



**City of Kansas City
Missouri Employees'
Retirement System**

**Actuarial Valuation
as of May 1, 2018**

**Produced by Cheiron
September 2018**

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September 17, 2018

Board of Pension Trustees
City of Kansas City, Missouri Employees' Retirement System
12th Floor, City Hall
414 East 12th Street
Kansas City, Missouri 64106

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the City of Kansas City, Missouri Employees' Retirement System (KCERS) as of May 1, 2018. The valuation is organized as follows:

- In Section I of the **Board Summary** we describe the purpose of an actuarial valuation and summarize the key results found in this valuation;
- The **Main Body** of the report presents details on the System's:
 - Section II - Assets
 - Section III - Liabilities
 - Section IV - Contributions
 - Section V - Financial Statement Information
- In the **Appendices**, we conclude our report with detailed information describing the System's membership (Appendix A), actuarial assumptions and methods employed (Appendix B), a summary of pertinent plan provisions (Appendix C), and a glossary of terms (Appendix D).

The purpose of this report is to present the annual actuarial valuation of the City of Kansas City, Missouri Employees' Retirement System. This report is for the use of the Employees' Retirement Board and its auditors in preparing financial reports in accordance with applicable law and accounting requirements.

In preparing our report, we relied on information (some oral and some written) supplied by KCERS' staff. This information includes, but is not limited to, the plan provisions, employee data, and unaudited financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

Future valuation reports may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the assumptions; changes in assumptions; and changes in plan provisions or applicable law.

Board of Pension Trustees
City of Kansas City, Missouri Employees' Retirement System
September 17, 2018


To the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinions contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This report was prepared for the Employees' Retirement System for the purposes described herein and for the use by the Plan auditor in completing an audit related to the matters herein. Other users of this valuation report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Sincerely,
Cheiron



Stephen T. McElhaney, FSA, FCA, EA, MAAA
Principal Consulting Actuary



Jacqueline King, ASA, EA, MAAA
Associate Actuary

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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SECTION I – BOARD SUMMARY

The primary purpose of the actuarial valuation and this report is to measure, describe, and identify as of the valuation date:

- The financial condition of the System,
- Past and expected trends in the financial progress of the System,
- The City's Actuarially Determined Contribution for fiscal year ending 2020, and
- Information required for the System's financial statement.

In the balance of this Board Summary, we present (A) the basis upon which this year's valuation was completed, (B) the key findings of this valuation including a summary of all key financial results, (C) an examination of the historical trends, and (D) the projected financial outlook for the System.

A. Valuation Basis

This May 1, 2018 valuation represents Cheiron's twelfth valuation performed for KCERS. There have been no changes in assumptions, methodologies, and plan provisions since the May 1, 2017 valuation. The contribution rate changes as a result of the May 1, 2016 revised assumptions are being phased-in over five years, and the current valuation is at the third year of this phase-in. The data, methods, assumptions, and plan provisions that serve as the basis for this valuation are all summarized in the appendices.

B. Key Findings of this Valuation

The key results of the May 1, 2018 actuarial valuation are as follows:

- We have calculated the City's contribution rate on two bases:
 - The actuarially determined City contribution rate under the Board's funding policy would have decreased from 17.03% as of May 1, 2017 to 16.76% if the full effect of the May 1, 2016 revised actuarial assumptions had been recognized at both valuation dates. Due to the five-year phase-in of the new assumptions, the actuarially determined employer contribution rate has been calculated as 15.68% as of May 1, 2018 compared to 15.40% as of May 1, 2017. The actual rate that the City is scheduled to contribute for the current year is 15.40% of payroll, which is the actuarially determined Board contribution rate reflecting the five-year phase-in for the prior year.
 - Under the City ordinance, the City's budgeted contribution rate for the year beginning May 1, 2019 will be based upon a 30-year open amortization for the entire amount of unfunded actuarial liability. This rate is 13.87% as of May 1, 2018, which also reflects the five-year phase-in of the revised actuarial assumptions.
- The Employees' Retirement System's (ERS) unfunded actuarial liability decreased from \$216 million on May 1, 2017 to \$211 million on May 1, 2018.

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- The ERS's funding ratio, the ratio of actuarial asset value over liabilities, increased from 83.5% as of May 1, 2017 to 84.4% as of May 1, 2018.
- The primary factor in the decrease of the Plan's unfunded actuarial liability was an overall actuarial gain of \$6.2 million.
 - During the year ended April 30, 2018, the System's assets earned 9.21% on a market value basis. The return on the actuarial asset value was 7.84% (as compared to 7.50% assumed). This resulted in an actuarial gain on investments of \$3.6 million. However, the Plan also experienced a loss of \$3.3 million due to the difference between actual contributions and the actuarially determined contribution as a result of payroll and timing differences as well as the five-year phase-in of the assumption changes.
 - On the liability side, the System experienced an actuarial gain of \$5.9 million.

This report does not include disclosures required by GASB Statements No. 67 and 68. Statement No. 67 was effective for the plan year ending April 30, 2015. Statement No. 68 was effective for the employer fiscal year ending April 30, 2016. Please refer to the separate report issued by Cheiron for accounting and financial disclosure information under GASB Statements No. 67 and No. 68.

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The following is Table I-1 which summarizes the key results of the valuation with respect to the System's membership, assets and liabilities, and contributions. The results are presented and compared for both the current and prior plan year.

Table I-1			
City of Kansas City, Missouri Employees' Retirement System			
Summary of Principal Plan Results			
Valuation as of:	May 1, 2017	May 1, 2018	% Change
<u>Participant Counts</u>			
Active Participants	3,170	3,218	1.5%
Disabled Participants	8	8	0.0%
Retirees and Beneficiaries	2,392	2,440	2.0%
Terminated Vested Participants	111	189	70.3%
Inactive Participants	283	257	(9.2%)
Total	5,964	6,112	2.5%
Annual Salaries of Active Members	\$ 167,811,028	\$ 171,688,301	2.3%
Annual Retirement Allowances for Retired Members and Beneficiaries*	\$ 62,041,765	\$ 65,243,667	5.2%
<u>Assets and Liabilities</u>			
Actuarial Liability (AL)	\$ 1,312,154,844	\$ 1,351,562,621	3.0%
Actuarial Value of Assets (AVA)	1,095,866,148	1,140,815,771	4.1%
Unfunded Actuarial Liability (UAL)	\$ 216,288,696	\$ 210,746,850	(2.6%)
Funded Ratio (AVA)	83.5%	84.4%	
Funded Ratio (MVA)	83.2%	85.2%	
Present Value of Accrued Benefits (PVAB)	\$ 1,187,554,815	\$ 1,226,773,909	3.3%
Market Value of Assets (MVA)	1,092,298,852	1,151,660,978	5.4%
Unfunded/(Surplus) PVAB	\$ 95,255,963	\$ 75,112,931	
Accrued Benefit Funding Ratio	92.0%	93.9%	
<u>Contributions as a Percentage of Payroll under Board's Funding Policy **</u>			
	Fiscal Year 2019	Fiscal Year 2020	
Normal Cost Rate	7.71%	7.67%	
Administrative Expense Rate	0.24%	0.24%	
Unfunded Actuarial Liability Rate	7.45%	7.77%	
Total Actuarially Determined City Contribution Rate	15.40%	15.68%	
Actuarially Determined Contribution (GASB)	\$25,842,898	\$26,920,726	4.2%

* The annual retirement allowances do not include the subsidy benefits

** Fiscal Year 2019 and 2020 contribution rate and ADC reflect the 5-year phase-in of the 2016 assumption changes

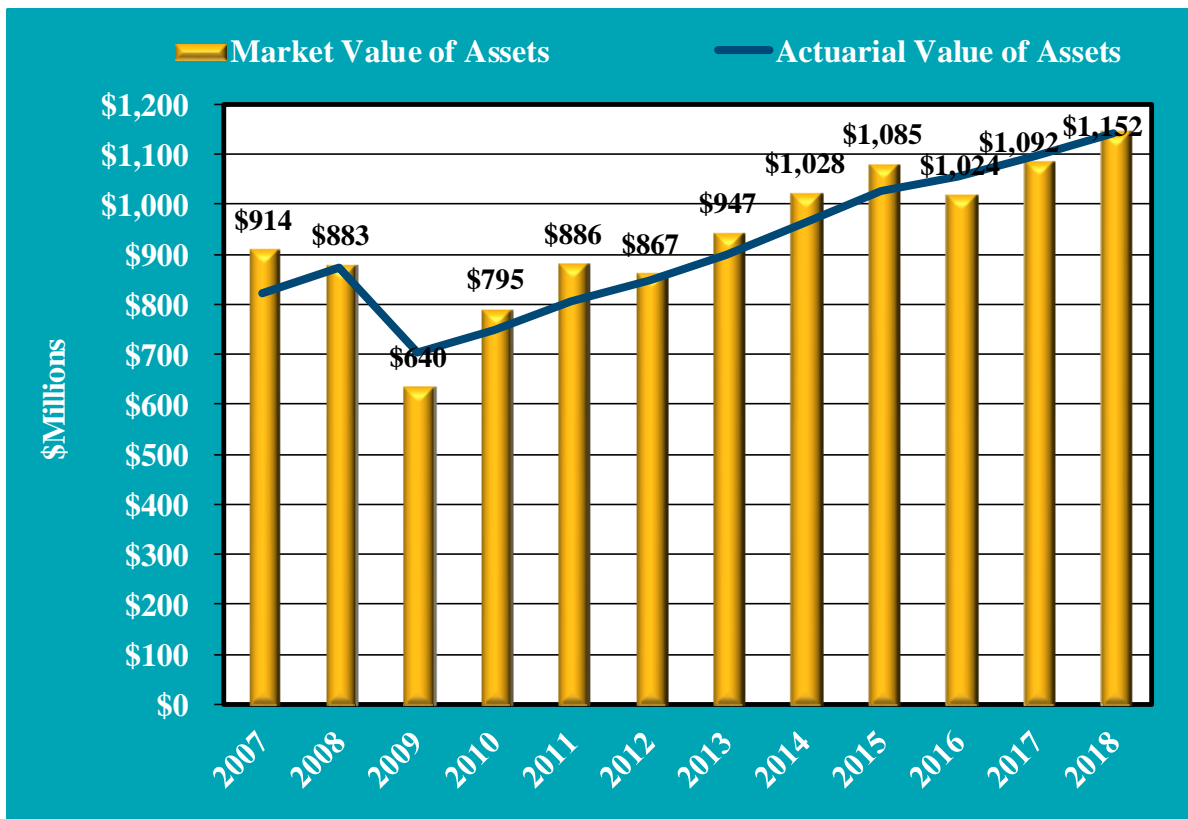
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C. Historical Trends

