	1,143	76	0	0	0	0	0	0	1,368
35 to 39	113	1,139	446	23	0	0	0	0	0	1,721
40 to 44	89	648	467	228	10	0	0	0	0	1,442
45 to 49	95	679	512	256	123	17	0	0	0	1,682
50 to 54	71	697	741	326	189	110	7	0	0	2,141
55 to 59	74	708	775	406	213	95	21	4	0	2,296
60 to 64	53	547	458	240	91	21	7	5	0	1,422
65 to 69	49	142	108	49	20	7	2	1	3	381
70 & Up	153	45	24	10	5	4	0	0	0	241
Total	951	5,998	3,609	1,538	651	254	37	10	3	13,051

Age Distribution



Service Distribution





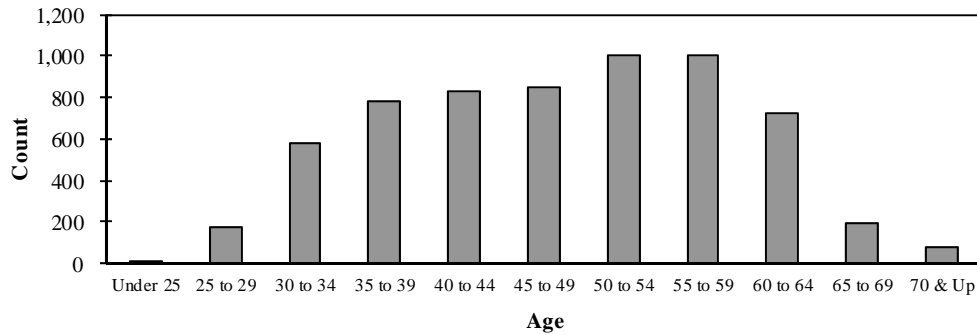
APPENDIX A – SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF INACTIVE VESTED MEMBERS
as of December 31, 2017**

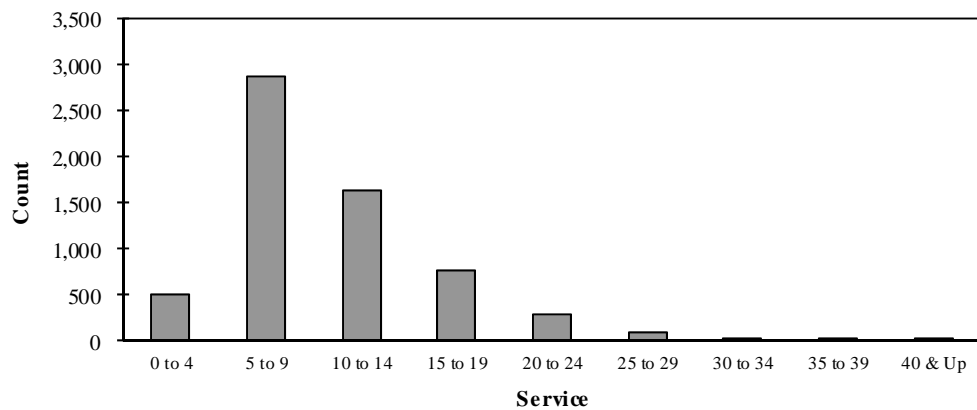
LOCAL

Age	Service									Total
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	
Under 25	3	2	0	0	0	0	0	0	0	5
25 to 29	69	108	0	0	0	0	0	0	0	177
30 to 34	99	443	33	1	0	0	0	0	0	576
35 to 39	80	520	167	11	0	0	0	0	0	778
40 to 44	50	417	247	109	11	0	0	0	0	834
45 to 49	23	341	277	153	44	6	0	0	0	844
50 to 54	35	318	320	197	99	25	9	0	0	1,003
55 to 59	52	311	331	168	92	46	3	3	0	1,006
60 to 64	34	326	206	92	41	17	7	2	1	726
65 to 69	26	79	45	24	7	2	3	1	2	189
70 & Up	43	15	8	4	2	1	1	0	0	74
Total	514	2,880	1,634	759	296	97	23	6	3	6,212

Age Distribution



Service Distribution





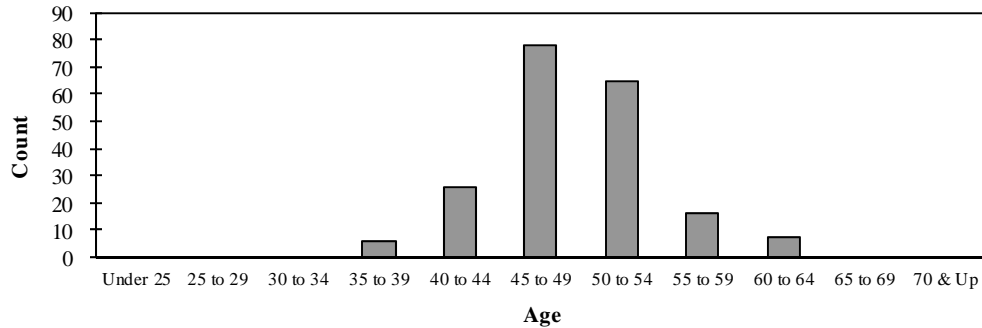
APPENDIX A – SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF INACTIVE VESTED MEMBERS
as of December 31, 2017**

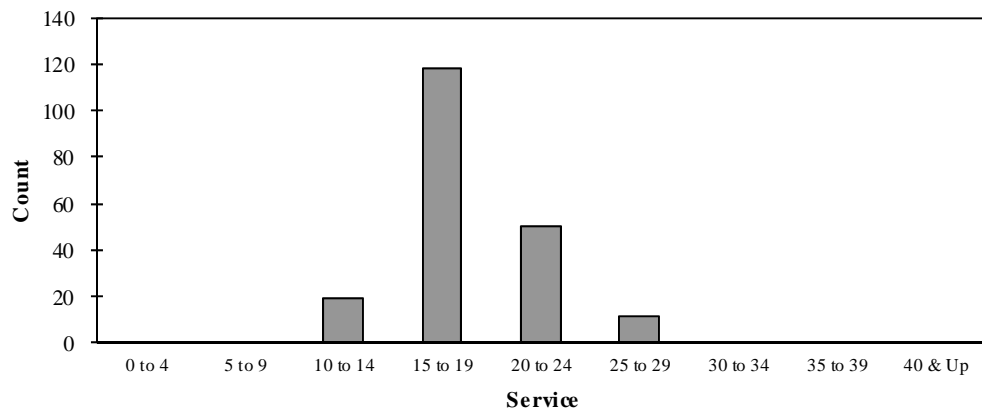
KP&F

Age	Service									Total	
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	2	4	0	0	0	0	0	0	6
40 to 44	0	0	4	21	1	0	0	0	0	0	26
45 to 49	0	0	8	41	25	4	0	0	0	0	78
50 to 54	0	0	4	35	19	7	0	0	0	0	65
55 to 59	0	0	0	13	3	0	0	0	0	0	16
60 to 64	0	0	1	4	2	0	0	0	0	0	7
65 to 69	0	0	0	0	0	0	0	0	0	0	0
70 & Up	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	19	118	50	11	0	0	0	0	198

Age Distribution



Service Distribution





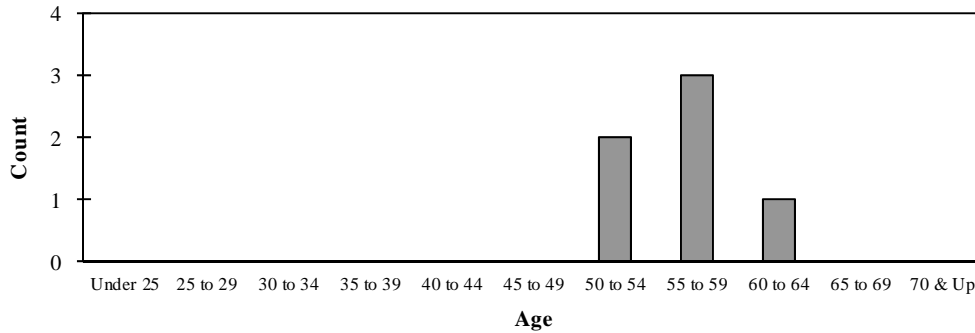
APPENDIX A – SUMMARY OF MEMBERSHIP DATA

**KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM
DISTRIBUTION OF INACTIVE VESTED MEMBERS
as of December 31, 2017**

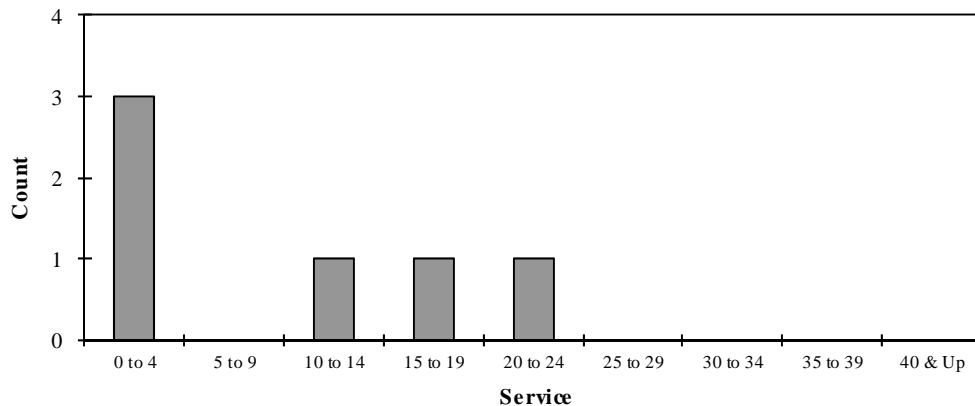
JUDGES

Age	Service									Total	
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up		
Under 25	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0	0
50 to 54	2	0	0	0	0	0	0	0	0	0	2
55 to 59	1	0	1	1	0	0	0	0	0	0	3
60 to 64	0	0	0	0	1	0	0	0	0	0	1
65 to 69	0	0	0	0	0	0	0	0	0	0	0
70 & Up	0	0	0	0	0	0	0	0	0	0	0
Total	3	0	1	1	1	0	0	0	0	0	6

Age Distribution



Service Distribution





APPENDIX B – SUMMARY OF PLAN PROVISIONS

Plan Membership

The Kansas Public Employees Retirement System (the Retirement System, or, the System), is an umbrella organization administering three statewide retirement systems: the Kansas Public Employees Retirement System (KPERS), the Kansas Police and Firemen’s Retirement System (KP&F), and the Kansas Retirement System for Judges. All three systems are defined benefit, contributory plans that cover nearly all public employees in Kansas. The Kansas Retirement System for Judges is a single employer plan, while the other two are cost-sharing, multiple employer plans. Participation by the State of Kansas is mandatory, whereas participation by local political subdivisions is optional, but irrevocable once elected. Benefit payments are also provided for a certain group of legislative employees.

KANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM Summary of Provisions *

* KPERS 2 refers to members who either began their participation or rehired on or after July 1, 2009, but before January 1, 2015. KPERS 3 refers to non-corrections members who either began their participation or rehired on or after January 1, 2015. Corrections members do not participate in KPERS 3.

This valuation reflects the benefit structure in place as of December 31, 2017.

Employee Membership

Membership is mandatory for all employees in covered positions, except elected officials. A covered position for non-school employees is one that is covered by Social Security, is not seasonal or temporary, and requires at least 1,000 hours of work per year. School employees who work at least 630 hours per year or 3.5 hours per day for at least 180 days are eligible for membership. Effective July 1, 2009, all employees become KPERS members on their date of employment. Prior to July 1, 2009, only School employees were covered immediately, but there was a one-year service requirement for the State and Local groups. Members who retire under the provisions of the Retirement System may not become contributing members again.

Normal Retirement

Eligibility –

KPERS 1: (a) Age 65, or (b) age 62 with ten years of credited service, or (c) any age when combined age and years of credited service equal 85 “points”. Age is determined by the member’s last birthday and is not rounded up.

KPERS 2 & 3: (a) Age 65 with 5 years of credited service or (b) age 60 with 30 years of credited service.

Benefit –

KPERS 1 & 2: Benefits are based on the member’s years of credited service, Final Average Salary (FAS), and a statutory multiplier. For those who were hired prior to July 1, 1993, Final Average Salary equals the greater of either: a four-year Final Average Salary, including add-ons, such as sick and annual leave; or a three-year Final Average Salary, excluding add-ons, such as sick and annual leave. For those who are hired on or after July 1, 1993 and before July 1, 2009, Final Average Salary equals the average of the three highest



APPENDIX B – SUMMARY OF PLAN PROVISIONS

years of salary, excluding add-ons, such as sick and annual leave. Effective July 1, 2009, (KPERS 2), Final Average Salary equals the average of the five highest years of salary, excluding additional compensation.