Despite the fact that for most retirement systems, the greatest attention is given to the current valuation results and in particular the size of the current unfunded actuarial liability and the City's contribution, it is important to remember that each valuation is merely a snapshot in the long-term progress of a pension fund. It is more important to judge a current year's valuation result relative to historical trends, as well as trends expected into the future. The numbers above the bars represent the value (in millions) of the market value of assets.

System Assets



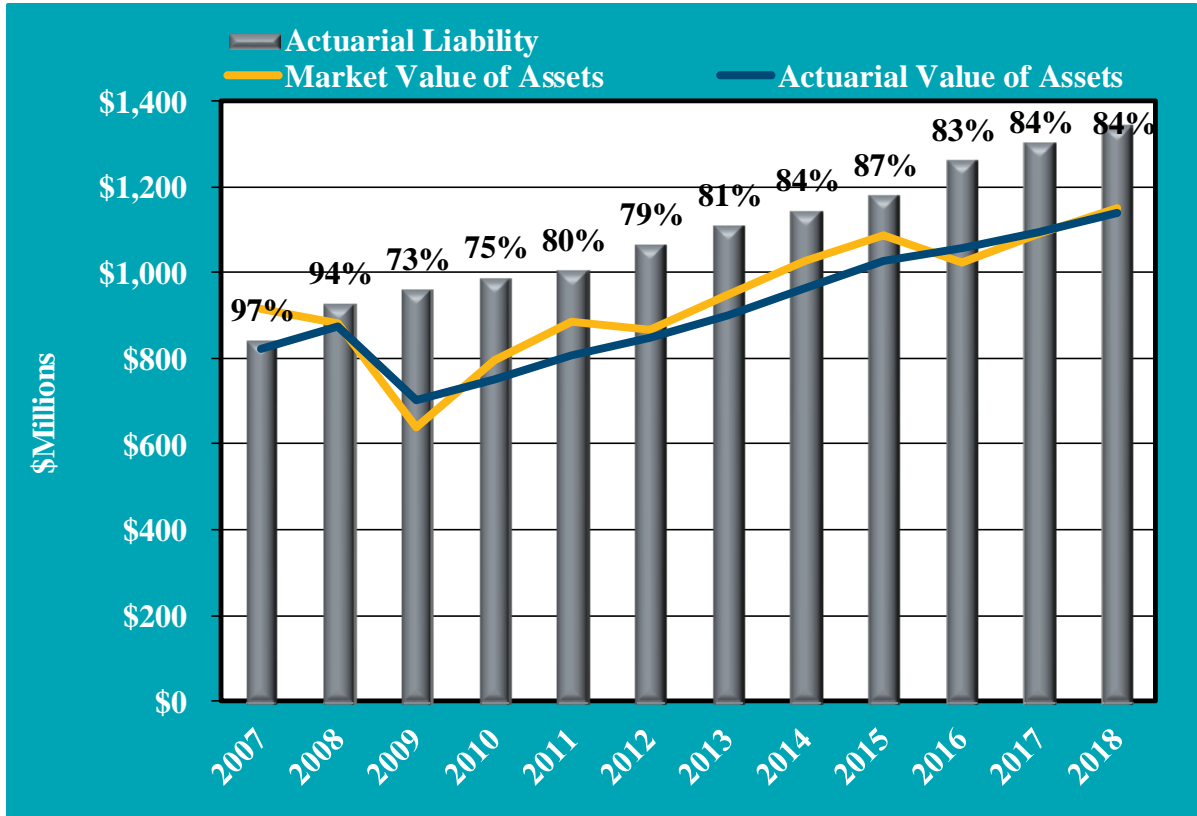
There was a market value of assets (MVA) gain on investments in 2018, returning 9.21%, increasing from \$1,092 million to \$1,152 million. With the asset smoothing method in place, the actuarial value of assets has tracked a slightly smoother path through the volatility of the market value of assets. As can be seen in the graph, the actuarial value of assets (AVA) increased from 2017 to 2018, returning 7.84%, which is more than the assumed earnings of 7.50%.

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Assets and Liabilities

The chart below compares the market value of assets, the actuarial value of assets, and the actuarial liabilities, as well as the funded ratio (actuarial value of assets / actuarial liability), sometimes referred to as the benefit security ratio. This chart shows that in 2009, the System had its lowest funded ratio in the past 10 years, but has since increased, except for 2016 where it decreased as a result of the changes to actuarial assumptions.



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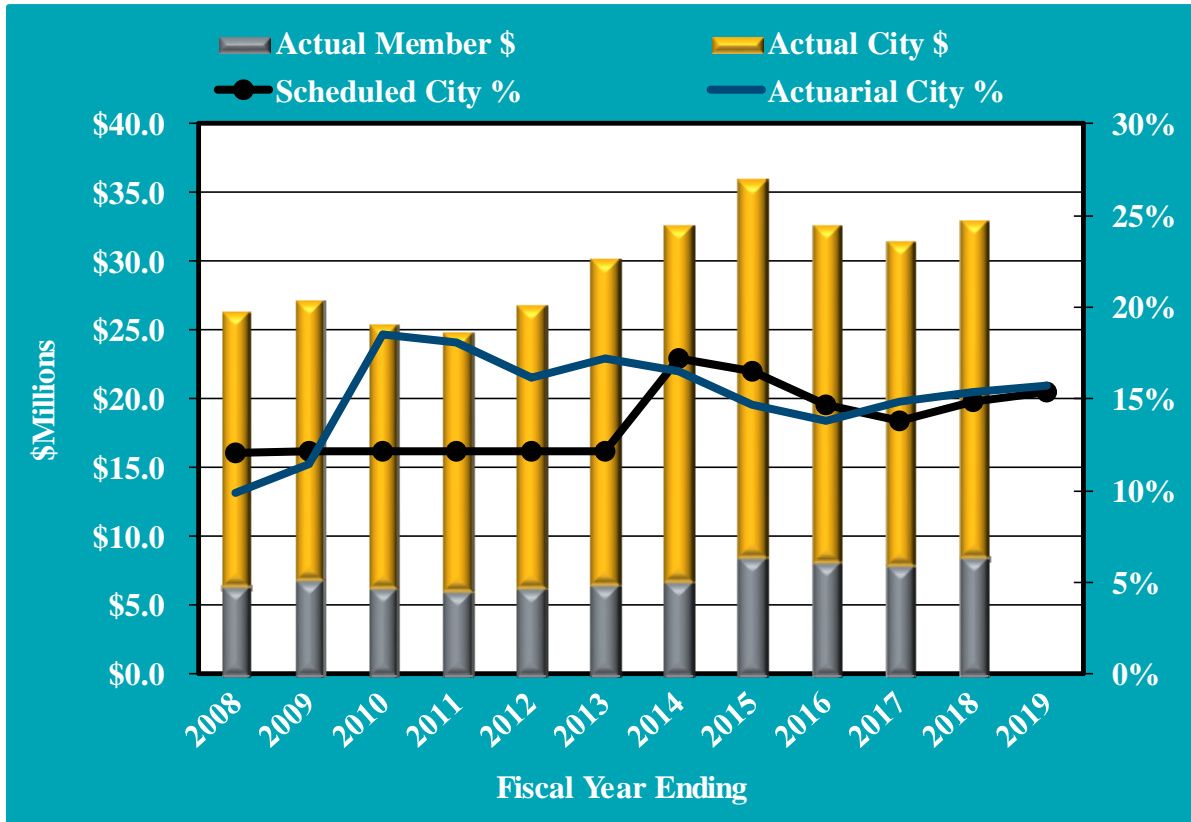
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Contribution Rates

The stacked bars in this graph show the dollar amount of contributions made by the City and the members (depicted on the left hand scale) since fiscal year ending 2008. The blue line shows the City's actuarial contribution rate under the Board's funding policy as a percent of payroll (depicted on the right hand scale). The black line shows the scheduled City contribution rate as a percent of payroll (depicted on the right hand scale).

The member contribution rate is set by City law at 4% (more than 4% for certain MAST employees) of payroll prior to April 20, 2014, and 5% (more than 5% for certain MAST employees) of payroll effective April 20, 2014.

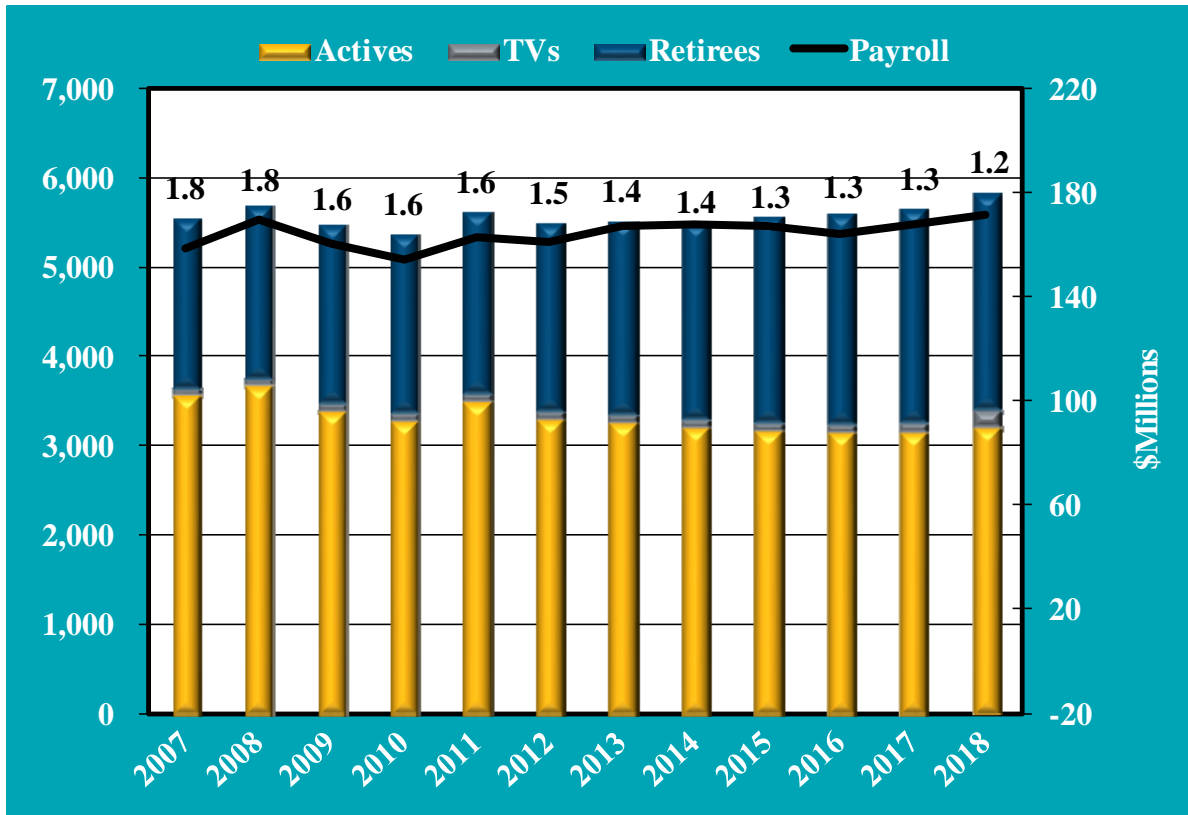
For fiscal years ending from 2008 through 2013, the City contribution rate was 9.50% of payroll plus 2.53% of payroll for the retirement window offered in 2003 (paid annually through April 30, 2013) for General Employees, and 19.50% of payroll for Judges and Elected Officials. As determined under the City's funding policy, for fiscal years ending 2014 and later, the scheduled City contribution rate is set as the actuarial contribution rate in the prior year's actuarial valuation. The actuarial contribution rate under the Board's funding policy increased from 15.40% of payroll in 2017 to 15.68% of payroll in 2018 reflecting the phase-in of changes in actuarial assumptions. For the fiscal year ending 2019, the City is contributing 15.40% of payroll.



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Participant Trends



The above chart provides a measure for the maturity in the Plan, by comparing the ratio of active members to inactive members (retirees and terminated-vesteds). The ratio of active members to inactive members has decreased over the last 12 years. The System’s active-to-inactive ratio was 1.8 in 2007, and there are 1.2 actives supporting each inactive member today. The black line shows the total active participating payroll for each valuation year (depicted on the right hand scale).

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D. Future Expected Financial Trends

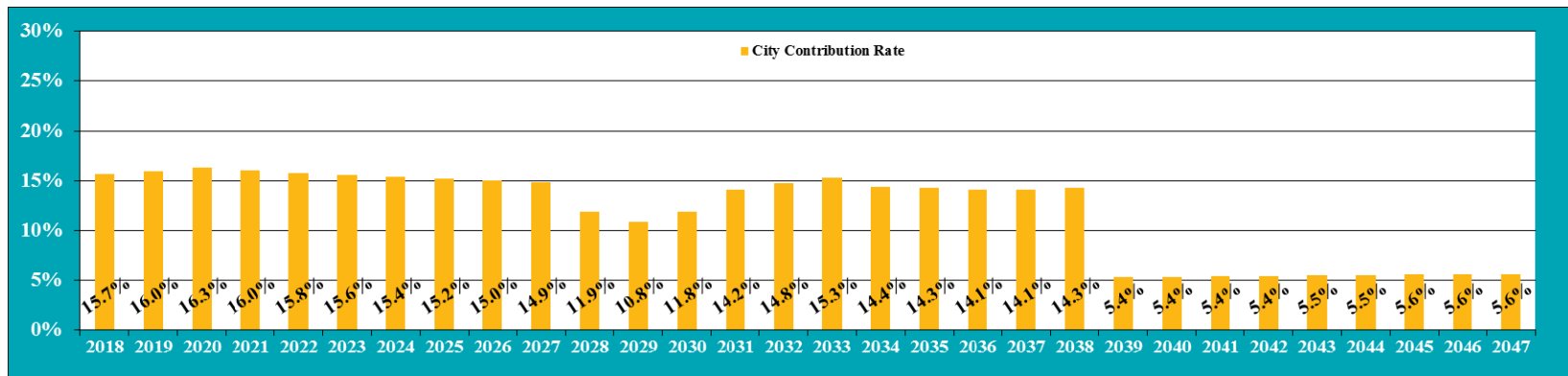
The analysis of projected financial trends is perhaps the most important component of this valuation. In this Section, we present the implications of the May 1, 2018 valuation results in terms of (1) the projected City's contributions and (2) projected System's funded status (ratio of assets over liabilities). For each projection set, we assume three future different investment return scenarios: baseline returns of 7.50%, optimistic returns of 9.00%, and pessimistic returns of 6.00%. The projections assume all other assumption in the valuation are met and that the City makes contributions equal to the prior year's actuarially determined contribution rate under the Board's funding policy.

1. Contribution Rate Projections (Board Funding Policy)

The first set of charts shows the expected City contribution rate. The years shown in the charts are plan years beginning May 1.

Baseline Returns of 7.50%

Assuming that the fund earns the assumed investment rate of 7.5% on a market value basis and that the City continues to contribute the current scheduled contribution rate equal to the prior year's actuarially determined contribution rate, the contribution rate will increase over the next three years as the revised actuarial assumptions become fully phased-in, and then fluctuate as the various amortization bases become fully amortized. The large decrease in the rate in 2039 reflects the full amortization of the 30-year loss base established in 2009.