KPERS 3: KPERS 3 members participate in a cash balance plan with benefits based on the Annuity Savings Account balance, the Retirement Annuity Account balance, and an annuity factor. The member’s annuity factor at retirement is based on the member’s age and benefit payment form. The current annuity factors were adopted by the Board upon recommendation of the actuary. They are expected to be updated periodically. The interest rate used to calculate the current annuity factors is 5.75% (7.75% assumed investment return, minus 2.00%), and the mortality table used is a set of blended mortality rates from the current post-retirement mortality assumptions for KPERS members. The blended mortality rates are projected to 2030 using improvement scale MP-2016. The weighting used to blend the mortality rates is shown in the following table:

	<u>Members</u>	<u>Beneficiaries</u>
State – Males	17.5%	42.5%
State – Females	42.5%	17.5%
School – Males	7.5%	8.5%
School – Females	8.5%	7.5%
Local – Males	12.5%	11.5%
Local– Females	11.5%	12.5%

A member’s Annuity Savings Account balance is the sum of mandatory member contributions plus the interest credits and dividends on those contributions. A member’s Retirement Annuity Account is the sum of all employer retirement credits to the account plus the interest credits and dividends on those credits.

Mandatory member contributions are 6% of compensation. The employer retirement credits follow the schedule below:

<u>Years of Service</u>	<u>Retirement Credit Rate</u>
Less than 5	3%
5 – 11	4%
12 – 23	5%
24 or more	6%

Interest credits are 4% per annum, paid quarterly. The interest credits are based on the account balances as of the last day of the preceding quarter. There is also a possibility of additional interest credits, depending on KPERS’ investment return. These additional interest credits are called “dividends” and are equal to 75% of the five-year average net compound rate of return, as determined by the board, for the preceding calendar year and the previous four calendar years on the market value of assets that is above 6.0%. A schedule of historical dividend rates is contained in the following table:

<u>Year</u>	<u>Applicable Rate of Return</u>	<u>Compound Average</u>	<u>Dividend</u>
2015	0.2%	0.2%	0.0%
2016	8.5%	4.3%	0.0%
2017	14.0%	7.4%	1.1%



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Prior Service Credit – Prior service credit is 0.75% or 1.00% of Final Average Salary per year [School employees receive 0.75% of Final Average Salary for each year of prior service that is not credited under the former Kansas School Retirement System (KSRS)].

Participating Service Credit –

KPERS 1: Participating service credit is 1.75% of Final Average Salary for years of service prior to January 1, 2014. Participating service credit is 1.85% of Final Average Salary for years of service after December 31, 2013.

KPERS 2: For those retiring on or after January 1, 2012, participating service credit is 1.85% for all years of service.

KPERS 3: Not applicable for the Cash Balance Plan.

Early Retirement

Eligibility – Eligibility is age 55 and 10 years of credited service.

Benefit –

KPERS 1: The normal retirement benefit is reduced 0.2% per month for each month between the ages of 60 and 62, and 0.6% for each month between the ages of 55 and 60.

KPERS 2: The normal retirement benefit is reduced actuarially for early commencement. The reduction factor is 35.0% at age 60 and 57.5% at age 55. If the member has 30 years of credited service, the early retirement reduction is less (50% of regular reduction).

KPERS 3: The early retirement benefit is determined in the same manner as a normal retirement benefit, but is based on the account balances and annuity factor at the member's retirement age.

Vesting Requirements

Eligibility – Effective July 1, 2009, a member must have five years of credited service (ten years prior to July 1, 2009). Should the vested member terminate employment, the member must leave accumulated contributions on deposit with the Retirement System to be eligible for future benefits. If a vested member terminates employment and withdraws accumulated contributions, the member forfeits all rights and privileges under the Retirement System.

Benefit –

KPERS 1 & 2: Retirement benefits are payable when the vested member reaches normal retirement age, or reduced benefits are payable when the vested member reaches a specified early retirement age.

KPERS 3: Retirement benefits are payable when the vested member meets the retirement eligibility requirements and is based on the member's account balances at retirement. The member's vested account will be granted interest credits and dividends during the deferral period between termination of employment and retirement.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Other Benefits

Withdrawal Benefit – Members who terminate employment may withdraw contributions with interest after the last day on the employer’s payroll. Withdrawing member contributions forfeits all membership rights and benefits, which a member may have accrued prior to withdrawing their contributions from the Retirement System. Inactive, non-vested members who return to covered employment within five years after terminating employment, will not have lost any membership rights or privileges if they *haven’t* withdrawn contributions. The Retirement Act provides for withdrawal of contributions 31 days after employment terminates, but it does not allow members to borrow from contributions.

Disability Benefit –

KPERS 1 & 2: Members receiving disability benefits under the KPERS Death and Disability Benefits Program continue to receive service credit under KPERS. If a disabled member retires after receiving disability benefits for at least five years immediately preceding retirement, the member’s Final Average Salary is adjusted by the actuarial salary increase assumption rates in existence during the member’s period of disability prior to July 1, 1993, 5% per year to July, 1998 and the change in CPI-U less 1%, not to exceed 4% after July, 1998.

KPERS 3: For any KPERS 3 member who becomes disabled, such member’s Annuity Savings Account and Retirement Annuity Account will be credited with employee contributions, employer retirement credits, interest credits and dividends for the entire period of disability, but no later than the member’s normal retirement age. The salary upon which credits are based shall be the employee’s salary at the time of disability. After five years of disability, the underlying salary shall be increased by the lesser of (a) the percentage increase in CPI-U, minus 1%, and (b) 4% per annum.

Death Benefits – Pre-retirement death (non-service connected) –

KPERS 1 & 2: The member’s accumulated contributions plus interest are paid in a lump sum to the designated beneficiary. In lieu of receiving the member’s accumulated contributions, the surviving spouse of a member who is eligible to retire at death may elect to receive benefits under any survivor option. The spouse must be the member’s sole designated beneficiary to exercise this option. If the member had at least 10 years of credited service, but had not reached retirement age, the spouse may elect to leave the member’s contributions on deposit with the System and receive a monthly benefit to begin on the date the member would have been eligible to retire.

KPERS 3: If a vested member dies before attaining normal retirement age, the member’s surviving spouse shall receive an annuity on the date the member would have attained normal retirement age had such member not died. The benefit is based upon the member’s Annuity Savings Account and Retirement Annuity Account, and is payable as a single life annuity with 10-year certain.

Service-connected accidental death – The member’s accumulated contributions plus interest, plus lump sum amount of \$50,000, plus annual benefit based on 50% of Final Average Salary; reduced by Workers’ Compensation benefits and subject to a minimum benefit of \$100 a month; are payable to a spouse, minor children, or dependent parents, for life, or until the youngest child reaches age 18 (or up to age 23 if they are full-time students), in this order of preference. The monthly accidental death benefit is in lieu of any joint/survivor benefit for which the surviving spouse would have been eligible. For KPERS 3 members, Final Average Salary equals the average of the three final years of salary.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Post-retirement death – A lump sum amount of \$4,000 is payable to the member’s beneficiary. If the member has selected a retirement option, benefits are paid to the joint annuitant or the designated beneficiary. Under joint and survivor retirement options, if the joint annuitant predeceases the retired member, the reduced option benefit is increased to the amount the retired member would have received if no retirement option had been elected. Benefits payable to a joint annuitant cease at the joint annuitant’s death. If a member does not select an option, the designated beneficiary receives the excess, if any, of the member’s accumulated contributions plus interest over total benefits paid to date of death.

Member Contributions

KPERS 1: Prior to January 1, 2014, member contributions were 4% of compensation for KPERS 1. 2012 HB 2333 established an election by KPERS 1 members, contingent upon IRS approval, between different contribution rate and benefit levels. The legislation provided that, if the IRS rejected or did not take action to approve the election, KPERS 1 members would default to an increase in their employee contributions to 5% of compensation effective January 1, 2014, and 6% effective January 1, 2015, with an increase in the benefit multiplier to 1.85% beginning January 1, 2014, for future years of service only. Subsequently, the IRS issued a private letter ruling stating that the election granted to KPERS 1 members under 2012 HB 2333 was impermissible.

KPERS 2: The member contribution rate for KPERS 2 is 6% of compensation.

KPERS 3: The member contribution rate for KPERS 3 is 6% of compensation.

Interest on Member Contributions

KPERS 1: Interest is credited to members’ contribution accounts on June 30 each year, based on the account balance as of the preceding December 31. Those who became members prior to July 1, 1993, have interest credited to their accounts at the rate of 8% per year. Those who become members on and after July 1, 1993, have interest credited to their accounts at the rate of 4% per year.

KPERS 2: Interest is credited to members’ contribution accounts on June 30 each year, based on the account balance as of the preceding December 31, at the rate of 4% per year.

KPERS 3: Interest credited varies by years of service. Please refer to the KPERS 3 Benefit section under Normal Retirement in these Plan Provisions.

Employer Contributions

Rates are certified by the Board of Trustees, based on the results of annual actuarial valuations and statutory provisions.

Board of Regents Plan Members (TIAA and equivalents)

Board of Regents plan members (TIAA and equivalents) do not make contributions to KPERS. They receive prior service benefits for service before 1962; the benefit is 1% of Final Average Salary for each year of credited prior service. Service after 1961 is counted for purposes of determining eligibility for vesting.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Correctional Members

Correctional employees, as certified to the Board of Trustees by the Secretary of Corrections, are defined in K.S.A. 74-4914a: (a) correctional officers, (b) certain directors and deputy directors of correctional institutions, (c) correctional power plant operators, (d) correctional industries employees, (e) correctional food service employees, and (f) correctional maintenance employees.

KPERS 1: For groups (a) and (b) with at least 3 consecutive years of credited service in such positions immediately preceding retirement, normal retirement age is 55 or Rule of 85; and early retirement requirements are age 50 with 10 years of credited service. For groups (c), (d), (e), and (f) with at least 3 consecutive years of service in such positions immediately preceding retirement, normal retirement age is 60 or Rule of 85, and early retirement requirements are 55 with 10 years of credited service.

KPERS 2: For groups (a) and (b) with at least 3 consecutive years of credited service in such positions immediately preceding retirement, normal retirement age is 55 with 10 years of credited service, and early retirement requirements are age 50 with 10 years of credited service. For groups (c), (d), (e), and (f) with at least 3 consecutive years of service in such positions immediately preceding retirement, normal retirement age is 60 with 10 years of credited service, and early retirement requirements are 55 with 10 years of credited service.

Cost of Living Adjustments (COLAs)

KPERS 2 Members Who Retired Prior to July 1, 2012: 2% cost-of-living adjustment (COLA) each year beginning at age 65 or the second July 1 after the retirement date, whichever is later. Other KPERS 2 members will not receive a COLA.

KPERS 3: Upon retirement, the benefit option selected by the member may include a self-funded cost of living adjustment feature, in which the account value is converted to a benefit amount that increases by a fixed percentage over time.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

KANSAS POLICE & FIREMEN'S RETIREMENT SYSTEM

Normal Retirement

Tier I – age 55 and 20 years of service or 32 years of service (regardless of age).

Tier II – age 50 and 25 years of service, or age 55 and 20 years of service, or age 60 and 15 years of service.

Benefits – Benefits are based on the member's Final Average Salary. For those who were hired prior to July 1, 1993, Final Average Salary equals the average of the highest three of the last five years of credited participating service, including add-ons, such as sick and annual leave. For those who are hired on or after July 1, 1993, Final Average Salary equals the average of the highest three of the last five years of participating service, excluding add-ons, such as sick and annual leave. Benefits are based on a member's years of credited service and a multiplier of 2.5% of Final Average Salary for each year of credited service, to a maximum of 90% of Final Average Salary (first effective July 1, 2013).

Local Plan – For members covered by local plan provisions on the employer's entry date, normal retirement is at age 50 with 22 years of credited service.

Early Retirement

Eligibility – Members must be at least age 50 and have 20 years of credited service.

Benefit – Normal retirement benefits are reduced 0.4% per month under age 55.

Vesting Requirements

Eligibility – Tier I: The member must have 20 years of credited service; if terminating employment, the member must leave contributions on deposit with the Retirement System to be eligible for future benefits. Unreduced benefits are payable at age 55 or reduced benefits are payable as early as age 50.

Eligibility – Tier II: The member must have 15 years of credited service to be considered vested. If terminating employment, the member must leave contributions on deposit with the Retirement System to be eligible for future benefits. A vested member may draw unreduced benefits as early as age 50 with 25 years of credited service, age 55 with 20 years of credited service, or age 60 with 15 years of credited service. A reduced benefit is available at age 50 with 20 years of credited service.