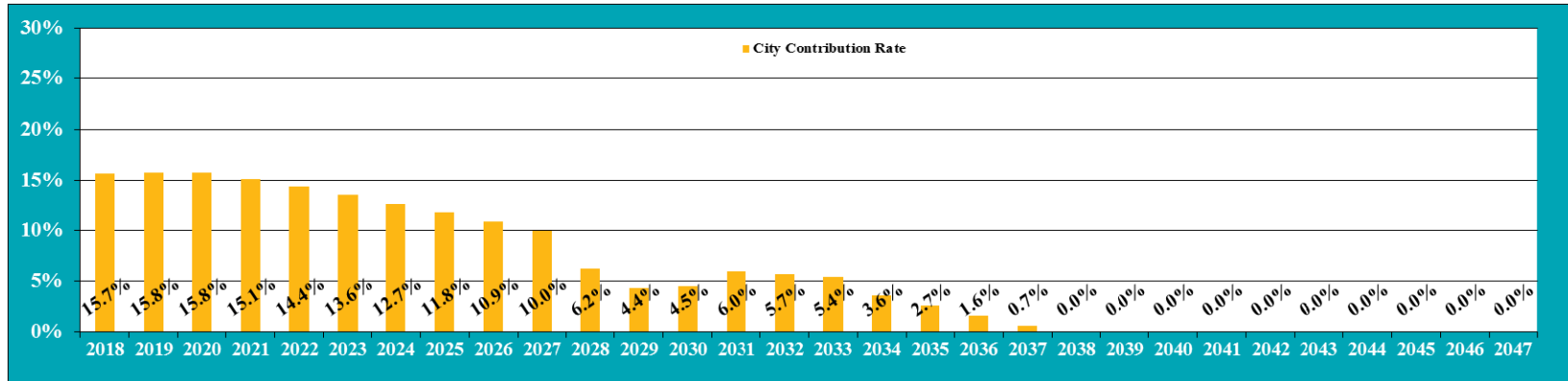


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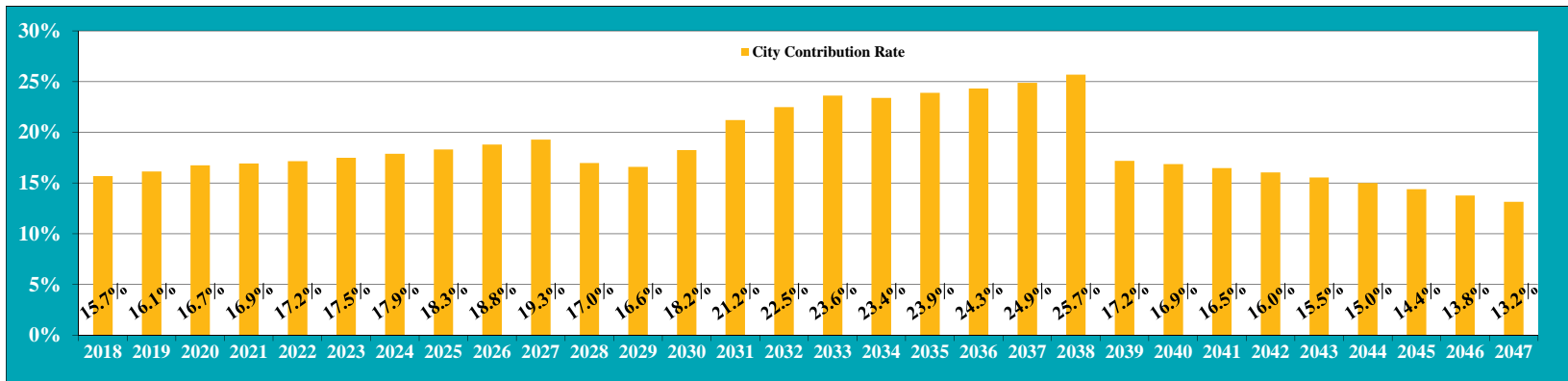
Optimistic Returns of 9.00%

If the fund earns 1.50% greater than the assumed rate, all of the future contribution rates will be lower than if the fund earns the assumed rate of 7.50%, and in fact would become zero for 2038 and later.



Pessimistic Returns of 6.00%

If the fund earns 1.50% less than the assumed rate, the future contribution rates will be considerably greater than if the fund earns the assumed rate of 7.50%.



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The following table shows the corresponding contribution dollar amounts of the percentages in the prior three charts.

City of Kansas City, Missouri Employees' Retirement System Projection Based on April 30, 2018 Actuarial Valuation Current Amortization Schedule Interest at 7.50% Amounts in thousands					
Valuation as of April 30,	Dollar Amount of ADC at Various Investment Returns				
	7.50%	9.00%	6.00%		
2018	\$ 26,921	\$ 26,921	\$ 26,921		
2019	28,425	28,123	28,728		
2020	30,068	29,181	30,937		
2021	30,735	29,010	32,442		
2022	31,391	28,586	34,136		
2023	32,134	27,986	36,097		
2024	32,890	27,194	38,264		
2025	33,723	26,259	40,677		
2026	34,573	25,146	43,285		
2027	35,535	23,889	46,128		
2028	29,474	15,407	42,102		
2029	27,902	11,223	42,703		
2030	31,592	12,044	48,711		
2031	39,205	16,569	58,794		
2032	42,400	16,471	64,592		
2033	45,571	16,045	70,444		
2034	44,588	11,263	72,343		
2035	45,907	8,507	76,693		
2036	47,029	5,262	81,001		
2037	48,654	2,246	85,939		
2038	51,231	-	92,030		
2039	19,974	-	63,865		
2040	20,723	-	65,102		
2041	21,580	-	65,982		
2042	22,597	-	66,628		
2043	23,660	-	66,972		
2044	24,726	-	67,024		
2045	25,793	-	66,801		
2046	26,856	-	66,322		
2047	28,013	-	65,663		
2048	29,115	-	64,758		

Projections assume a constant population and no actuarial gains and losses



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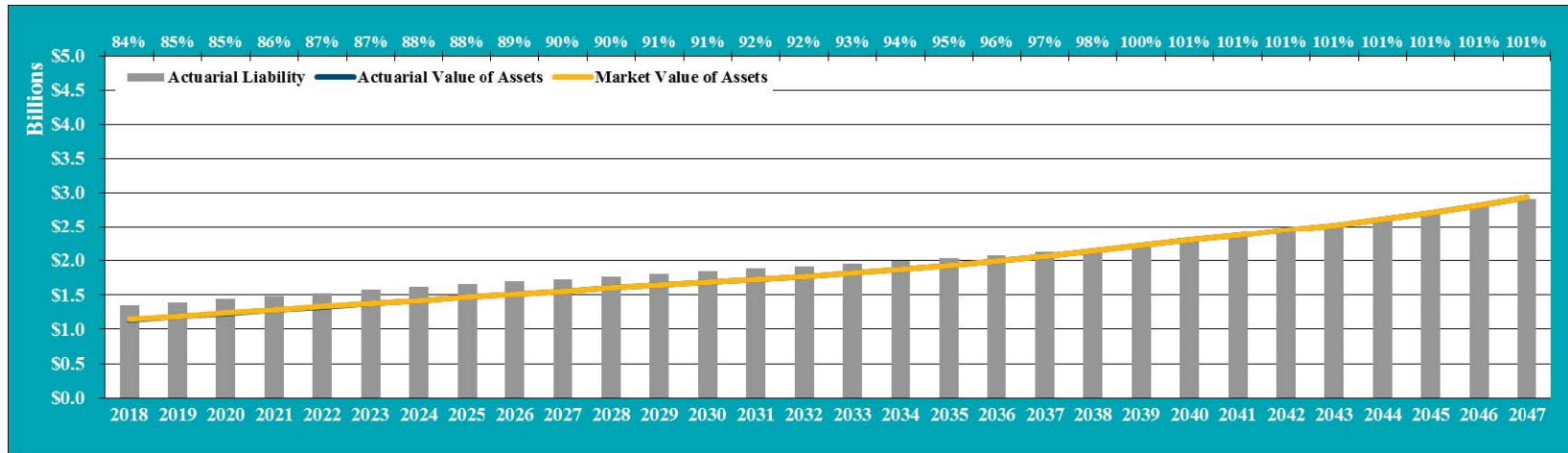
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2. Asset and Liability Projections (Board Funding Policy)

The next set of projection charts compares the market value of assets (gold line) and the actuarial or smoothed value of assets (blue line) to the System's actuarial liabilities (gray bars). The top of each chart also portrays the System's funded ratio (ratio of actuarial value of assets to actuarial liabilities). The years shown in the chart are plan years beginning May 1.

Baseline Returns of 7.50%

Assuming that the fund earns the assumed investment rate of 7.5% and that the City continues to contribute the current scheduled contribution rate equal to the prior year's actuarially determined contribution rate, the funded ratio will increase gradually over the next 30 years reaching 101% by the end of the projection.

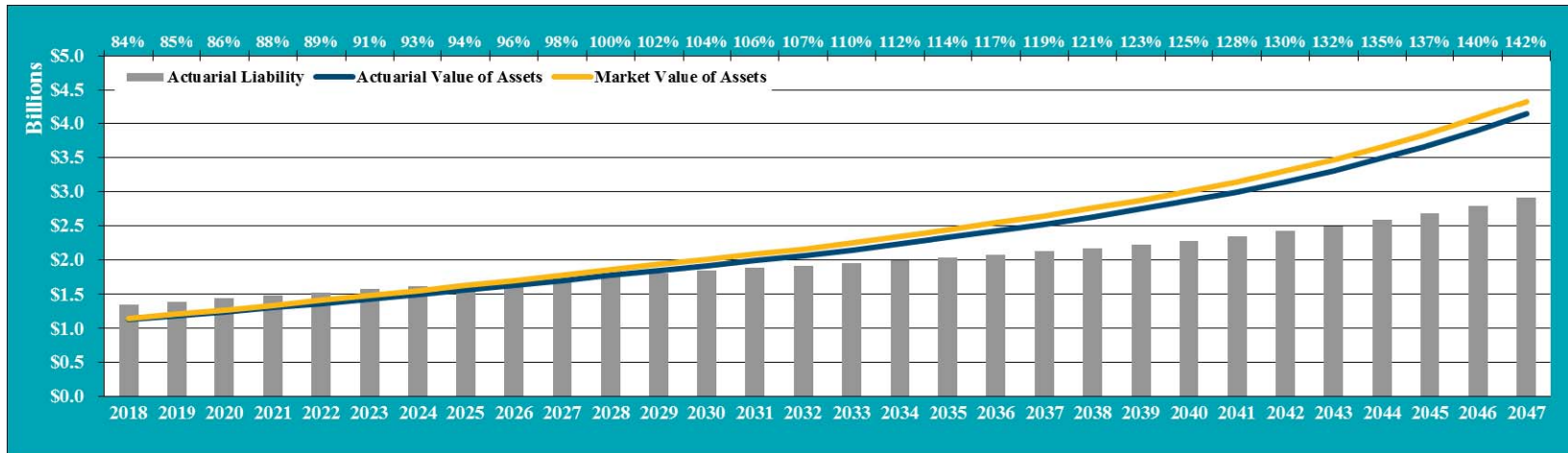


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Optimistic Returns of 9.00%

If the fund earns 1.50% greater than the assumed rate of return, the funded ratio will increase to 142% over the next 30 years.