Other Benefits

Withdrawal Benefits – Members who terminate employment before retirement may withdraw contributions with interest after the last day on the employer's payroll. Withdrawal of contributions forfeits all membership rights and benefits, which a member may have accrued prior to withdrawing accumulated contributions from the Retirement System. Inactive, nonvested members, who return to covered employment within five years after terminating employment, will not have lost any membership rights or privileges if they *haven't* withdrawn contributions.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Disability Benefits

Tier I: Service-connected disability – There are no age or service requirements to be eligible for this benefit. There is an annual benefit of 50% of Final Average Salary, plus 10% of Final Average Salary for each dependent child under age 18 (or up to age 23 for full-time students), to a maximum of 75% of Final Average Salary. If dependent child benefits aren't payable, the benefit is 50% of Final Average Salary or 2.5% for each year of credited service up to a maximum of 90% of Final Average Salary. Upon the death of a member after two years from the proximate cause of death which is the original service-connected disability, the same benefits are payable. Upon the death of a member after two years from a cause different than the disability for which the member is receiving service-connected disability benefits, the surviving spouse receives a lump sum payment of 50% of Final Average Salary. Additionally, a pension benefit of one-half the member's benefit is payable to either the spouse or to the dependent children.

Tier I: Non-Service-connected disability – An annual benefit of 2.5% times years of credited service times Final Average Salary with a minimum of 25% of FAS and a maximum of 90% of FAS.

Tier II: There is no distinction between service-connected and non-service-connected disability benefits. The annual benefit is 50% of Final Average Salary. Service Credit is granted during the period of disability. Disability benefits convert to age and service retirement at the earliest date the member is eligible for full retirement benefits. If the member is disabled for at least five years immediately preceding retirement, the member's Final Average Salary is adjusted during the period of disability.

Death Benefits (Tier I and Tier II)

Active Member Service Connected Death – There is no age or service requirement. An annual benefit equal to the greater of the accrued retirement benefit under the 100% joint and survivor option and 50% of Final Average Salary is payable to the spouse, plus 10% of Final Average Salary for each dependent child under age 18 (or up to age 23 for full-time students), to a maximum of 90% of Final Average Salary Active Member.

Active Member Non-Service Connected Death – A lump sum of 100% of Final Average Salary and a pension of 2.5% of Final Average Salary per year of credited service (to a maximum of 50%) is payable to the spouse. If there is no spouse, the monthly benefit is paid to the dependent children (age 18, or 23 if a full time student). If there is no surviving spouse or eligible children, the beneficiary will receive a lump sum payment of 100% of the member's current annual pay, inclusive of the member's accumulated contributions.

Inactive Member Death – If an inactive member is eligible for retirement when death occurs, and the inactive member's spouse is the sole beneficiary, the spouse may elect to receive benefits as a joint annuitant under any option in lieu of a refund of the member's accumulated contributions.

Post-Retirement Death – There is a lump sum amount of \$4,000 payable, less any death benefit payable under local plan provisions. If the member has selected a retirement option, benefits are paid to the joint annuitant or the designated beneficiary. Under joint and survivor options, if the joint annuitant predeceases the retired member, the benefit is increased to the amount the retired member would have received if no option had been selected. Benefits payable to the joint annuitant cease when the joint annuitant dies. If no option is selected, the designated beneficiary receives the excess, if any, of the member's accumulated contributions over total benefits paid to the date of death. The surviving spouse of a transfer member (who was covered by local plan on the employer's entry date, who dies after retirement, and who has not elected a retirement benefit option) receives a lump sum payment of 50% of Final Average Salary. Additionally,



APPENDIX B – SUMMARY OF PLAN PROVISIONS

a pension benefit of three-fourths of the member's benefit is payable either to the spouse or dependent children.

Classifications

Tier I – Members have Tier I coverage if they were employed prior to July 1, 1989, and they did not elect coverage under Tier II.

Tier II – Members have Tier II coverage if they were employed July 1, 1989, or later. This also includes members employed before July 1, 1989 who elected Tier II coverage.

Some KP&F members are considered either Tier I or Tier II Transfer or Brazelton members.

Transfer Member – A member who is a former member of a local plan who elected to participate in KP&F. Former Kansas Highway Patrol and former Kansas Bureau of Investigation members are included in this group.

Brazelton member – A member who participated in a class action lawsuit, whose contribution is lower, and whose benefits are offset by Social Security.

Member Contributions

Member contributions are 7.15% of compensation, effective July 1, 2013.

Brazelton members contribute .008% with a Social Security offset. Benefits payable to these members are reduced by one-half of original Social Security benefits accruing from employment with the participating employer.

Employer Contributions

Individual rates are certified by the Board of Trustees for each participating employer based on the results of annual actuarial valuations.

Deferred Retirement Option Program (DROP) for Kansas Highway Patrol (KHP)

Upon attaining normal retirement age, members of the KHP have the option of participating in the DROP plan for a minimum of three years and no more than five years. This is a one-time, irrevocable election. After electing to participate, a member's monthly retirement benefit is deposited into the member's DROP account for the duration of the DROP period. The DROP account accrues interest on an annual basis, equalling either 0.0% or 3.0%. Employer and employee contributions continue to be made to the System, but the member does not earn any additional service credit after the effective date of the DROP election. At the end of the DROP period, a member is entitled to a distribution from the DROP account.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

KANSAS JUDGES RETIREMENT SYSTEM

Normal Retirement

Eligibility – (a) Age 65, or (b) age 62 with ten years of credited service, or (c) any age when combined age and years of credited service equals 85 “points”. Age is determined by the member’s last birthday and is not rounded up.

Benefit – The benefit is based on the member’s Final Average Salary, which is the average of the three highest years of service under any retirement system administered by KPERS. The basic formula for those who were members prior to July 1, 1987, is 5% of Final Average Salary for each year of service up to ten years, plus 3.5% for each year of service greater than ten, to a maximum of 70% of Final Average Salary. For those who became members on or after July 1, 1987, the formula is 3.5% for each year, to a maximum benefit of 70% of Final Average Salary.

Early Retirement

Eligibility – A member must be age 55 and have ten years of credited service to take early retirement.

Benefit – The retirement benefit is reduced 0.2% per month for each month between the ages of 60 and 62, and 0.6% per month for each month between the ages of 55 and 60.

Vesting Requirements

Eligibility – There is no minimum service requirement; however, after terminating employment, the member must leave contributions on deposit with the Retirement System in order to be eligible for future benefits. Eligible judges who have service credited under KPERS have vested benefits under both KPERS and the Retirement System for Judges when the combined total credited service equals ten years.