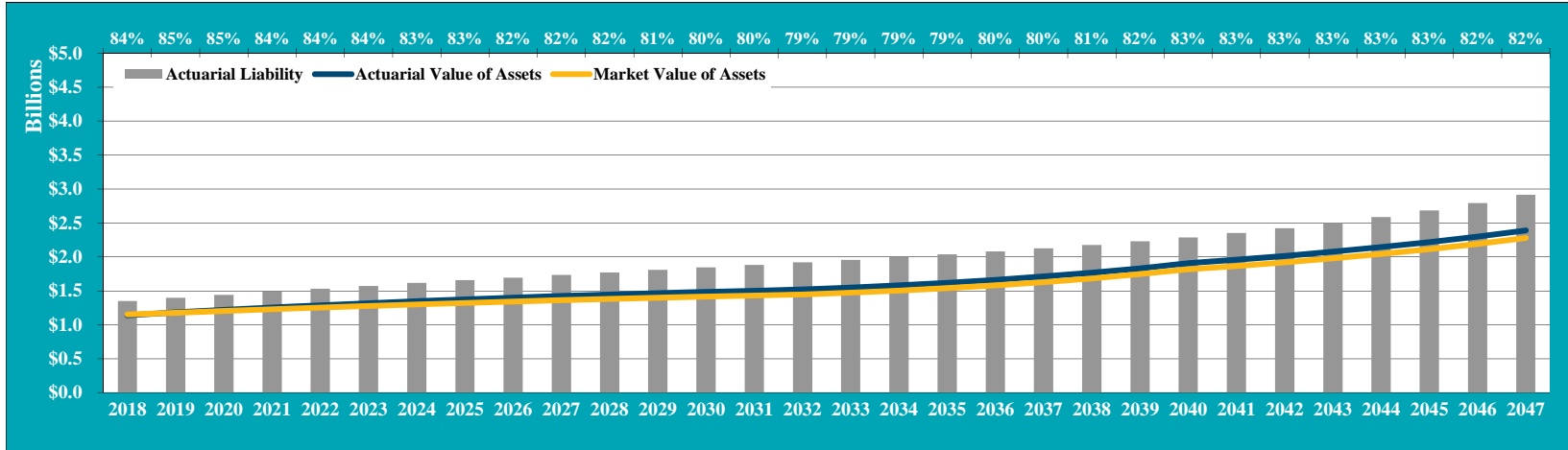


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Pessimistic Returns of 6.00%

If the fund earns 1.50% less than the assumed rate of return, the funded ratio will decrease gradually to 79%, then increase to 82% over the next 30 years.



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3. 30 Year Projections Based on City Contribution Policy:

The charts on the following two pages show 30-year cost projections under two amortization policies: (1) 30-year open amortization which is the current City contribution policy and (2) 30-year closed amortization from May 1, 2014 for comparison purposes. For the purpose of these projections, it has been assumed that the active population remains constant and the fund earns the assumed return of 7.5% per year on market value. These projections reflect the five-year phase-in of the revised actuarial assumptions.

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30-Year Open Amortization Method:

City of Kansas City, Missouri Employees' Retirement System Projection Based on April 30, 2018 Actuarial Valuation 30-Year Open Amortization Interest at 7.50% Amounts in thousands														
Valuation as of April 30, (1)	Employer Contribution Rate (2)	Member Contribution Rate (3)	Compensation at Valuation (4)	Employer Contribution (5)	Actuarial Accrued Liability (AAL) (6)	Actuarial Value of Assets (AVA) (7)	Unfunded AAL (8)	UAL Amortization Payment Rate (9)	Normal Cost Rate (10)	Administrative Expense Rate (11)	Employer ADC (12)	Dollar Amount of ADC (13)	Funded Ratio Using AVA (14)	
2018	15.40%	5.00%	\$ 171,688	\$ 26,440	\$ 1,351,563	\$ 1,140,816	\$ 210,747	5.96%	7.66%	0.24%	13.87%	\$ 23,813	84.4%	
2019	13.87%	5.00%	\$ 178,127	\$ 24,688	\$ 1,396,751	\$ 1,186,093	\$ 210,657	6.07%	7.53%	0.24%	13.84%	\$ 24,649	84.9%	
2020	13.84%	5.00%	\$ 184,806	\$ 25,577	\$ 1,442,218	\$ 1,229,163	\$ 213,055	6.26%	7.43%	0.24%	13.93%	\$ 25,744	85.2%	
2021	13.93%	5.00%	\$ 191,737	\$ 26,709	\$ 1,486,862	\$ 1,271,537	\$ 215,325	6.09%	7.24%	0.24%	13.57%	\$ 26,019	85.5%	
2022	13.57%	5.00%	\$ 198,927	\$ 26,994	\$ 1,530,719	\$ 1,313,591	\$ 217,128	5.92%	7.06%	0.24%	13.22%	\$ 26,298	85.8%	
2023	13.22%	5.00%	\$ 206,386	\$ 27,284	\$ 1,573,502	\$ 1,354,243	\$ 219,259	5.76%	6.90%	0.24%	12.90%	\$ 26,624	86.1%	
2024	12.90%	5.00%	\$ 214,126	\$ 27,622	\$ 1,615,310	\$ 1,393,620	\$ 221,690	5.62%	6.74%	0.24%	12.60%	\$ 26,980	86.3%	
2025	12.60%	5.00%	\$ 222,156	\$ 27,992	\$ 1,655,892	\$ 1,431,510	\$ 224,381	5.48%	6.60%	0.24%	12.32%	\$ 27,370	86.4%	
2026	12.32%	5.00%	\$ 230,487	\$ 28,396	\$ 1,695,491	\$ 1,468,202	\$ 227,289	5.35%	6.46%	0.24%	12.05%	\$ 27,774	86.6%	
2027	12.05%	5.00%	\$ 239,130	\$ 28,815	\$ 1,734,282	\$ 1,503,891	\$ 230,391	5.23%	6.34%	0.24%	11.81%	\$ 28,241	86.7%	
2028	11.81%	5.00%	\$ 248,097	\$ 29,300	\$ 1,772,336	\$ 1,538,639	\$ 233,696	5.11%	6.23%	0.24%	11.58%	\$ 28,730	86.8%	
2029	11.58%	5.00%	\$ 257,401	\$ 29,807	\$ 1,809,833	\$ 1,572,675	\$ 237,158	5.00%	6.13%	0.24%	11.37%	\$ 29,266	86.9%	
2030	11.37%	5.00%	\$ 267,053	\$ 30,364	\$ 1,846,677	\$ 1,605,898	\$ 240,779	4.89%	6.04%	0.24%	11.17%	\$ 29,830	87.0%	
2031	11.17%	5.00%	\$ 277,068	\$ 30,948	\$ 1,883,406	\$ 1,638,873	\$ 244,533	4.79%	5.96%	0.24%	10.99%	\$ 30,450	87.0%	
2032	10.99%	5.00%	\$ 287,458	\$ 31,592	\$ 1,920,564	\$ 1,672,141	\$ 248,423	4.69%	5.89%	0.24%	10.82%	\$ 31,103	87.1%	
2033	10.82%	5.00%	\$ 298,238	\$ 32,269	\$ 1,958,332	\$ 1,705,901	\$ 252,432	4.59%	5.83%	0.24%	10.66%	\$ 31,792	87.1%	
2034	10.66%	5.00%	\$ 309,421	\$ 32,984	\$ 1,997,295	\$ 1,740,747	\$ 256,548	4.50%	5.77%	0.24%	10.51%	\$ 32,520	87.2%	
2035	10.51%	5.00%	\$ 321,025	\$ 33,740	\$ 2,037,832	\$ 1,777,059	\$ 260,774	4.41%	5.72%	0.24%	10.37%	\$ 33,290	87.2%	
2036	10.37%	5.00%	\$ 333,063	\$ 34,539	\$ 2,080,511	\$ 1,815,407	\$ 265,104	4.32%	5.67%	0.24%	10.23%	\$ 34,072	87.3%	
2037	10.23%	5.00%	\$ 345,553	\$ 35,350	\$ 2,126,001	\$ 1,856,461	\$ 269,540	4.23%	5.64%	0.24%	10.11%	\$ 34,935	87.3%	
2038	10.11%	5.00%	\$ 358,511	\$ 36,245	\$ 2,175,157	\$ 1,901,051	\$ 274,106	4.15%	5.60%	0.24%	9.99%	\$ 35,815	87.4%	
2039	9.99%	5.00%	\$ 371,955	\$ 37,158	\$ 2,228,615	\$ 1,949,852	\$ 278,763	4.07%	5.58%	0.24%	9.89%	\$ 36,786	87.5%	
2040	9.89%	5.00%	\$ 385,904	\$ 38,166	\$ 2,287,053	\$ 2,003,515	\$ 283,538	3.99%	5.55%	0.24%	9.78%	\$ 37,741	87.6%	
2041	9.78%	5.00%	\$ 400,375	\$ 39,157	\$ 2,351,506	\$ 2,063,127	\$ 288,378	3.91%	5.53%	0.24%	9.68%	\$ 38,756	87.7%	
2042	9.68%	5.00%	\$ 415,389	\$ 40,210	\$ 2,422,645	\$ 2,129,300	\$ 293,345	3.83%	5.51%	0.24%	9.58%	\$ 39,794	87.9%	
2043	9.58%	5.00%	\$ 430,966	\$ 41,287	\$ 2,501,372	\$ 2,202,950	\$ 298,422	3.76%	5.50%	0.24%	9.50%	\$ 40,942	88.1%	
2044	9.50%	5.00%	\$ 447,128	\$ 42,477	\$ 2,588,882	\$ 2,285,246	\$ 303,636	3.68%	5.49%	0.24%	9.41%	\$ 42,075	88.3%	
2045	9.41%	5.00%	\$ 463,895	\$ 43,653	\$ 2,686,177	\$ 2,377,255	\$ 308,921	3.61%	5.48%	0.24%	9.33%	\$ 43,281	88.5%	
2046	9.33%	5.00%	\$ 481,291	\$ 44,904	\$ 2,794,314	\$ 2,479,975	\$ 314,340	3.54%	5.47%	0.24%	9.25%	\$ 44,519	88.8%	
2047	9.25%	5.00%	\$ 499,339	\$ 46,189	\$ 2,914,526	\$ 2,594,661	\$ 319,865	3.48%	5.47%	0.24%	9.19%	\$ 45,889	89.0%	
2048	9.19%	5.00%	\$ 518,065	\$ 47,610	\$ 3,048,190	\$ 2,722,676	\$ 325,513	3.41%	5.46%	0.24%	9.11%	\$ 47,196	89.3%	