Benefit – Normal benefit accrued at termination is payable at age 62 or in reduced amount at age 55, provided the member has 10 years of credited service. Otherwise, benefits are not payable until age 65.

Other Benefits

Disability Benefits – These benefits are payable if a member is defined as totally and permanently disabled as certified by the Supreme Court. The disability benefit, payable until age 65, is 3.5% of Final Average Salary for each year of service (minimum of 50% and maximum of 70% of Final Average Salary). Benefits are recalculated when the member reaches retirement age based on participating service credit for the period of disability. If a judge is disabled for at least five years immediately preceding retirement, the judge’s Final Average Salary is adjusted.

Withdrawal Benefit – Members who terminate employment may withdraw contributions with interest, but they will forfeit any right to a future benefit if they do.

Pre-retirement Death – A refund of the member’s accumulated contributions is payable. In lieu of receiving the member’s accumulated contributions, the surviving spouse of a member who is eligible to retire at death may elect to receive benefits under any survivor benefit option. If the member had at least ten years of credited service, but hadn’t reached retirement age at the time of death, the spouse may elect a monthly benefit to begin on the date the member first would have been eligible to retire as long as the member’s contributions aren’t withdrawn.



APPENDIX B – SUMMARY OF PLAN PROVISIONS

Post-retirement Death – A lump sum death benefit of \$4,000 is payable to the member’s beneficiary. If the member had selected an option with survivor benefits, those benefits are paid to the joint annuitant or to the member’s designated beneficiary. Under retirement options with survivor benefits, if the joint annuitant predeceases the retired member, the retirement benefit is increased to the amount the retired member would have received if no survivor benefits had been elected. Benefits payable to a joint annuitant cease when the joint annuitant dies. If no option was chosen by the retired member, the member’s designated beneficiary receives the excess, if any, of the member’s accumulated contributions over the total benefits paid to the date of the retired member’s death.

Member Contributions

Judges contributions are 6% of compensation. Upon reaching the maximum retirement benefit level of 70% of Final Average Salary, the contribution rate is reduced to 2%.

Employer Contributions

Rates are certified by the Board of Trustees, based on the results of annual actuarial valuations.



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APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

KPERS

Rate of Investment Return	7.75%
Price Inflation	2.75%
Payroll Growth:	3.00%
KPERS 3 Interest Crediting Rate, including dividends	6.25% per annum
Administrative Expenses:	0.16% of covered payroll
Rates of Mortality: Post-retirement	The RP-2014 Healthy Annuitant table was first adjusted by an age setback or set forward. Rates were further adjusted to fit actual experience. Rates are projected into the future using Scale MP-2016.

Starting Table

School Males: RP-2014 M White Collar Healthy +0
 School Females: RP-2014 F White Collar Healthy +0
 State Males: RP-2014 M Healthy +2
 State Females: RP-2014 F Healthy +1
 Local Males: RP-2014 M Healthy +2
 Local Females: RP-2014 F Healthy +1

Sample Rates (2014)

Age	School		State		Local	
	Male	Female	Male	Female	Male	Female
50	0.310%	0.172%	0.462%	0.332%	0.532%	0.276%
55	0.438%	0.225%	0.635%	0.397%	0.732%	0.367%
60	0.585%	0.323%	0.868%	0.582%	1.001%	0.536%
65	0.849%	0.544%	1.267%	0.909%	1.461%	0.838%
70	1.389%	0.876%	1.974%	1.460%	2.276%	1.346%
75	2.383%	1.459%	3.208%	2.381%	3.699%	2.196%
80	4.520%	3.192%	5.255%	4.249%	6.163%	3.939%
85	8.618%	6.444%	9.025%	7.662%	10.674%	7.119%
90	15.900%	11.824%	15.570%	13.531%	18.416%	12.573%
95	26.671%	20.501%	23.721%	22.137%	28.057%	20.570%
100	39.563%	31.961%	32.978%	32.888%	39.006%	30.559%

Pre-retirement	School Males: 80 % of RP-2014 M White Collar +0 School Females: 80% of RP-2014 F White Collar +0 State Males: 90% of RP-2014 M Total Dataset +2 State Females: 90% of RP-2014 F Total Dataset +1 Local Males: 90% of RP-2014 M Total Dataset +2 Local Females: 90% of RP-2014 F Total Dataset +1
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Disabled Life Mortality	RP-2014 Disabled Life Table with same age adjustments as used for pre-retirement mortality tables.
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APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Rates of Salary Increase

<u>Years of Service</u>	<u>Rate of Increase*</u>		
	<u>School</u>	<u>State</u>	<u>Local</u>
1	11.50%	10.00%	10.00%
5	6.05%	5.10%	5.70%
10	4.60%	4.40%	4.70%
15	4.10%	3.90%	4.30%
20	3.60%	3.60%	4.10%
25	3.50%	3.50%	3.60%
30	3.50%	3.50%	3.50%

*Includes general wage increase assumption of 3.50% (composed of 2.75% inflation and 0.75% productivity)

Load for Pre-1993 Hires

State: 2.2%, School: 0.5%,
Local: 2.0%, KPF: 7.0%
C55/C60: 2.2%

Rates of Termination

<u>Duration</u>	<u>School</u>		<u>State</u>		<u>Local</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
0	21.00%	23.00%	21.00%	21.00%	21.00%	24.00%
1	18.00%	18.00%	18.00%	18.00%	17.00%	21.00%
2	14.50%	14.50%	15.25%	15.25%	14.25%	18.00%
3	11.00%	11.00%	13.50%	12.75%	12.50%	14.75%
4	8.50%	9.00%	12.00%	10.75%	11.00%	12.75%
5	7.00%	7.75%	10.75%	9.75%	9.75%	11.00%
6	6.25%	7.00%	9.50%	8.75%	8.75%	10.00%
7	5.75%	6.25%	8.50%	7.75%	7.75%	9.00%
8	5.25%	5.50%	7.50%	7.00%	6.50%	8.00%
9	4.75%	5.00%	6.50%	6.25%	5.75%	7.00%
10	4.25%	4.50%	5.50%	5.50%	5.25%	6.25%
11	4.00%	4.00%	5.00%	5.00%	4.75%	5.50%
12	3.75%	3.50%	4.50%	4.50%	4.50%	5.00%
13	3.50%	3.25%	4.25%	4.25%	4.25%	4.75%
14	3.25%	3.00%	4.00%	4.00%	4.00%	4.50%
15	3.00%	2.75%	3.80%	3.80%	3.80%	4.25%
16	2.75%	2.50%	3.60%	3.60%	3.60%	4.00%
17	2.50%	2.25%	3.40%	3.40%	3.40%	3.80%
18	2.25%	2.00%	3.20%	3.20%	3.20%	3.60%
19	2.00%	1.75%	3.00%	3.00%	3.00%	3.40%
20	1.75%	1.50%	2.80%	2.80%	2.80%	3.20%
21	1.50%	1.40%	2.60%	2.60%	2.60%	3.00%
22	1.40%	1.30%	2.40%	2.40%	2.40%	2.75%
23	1.30%	1.20%	2.20%	2.20%	2.20%	2.50%
24	1.20%	1.00%	2.00%	2.00%	2.00%	2.25%
25	1.00%	1.10%	1.80%	1.80%	1.80%	2.00%
26	1.10%	1.00%	1.60%	1.60%	1.60%	1.75%
27	1.00%	0.75%	1.40%	1.40%	1.40%	1.50%
28	0.75%	0.50%	1.20%	1.20%	1.20%	1.25%
29	0.50%	0.50%	1.00%	1.00%	1.00%	1.00%
30	0.50%	0.50%	0.80%	0.80%	0.80%	0.80%
30+	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Retirement Rates