Projections assume a constant population and no actuarial gains and losses



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION I – BOARD SUMMARY

30-Year Closed Amortization Method:

City of Kansas City, Missouri Employees' Retirement System Projection Based on April 30, 2018 Actuarial Valuation 30-Year Closed Amortization from May 1, 2014 Interest at 7.50% Amounts in thousands														
Valuation as of April 30, (1)	Employer Contribution Rate (2)	Member Contribution Rate (3)	Compensation at Valuation (4)	Employer Contribution (5)	Actuarial Accrued Liability (AAL) (6)	Actuarial Value of Assets (AVA) (7)	Unfunded AAL (8)	UAL Amortization Payment Rate (9)	Normal Cost Rate (10)	Administrative Expense Rate (11)	Employer ADC (12)	Dollar Amount of ADC (13)	Funded Ratio Using AVA (14)	
2018	15.40%	5.00%	\$ 171,688	\$ 26,440	\$ 1,351,563	\$ 1,140,816	\$ 210,747	6.54%	7.66%	0.24%	14.45%	\$ 24,809	84.4%	
2019	14.45%	5.00%	\$ 178,127	\$ 25,721	\$ 1,396,751	\$ 1,186,093	\$ 210,657	6.80%	7.53%	0.24%	14.57%	\$ 25,949	84.9%	
2020	14.57%	5.00%	\$ 184,806	\$ 26,926	\$ 1,442,218	\$ 1,230,234	\$ 211,984	7.11%	7.43%	0.24%	14.78%	\$ 27,314	85.3%	
2021	14.78%	5.00%	\$ 191,737	\$ 28,339	\$ 1,486,862	\$ 1,274,087	\$ 212,774	7.07%	7.24%	0.24%	14.55%	\$ 27,898	85.7%	
2022	14.55%	5.00%	\$ 198,927	\$ 28,944	\$ 1,530,719	\$ 1,318,022	\$ 212,697	7.01%	7.06%	0.24%	14.31%	\$ 28,466	86.1%	
2023	14.31%	5.00%	\$ 206,386	\$ 29,534	\$ 1,573,502	\$ 1,361,028	\$ 212,474	6.97%	6.90%	0.24%	14.11%	\$ 29,121	86.5%	
2024	14.11%	5.00%	\$ 214,126	\$ 30,213	\$ 1,615,310	\$ 1,403,246	\$ 212,064	6.93%	6.74%	0.24%	13.91%	\$ 29,785	86.9%	
2025	13.91%	5.00%	\$ 222,156	\$ 30,902	\$ 1,655,892	\$ 1,444,545	\$ 211,347	6.89%	6.60%	0.24%	13.73%	\$ 30,502	87.2%	
2026	13.73%	5.00%	\$ 230,487	\$ 31,646	\$ 1,695,491	\$ 1,485,232	\$ 210,259	6.87%	6.46%	0.24%	13.57%	\$ 31,277	87.6%	
2027	13.57%	5.00%	\$ 239,130	\$ 32,450	\$ 1,734,282	\$ 1,525,567	\$ 208,715	6.85%	6.34%	0.24%	13.43%	\$ 32,115	88.0%	
2028	13.43%	5.00%	\$ 248,097	\$ 33,319	\$ 1,772,336	\$ 1,565,710	\$ 206,626	6.83%	6.23%	0.24%	13.30%	\$ 32,997	88.3%	
2029	13.30%	5.00%	\$ 257,401	\$ 34,234	\$ 1,809,833	\$ 1,605,943	\$ 203,890	6.82%	6.13%	0.24%	13.19%	\$ 33,951	88.7%	
2030	13.19%	5.00%	\$ 267,053	\$ 35,224	\$ 1,846,677	\$ 1,646,251	\$ 200,425	6.81%	6.04%	0.24%	13.09%	\$ 34,957	89.1%	
2031	13.09%	5.00%	\$ 277,068	\$ 36,268	\$ 1,883,406	\$ 1,687,293	\$ 196,113	6.81%	5.96%	0.24%	13.01%	\$ 36,047	89.6%	
2032	13.01%	5.00%	\$ 287,458	\$ 37,398	\$ 1,920,564	\$ 1,729,708	\$ 190,857	6.81%	5.89%	0.24%	12.94%	\$ 37,197	90.1%	
2033	12.94%	5.00%	\$ 298,238	\$ 38,592	\$ 1,958,332	\$ 1,773,805	\$ 184,527	6.80%	5.83%	0.24%	12.87%	\$ 38,383	90.6%	
2034	12.87%	5.00%	\$ 309,421	\$ 39,823	\$ 1,997,295	\$ 1,820,300	\$ 176,995	6.81%	5.77%	0.24%	12.82%	\$ 39,668	91.1%	
2035	12.82%	5.00%	\$ 321,025	\$ 41,155	\$ 2,037,832	\$ 1,869,668	\$ 168,165	6.81%	5.72%	0.24%	12.77%	\$ 40,995	91.7%	
2036	12.77%	5.00%	\$ 333,063	\$ 42,532	\$ 2,080,511	\$ 1,922,650	\$ 157,861	6.82%	5.67%	0.24%	12.73%	\$ 42,399	92.4%	
2037	12.73%	5.00%	\$ 345,553	\$ 43,989	\$ 2,126,001	\$ 1,980,036	\$ 145,966	6.83%	5.64%	0.24%	12.71%	\$ 43,920	93.1%	
2038	12.71%	5.00%	\$ 358,511	\$ 45,567	\$ 2,175,157	\$ 2,042,851	\$ 132,306	6.84%	5.60%	0.24%	12.68%	\$ 45,459	93.9%	
2039	12.68%	5.00%	\$ 371,955	\$ 47,164	\$ 2,228,615	\$ 2,111,951	\$ 116,664	6.86%	5.58%	0.24%	12.68%	\$ 47,164	94.8%	
2040	12.68%	5.00%	\$ 385,904	\$ 48,933	\$ 2,287,053	\$ 2,188,145	\$ 98,908	6.88%	5.55%	0.24%	12.67%	\$ 48,894	95.7%	
2041	12.67%	5.00%	\$ 400,375	\$ 50,728	\$ 2,351,506	\$ 2,272,768	\$ 78,737	6.92%	5.53%	0.24%	12.69%	\$ 50,808	96.7%	
2042	12.69%	5.00%	\$ 415,389	\$ 52,713	\$ 2,422,645	\$ 2,366,661	\$ 55,984	6.99%	5.51%	0.24%	12.74%	\$ 52,921	97.7%	
2043	12.74%	5.00%	\$ 430,966	\$ 54,905	\$ 2,501,372	\$ 2,471,076	\$ 30,295	7.17%	5.50%	0.24%	12.91%	\$ 55,638	98.8%	
2044	12.91%	5.00%	\$ 447,128	\$ 57,724	\$ 2,588,882	\$ 2,587,603	\$ 1,280	0.29%	5.49%	0.24%	6.02%	\$ 26,917	100.0%	
2045	6.02%	5.00%	\$ 463,895	\$ 27,926	\$ 2,686,177	\$ 2,718,097	\$ (31,920)	-7.01%	5.48%	0.24%	0.00%	\$ -	101.2%	
2046	0.00%	5.00%	\$ 481,291	\$ -	\$ 2,794,314	\$ 2,830,074	\$ (35,760)	-7.57%	5.47%	0.24%	0.00%	\$ -	101.3%	
2047	0.00%	5.00%	\$ 499,339	\$ -	\$ 2,914,526	\$ 2,924,460	\$ (9,934)	-2.03%	5.47%	0.24%	3.68%	\$ 18,376	100.3%	
2048	3.68%	5.00%	\$ 518,065	\$ 19,065	\$ 3,048,190	\$ 3,029,321	\$ 18,869	3.71%	5.46%	0.24%	9.41%	\$ 48,750	99.4%	

Projections assume a constant population and no actuarial gains and losses



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION II – ASSETS

Pension plan assets play a key role in the financial operation of the System and in the decisions the Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact benefit levels, City contributions, and the ultimate security of participants' benefits.