School

<u>Age</u>	<u>Rule of 85</u>	
	<u>1st Year</u>	<u>After 1st Year</u>
	<u>With 85 Points</u>	<u>With 85 Points</u>
53	20%	15%
55	20%	15%
57	24%	15%
59	28%	22%
61	25%	25%

Early Retirement

<u>Age</u>	<u>Rate</u>
55	3%
56	3%
57	3%
58	5%
59	10%
60	12%
61	16%

Normal Retirement

<u>Age</u>	<u>Rate</u>
62	25%
63	25%
64	30%
65	35%
66-74	30%
75	100%

State

<u>Age</u>	<u>Rule of 85</u>	
	<u>1st Year</u>	<u>After 1st Year</u>
	<u>With 85 Points</u>	<u>With 85 Points</u>
53	16%	12%
55	16%	12%
57	16%	10%
59	16%	10%
61	25%	20%

Early Retirement

<u>Age</u>	<u>Rate</u>
55	4%
56	4%
57	4%
58	6%
59	6%
60	8%
61	15%

Normal Retirement

<u>Age</u>	<u>Rate</u>
62	20%
63	20%
64	20%
65	35%
66-74	27%
75	100%



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Local

<u>Age</u>	<u>Rule of 85</u>	
	<u>1st Year</u>	<u>After 1st Year</u>
	<u>With 85 Points</u>	<u>With 85 Points</u>
53	15%	7%
55	15%	10%
57	15%	10%
59	15%	12%
61	25%	20%

<u>Early Retirement</u>		<u>Normal Retirement</u>	
<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
55	3%	62	22%
56	3%	63	22%
57	3%	64	22%
58	3%	65	35%
59	6%	66-69	27%
60	6%	70-74	25%
61	15%	75	100%

- Inactive vested members – Earliest unreduced retirement age.
- For correctional employees with an age 55 normal retirement date -

<u>Age</u>	<u>Rate</u>
55	10%
58	10%
60	15%
62	20%
65	100%

- For correctional employees with an age 60 normal retirement date -

<u>Age</u>	<u>Rate</u>
60	20%
61	20%
62	35%
63	20%
64	20%
65	60%
66	60%
67	60%
68	100%

- For TIAA employees – Age 66.



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Rates of Disability

<u>Age</u>	<u>School</u>	<u>State</u>	<u>Local</u>
25	.020%	.023%	.022%
30	.022%	.065%	.047%
35	.027%	.103%	.070%
40	.046%	.200%	.103%
45	.088%	.300%	.180%
50	.145%	.400%	.260%
55	.195%	.500%	.310%
60	.280%	.550%	.380%

Indexation of Final Average Salary for Disabled Members: 1.75% per year

Probability of Vested Members Leaving Contributions With System

KPERS 1:	<u>Age</u>	<u>School</u>	<u>State</u>	<u>Local</u>
	25	80%	65%	60%
	30	80%	65%	70%
	35	80%	65%	70%
	40	80%	65%	70%
	45	82%	75%	70%
	50	87%	85%	74%
	55	100%	100%	100%

KPERS 2: Members are assumed to elect to take a refund if it is more valuable than the deferred annuity. The comparison is based on 7.75% interest and a 50% Male/50% Female blend of the RP-2014 Mortality Table, projected to 2045 (static).

KPERS 3: 100% of vested members are assumed to leave their contributions with the System.

Marriage Assumption: 70% of all members are assumed married with male spouse assumed 3 years older than the female.

Partial Lump Sum Option (PLSO): 40% of KPERS 1 and KPERS 2 members are assumed to take a PLSO equal to 30% of the value of their benefit upon retirement. 100% of KPERS 3 members are assumed to take a PLSO equal to 30% of the value of their benefit upon retirement.



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

KPF

Rate of Investment Return	7.75%
Price Inflation	2.75%
Payroll Growth:	3.00%
Administrative Expenses:	0.16% of covered payroll
Rates of Mortality:	Mortality rates are projected into the future using Scale MP-2016
Post-retirement	RP-2014 Total Dataset Table, set forward one year
Pre-retirement	90% of the RP-2014 Total Dataset Table, set forward one year*
	*70% of preretirement deaths assumed to be service related.
Disabled Life Mortality	RP-2014 Disabled Life Table, set forward one year

Rates of Salary Increase	<u>Years of Service</u>	<u>Rate of Increase*</u>
	1	12.0%
	5	6.5%
	10	4.4%
	15	3.8%
	20	3.5%
	25	3.5%

*Includes general wage increase assumption of 3.50% (composed of 2.75% inflation and 0.75% productivity)

Rates of Termination

<u>Years of Service</u>	<u>Rate</u>
1	11.0%
5	6.0%
10	2.8%
15	1.8%
20	1.1%
25	0.0%

Retirement Rates

Tier 1:	Early Retirement		Normal Retirement	
	<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
	50	5%	55	30%
	51	7%	56	30%
	52	7%	57	30%
	53	15%	58	30%
	54	30%	59	30%
			60	30%
			61	30%
			62	100%



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Tier 2:	Early Retirement		Normal Retirement	
	<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
	50	10%	50	25%
	51	10%	51	25%
	52	10%	52	25%
	53	10%	53	25%
	54	20%	54	25%
			55	25%
			56	35%
			57	35%
			58	20%
			59	30%
			60	25%
			61	25%
			62	30%
			63	30%
			64	30%
			65	100%

Inactive Vested: Earliest unreduced retirement age.