In this section, we present detailed information on the System assets including:

- **Disclosure** of the System assets as of April 30, 2017 and April 30, 2018;
- Statement of the **changes** in market values during the year;
- Development of the **Actuarial Value of Assets**;
- An assessment of **investment performance**; and
- A projection of the System's expected **cash flows** for the next 10 years.

Disclosure

There are two types of asset values disclosed in this valuation, the market value of assets and the actuarial value of assets. The market value represents a “snap-shot” or “cash-out” value which provides the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not as suitable for year-to-year budgeting as are the actuarial value of assets which reflect smoothing of annual investment returns.

Table II-1 below discloses and compares each asset value as of April 30, 2017 and 2018.

Table II-1				
Statement of Assets at Market Value as of April 30,				
Assets	2017	2018	% Change	
Cash	\$ 15,408,858	\$ 22,785,127	47.87%	
Stock and Collective Trusts	1,076,006,335	1,127,398,701	4.78%	
Accounts Receivable	3,089,314	342,529	(88.91%)	
Interest and Dividends	944,554	1,979,378	109.56%	
Contributions Receivable	1,258,303	1,453,333	15.50%	
Expenses	(1,418,563)	(975,572)	(31.23%)	
Purchase of Investments	(2,989,949)	(1,322,518)	(55.77%)	
Market Value of Assets	\$ 1,092,298,852	\$ 1,151,660,978	5.43%	

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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SECTION II – ASSETS

Changes in Market Value

Table II-2 below shows the components of change between the market value of assets as of April 30, 2017 and April 30, 2018.

Table II-2 Changes in Market Values	
Value of Assets – April 30, 2017	\$ 1,092,298,852
<u>Additions</u>	
Member Contributions	\$ 8,622,835
Employer Contributions	24,530,445
Interest and Dividends	18,496,294
Investment Return	84,644,392
Total Additions	\$ 136,293,966
<u>Deductions</u>	
Benefit Payments	\$ (71,994,704)
Investment Expenses	(4,374,106)
Administrative Expenses	(563,030)
Total Deductions	\$ (76,931,840)
Value of Assets – April 30, 2018	\$ 1,151,660,978

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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SECTION II – ASSETS

Actuarial Value of Assets

The next table, Table II-3, shows how the actuarial value of assets is developed.

Asset values are gradually adjusted toward market value by adding 25% of the difference between the market value and expected actuarial asset value to the expected actuarial asset value. The expected actuarial asset value is the actuarial asset value at the beginning of the year plus contributions, less benefit payments, all with interest at the assumed net rate of investment return on an actuarial basis. If the actuarial value of assets is less than 85% or more than 110% of the market value, an adjustment is made to the actuarial value to bring the value within this corridor.

Table II-3 Development of Actuarial Value of Assets	
1. Actuarial Value of Assets at May 1, 2017	\$ 1,095,866,148
2. Contributions	33,153,280
3. Benefit Payments and Administrative Expenses	(72,557,734)
4. Expected Return	80,739,008
5. Expected Actuarial Value at End of Year	1,137,200,702
= (1) + (2) + (3) + (4)	
6. Actual Market Value of Assets at April 30, 2018	1,151,660,978
7. Excess of (6) over (5)	14,460,276
8. Adjustment toward market value: 25% of (7)	3,615,069
9. Adjustment to be within 85%/110% corridor	0
10. Actuarial Value of Assets at May 1, 2018 = (5) + (8) + (9)	\$ 1,140,815,771

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION II – ASSETS

Investment Performance

The market value of assets (MVA) returned 9.21% during plan year ending April 30, 2018, which is greater than the assumed 7.50% return. A return of 7.84% was experienced on the actuarial value of assets (AVA). Below, we show additional historical returns.

Table II-4 Historical Asset Returns			
Fiscal Year Ending April 30,	Return on Market Value	Return on Actuarial Value	Assumed Return
2009	(25.78%)	(17.92%)	7.50%
2010	28.14%	9.24%	7.50%
2011	14.76%	10.62%	7.50%
2012	0.68%	8.32%	7.50%
2013	12.39%	9.38%	7.50%
2014	11.44%	9.96%	7.50%
2015	8.33%	9.58%	7.50%
2016	(2.47%)	6.44%	7.50%
2017	10.47%	7.39%	7.50%
2018	9.21%	7.84%	7.50%

Projection of System's Future Cash Flows

Table II-5 Projection of System's Expected Cash Flows (\$ thousands)			
Year Beginning May 1,	Benefits and Expenses	Total Contributions*	Net Cash Flow
2018	\$ (76,688)	\$ 35,024	\$ (41,664)
2019	(80,119)	36,819	(43,300)
2020	(84,689)	38,735	(45,954)
2021	(89,187)	40,782	(48,405)
2022	(93,940)	41,834	(52,106)
2023	(98,544)	42,887	(55,657)
2024	(103,366)	44,046	(59,320)
2025	(107,883)	45,231	(62,652)
2026	(112,205)	46,512	(65,693)
2027	(116,448)	47,826	(68,622)

* Expected contributions include City contributions and Member contributions. City contributions are projected under the Board's funding policy assuming future market value returns of 7.5% as shown in the table on page 10.

CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT

SECTION III – LIABILITIES

In this section, we present detailed information on the System liabilities including:

- **Disclosure** of the System liabilities as of May 1, 2017 and May 1, 2018, and
- Statement of **changes** in these liabilities during the year.

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them.

- **Present Value of Future Benefits:** Used for measuring all future System obligations, represents the amount of money needed today to fund all benefits of the System both earned as of the valuation date and those to be earned in the future by current plan participants, under the current plan provisions.
- **Actuarial Liability:** Used for funding calculations, this liability is calculated taking the present value of benefits and subtracting the present value of future member contributions and future employer normal costs under an acceptable actuarial funding method. This method is referred to as the **Entry Age Normal** funding method.
- **Present Value of Accrued Benefits:** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fund the current accrued obligations of the System, assuming no future accruals of benefits.

None of these liabilities are appropriate for measuring the cost of settlement of plan liabilities either by purchase of annuities or payment of lump sums.

Table III-1, which follows, discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of plan assets yields, for each respective type, a **net surplus** or an **unfunded liability**.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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SECTION III – LIABILITIES

Table III-1		
Liabilities/Net (Surplus)/Unfunded		
	May 1, 2017	May 1, 2018
<u>Present Value of Future Benefits</u>		
Active Participant Benefits	\$ 693,445,901	\$ 697,402,395
Retiree and Inactive Benefits	763,849,760	799,460,634
Present Value of Future Benefits (PVB)	\$ 1,457,295,661	\$ 1,496,863,029
<u>Actuarial Liability</u>		
Present Value of Future Benefits (PVB)	\$ 1,457,295,661	\$ 1,496,863,029
Present Value of Future Normal Costs (PVFNC)	145,140,817	145,300,408
Actuarial Liability (AAL = PVB – PVFNC)	1,312,154,844	1,351,562,621
Actuarial Value of Assets (AVA)	1,095,866,148	1,140,815,771
Net (Surplus)/Unfunded (AL – AVA)	\$ 216,288,696	\$ 210,746,850
<u>Present Value of Accrued Benefits</u>		
Present Value of Future Benefits (PVB)	\$ 1,457,295,661	\$ 1,496,863,029
Present Value of Future Benefit Accruals (PVFBA)	269,740,846	270,089,120
Present Value of Accrued Benefits (PVAB = PVB – PVFBA)	1,187,554,815	1,226,773,909
Market Value of Assets (MVA)	1,092,298,852	1,151,660,978
Net Unfunded/(Surplus)	\$ 95,255,963	\$ 75,112,931

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION III – LIABILITIES

Changes in Liabilities

Each of the Liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- System amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and also due to changes in plan assets resulting from:

- Employer contributions different than expected
- Investment earnings different than expected
- A change in the method used to measure plan assets

In each valuation, we report on those elements of change which are of particular significance, potentially affecting the long-term financial outlook of the System. Below, we present key changes in liabilities since the last valuation.