Rates of Disability

<u>Age</u>	<u>Rate*</u>
22	.06%
27	.07%
32	.15%
37	.35%
42	.56%
47	.76%
52	.96%
57	1.00%

*90% assumed to be service-connected under KP & F Tier 1.

Marriage Assumption: 80% of all members assumed married with male spouse assumed to be three years older than female. When an active member dies, they have no child beneficiaries.

DROP Election 75% of Kansas Highway Patrol members are assumed to enter DROP for the maximum DROP period.



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Judges

Rate of Investment Return	7.75%	
Price Inflation	2.75%	
Administrative Expenses:	0.16% of covered payroll	
Rates of Mortality:	Mortality rates are projected into the future using Scale MP-2016.	
Post-retirement	RP-2014 Total Dataset Table, set back two years	
Pre-retirement	80% of RP-2014 Total Dataset Table, set back two years	
Rates of Salary Increase	4.00%	
Rates of Termination	None assumed	
Disabled Life Mortality	RP-2014 Disabled Retiree Table, set back two years	
Rates of Disability	None assumed	
Retirement Rates	<u>Age</u>	<u>Rate</u>
	62	20%
	63-64	10%
	65-66	25%
	67-69	10%
	70+	100%

Marriage Assumption: 70% of all members are assumed married with male spouse assumed 3 years old than female.



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

TECHNICAL VALUATION PROCEDURES

Data Procedures

In-pay members:

If a birth date is not available, the member is assumed to have retired at 62. If a retirement date is also not available, the member is assumed to be 75.

If a beneficiary birth date is needed but not supplied, males are assumed to be 3 years older than females.

Not in-pay members:

If a birth date is not available, it is assigned according to the following schedule:

<u>System</u>	<u>Active member age at hire</u>	<u>Inactive member age at valuation</u>
KPERS	34.7	50
KPF	27.5	49
Judges	43.4	54

If gender is not provided, it is assigned randomly with a 40% probability of being male and 60% probability of being female.

If salary information is not available for an active record, it is assigned according to the following schedule:

<u>System</u>	<u>Salary</u>
KPERS	\$24,700
KPF	\$36,100
Judges	\$79,100

Salaries for first year members are annualized.

Other Valuation Procedures

No actuarial accrued liability in excess of the unclaimed member contribution balance is held for nonvested, inactive members. A reserve is also held for accounts that have been forfeited but could be reclaimed in the future.

Benefits above the projected IRC Section 415 limit for active participants are assumed to be immaterial for the valuation. The compensation limitation under IRC Section 401(a) (17) is considered in this valuation. On a projected basis, the impact of this limitation is insignificant.

Salary increases are assumed to apply to annual amounts.

Decrements are assumed to occur mid-year, except that immediate retirement is assumed for those who are at or above the age at which retirement rates are 100%. Standard adjustments are made for multiple decrements. Withdrawal does not operate once early or unreduced retirement eligibility is met.

KPERS 3 employees who transfer employment to a non-KPERS covered position are treated as actives who are not accruing benefits.



APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Methods

1. Funding Method

Under the entry age normal cost method, the actuarial present value of each member's projected benefits is allocated on a level basis over the member's compensation between the entry age of the member and the assumed exit ages. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The actuarial present value of benefits allocated to prior years of service is called the actuarial liability. The unfunded actuarial liability represents the difference between the actuarial liability and the actuarial value of assets as of the valuation date. The unfunded actuarial liability is calculated each year and reflects experience gains/losses.

There is currently a lag between the valuation date in which the employer contribution rates are determined and the effective date of those contribution rates, i.e., a two year lag for Local employers and a two and one-half year lag for the State/School group. The unfunded actuarial liability (UAL) is projected from the valuation date to the first day of the fiscal year in which the contribution rate will apply based on the scheduled statutory contribution rates and expected payroll in the intervening years.

For valuations beginning with December 31, 2016 and following, the unfunded actuarial liability is amortized using a "layered" approach. The unfunded actuarial liability in the December 31, 2015 valuation, which was projected to June 30, 2018 for the State/School and Judges groups and to December 31, 2017 for the Local and KP&F groups, serves as the initial or "legacy" amortization base and continues to be amortized over the original period, set at 40 years beginning July 1, 1993 (16 years in the December 31, 2016 valuation). The change in the unfunded actuarial liability in the December 31, 2016 valuation as a result of the assumption changes, which is projected to June 30, 2019 for State/School and Judges and to December 31, 2018 for Local and KP&F, is amortized over a closed 25-year period, and changes in the unfunded actuarial liability that result from actuarial experience are amortized over a closed 20-year period beginning with the fiscal year in which the contribution rates will apply.

The UAL is amortized as a level percentage of payroll for all groups except Judges, who use a level dollar payment. The payroll growth assumption is 3% so the annual amortization payments will increase 3% each year. As a result, if total payroll grows 3% per year, as assumed, the amortization payment will remain level as a percentage of total current payroll.

2. Asset Valuation Method

For actuarial purposes, assets are valued using an asset smoothing method. The difference between the actual return and the expected return (based on the actuarial assumed net rate of return) on the market value of assets is calculated each year and recognized equally over a five-year period.



APPENDIX D – GLOSSARY OF TERMS

The following are key terms used in the discussion of actuarial funding valuations. Actuarial measurements for other purposes, such as accounting, may use different terms.

Actuarial Accrued Liability	The difference between the actuarial present value of system benefits and the actuarial value of future normal costs. Also referred to as “accrued liability” or “actuarial liability”.
Actuarial Assumptions	Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.
Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate assumptions.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement system benefit between future normal cost and actuarial accrued liability. Sometimes referred to as the “actuarial funding method”.
Experience Gain (Loss)	The difference between actual experience and anticipated experience, based on the actuarial assumptions, during the period between two actuarial valuation dates.
Actuarial Present Value	The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.
Amortization	Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with lump sum payment.
Normal Cost	The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method.



APPENDIX D – GLOSSARY OF TERMS

Unfunded Actuarial Accrued Liability The difference between actuarial accrued liability and the valuation assets. Sometimes referred to as “unfunded actuarial liability” or “unfunded accrued liability”.

Most retirement systems have unfunded actuarial accrued liability. They arise each time new benefits are added and each time an actuarial loss is realized.