In the table that follows, we show the components of change in the actuarial liability between May 1, 2017 and May 1, 2018.

Table III-2	
	Actuarial Liability
Liabilities May 1, 2017	\$ 1,312,154,844
Liabilities May 1, 2018	1,351,562,621
Liability Increase/(Decrease)	39,407,777
Change Due to:	
Plan Amendments	0
Assumption Changes	0
Actuarial (Gain)/Loss	(5,950,249)
Benefits Accumulated and Other Sources	45,358,026

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION III – LIABILITIES

In addition, we breakdown the change in actuarial liability further by showing the total actuarial (gain)/loss by source, as shown in Table III-3 below.

TABLE III-3 (Gain)/Loss by Source as of May 1, 2018	
Turnover	\$ 1,238,000
Retirement	(829,000)
Pre-retirement mortality	(283,000)
Post-retirement mortality	(6,615,000)
Salary increase more/(less) than expected for continuing actives	(5,410,000)
New entrants	5,140,000
Data Composition & Miscellaneous changes	809,000
Total (Gain)/Loss	\$ (5,950,000)

Table III-4 Historical Liability (Gains)/Losses (\$ Millions)					
Change due to:	2014	2015	2016	2017	2018
Turnover	\$ (6.1)	\$ (0.4)	\$ 1.9	\$ 0.2	\$ 1.2
Retirement	1.5	0.7	(0.5)	(1.3)	(0.8)
Pre-retirement mortality	0.8	0.7	0.7	(1.9)	(0.3)
Post-retirement mortality	(4.1)	1.5	0.2	(1.7)	(6.6)
Salary change	(5.4)	(11.2)	(17.0)	(3.1)	(5.4)
New entrants	1.6	0.9	2.6	5.2	5.1
Miscellaneous	2.8	1.7	6.4	0.3	0.8
Total (Gain)/Loss	\$ (8.9)	\$ (6.1)	\$ (5.7)	\$ (2.3)	\$ (6.0)

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION IV – CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the System. Typically, the actuarial process will use a funding method that will result in a pattern of contributions that are both stable and predictable.

For this System, the funding method employed is the **Entry Age Actuarial Cost Method**. Under this method, there are three primary components to the total actuarially determined contribution: the **normal cost rate** (employee and employer), the **administrative expense rate**, and the **unfunded actuarial liability rate** (UAL rate). The normal cost rate is determined by taking the value, as of entry age into the System, of each member's projected future benefits. This value is then divided by the value, also at entry age, of each member's expected future salary. The normal cost rate is multiplied by current salary to determine each member's normal cost rate. Finally, the total normal cost rate is reduced by the member contribution rate to produce the employer normal cost rate. The difference between the Entry Age Normal actuarial liability and the actuarial value of assets is the unfunded actuarial liability.

Contributions are calculated on two bases:

- Under the Board's policy for calculating the Actuarially Determined Contribution, the unfunded actuarial liability is amortized under a layered approach over a 20-year period as a level percent of pay for all years except with respect to the experience loss for the plan year ending April 30, 2009. That loss was amortized over 30 years. All future gains or losses to the unfunded actuarial liability will establish new 20-year amortization periods. Payroll is expected to increase 3.75% per year.
- Under the City ordinance, the City's contributions will be based upon a 30-year open amortization of the entire unfunded liability.

For both calculations, the increase in contribution rates due to the May 1, 2016 actuarial assumption changes is phased-in over five years.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION IV – CONTRIBUTIONS

Table IV-1 below presents and compares the employer contribution rates for the System for this valuation and the prior one using both the current Board funding policy amortization method and using a 30-year open amortization method.

Table IV-1		
Employer Contribution Rate*		
	May 1, 2017	May 1, 2018
<u>Current Board Funding Policy</u>		
Entry Age Normal Cost Rate	7.71%	7.67%
Administrative Expense Rate	0.24%	0.24%
Amortization Payment	7.45%	7.77%
Actuarially Determined Contribution	15.40%	15.68%
<u>30-Year Open Amortization Method</u>		
Entry Age Normal Cost Rate	7.71%	7.67%
Administrative Expense Rate	0.24%	0.24%
Amortization Payment	5.93%	5.96%
Actuarially Determined Contribution	13.88%	13.87%

** Rates reflect the 5-year phase-in of the 2016 assumption changes*

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION IV – CONTRIBUTIONS

Table IV-2 below presents the May 1, 2018 employer contribution rates for the System split between the General Employees and the Judges and Elected Officials. The employer contribution rate is based on the amortization schedule shown in Table IV-3. The employer contribution rates are then compared to what the City is expected to contribute for the current plan year. The current expected City contribution rate for all employees for the year ending April 30, 2019 is 15.40% of payroll.

Table IV -2			
Development of Plan Contribution Rate			
as of May 1, 2018			
	General Employees	Judges and Elected Officials	Total
1. Normal Cost (Monthly):			
a. Total Normal Cost	12.85%	18.90%	12.87%
b. Administrative Expense	0.24%	0.24%	0.24%
c. Expected Members Contribution	<u>5.00%</u>	<u>5.00%</u>	<u>5.00%</u>
d. Employer Paid Normal Cost (a) + (b) - (c)	8.09%	14.14%	8.11%
2. Amortization of Unfunded Liability			
a. Actuarial Liability	\$ 1,336,456,308	\$15,106,313	\$1,351,562,621
b. Actuarial Value of Assets ¹	<u>1,128,064,960</u>	<u>12,750,811</u>	<u>\$1,140,815,771</u>
c. Unfunded Liability (a) - (b)	208,391,348	2,355,502	210,746,850
d. Amortization of Unfunded Liability	8.59%	25.31%	8.65%
3. Actuarially Determined Employer Contribution Rate before phase-in (1) + (2d)	16.68%	39.45%	16.76%
4. Increase due to change in 2016 assumptions	2.71%	3.69%	2.72%
5. Actuarially Determined Employer Contribution Rate after phase-in (3) - (40% x (4))²	15.60%	37.97%	15.68%
6. Scheduled City Contributions³	15.40%	15.40%	15.40%

¹ Allocated in proportion to the Actuarial Liability

² Total payroll is \$171,688,301, and the actuarially determined contribution for plan year ending April 30, 2020 is \$26,920,726 based on the total employer actuarially determined contribution rate. The payroll for the judges and elected officials is \$593,052, and the actuarially determined contribution for this group for the plan year ending April 30, 2020 is \$217,946

³ The scheduled contribution is based upon the prior year's actuarially determined employer contribution rate for all employees.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION IV – CONTRIBUTIONS

Under the Board funding policy, for purposes of calculating the Actuarially Determined Contribution under GASB, the Unfunded Actuarial Liability is amortized in accordance with the schedule below:

Initial unfunded actuarial liability (as of May 1, 2008)	20 years
Changes to the UAL on May 1, 2009	30 years
Changes to the UAL on and after May 1, 2010	20 years

Amortization payments as of May 1, 2018 are shown in the table below.

TABLE IV-3							
Unfunded Actuarial Liability Amortization Schedule							
Item	Date Created	Initial Years	Initial Balance	Remaining Years	Outstanding Balance	Amortization Payment	Amortization Factor
Initial UAL	5/1/2008	20	\$ 60,653,589	10	\$ 51,501,453	\$ 6,127,523	8.405
2009 (Gain)/Loss*	5/1/2009	30	\$ 201,970,870	21	\$ 226,679,967	\$ 15,336,834	14.780
2010 (Gain)/Loss*	5/1/2010	20	\$ (21,123,472)	12	\$ (19,386,240)	\$ (1,986,996)	9.757
2011 (Gain)/Loss*	5/1/2011	20	\$ (12,149,092)	13	\$ (11,459,729)	\$ (1,102,192)	10.397
2011 Assumption Change	5/1/2011	20	\$ (32,092,544)	13	\$ (30,271,556)	\$ (2,911,506)	10.397
2012 (Gain)/Loss*	5/1/2012	20	\$ 372,006	14	\$ 358,457	\$ 32,541	11.016
2012 Plan Amendment	5/1/2012	20	\$ 16,284,519	14	\$ 15,691,434	\$ 1,424,484	11.016
2013 (Gain)/Loss*	5/1/2013	20	\$ (11,094,653)	15	\$ (10,863,941)	\$ (935,558)	11.612
2014 (Gain)/Loss*	5/1/2014	20	\$ (29,765,565)	16	\$ (29,485,172)	\$ (2,419,160)	12.188
2014 Plan Amendment	5/1/2014	20	\$ 253,038	16	\$ 250,655	\$ 20,565	12.188
2015 (Gain)/Loss*	5/1/2015	20	\$ (29,953,245)	17	\$ (29,859,389)	\$ (2,343,012)	12.744
2016 (Gain)/Loss*	5/1/2016	20	\$ 2,724,018	18	\$ 2,723,505	\$ 205,076	13.280
2016 Assumption Change	5/1/2016	20	\$ 48,300,635	18	\$ 48,291,549	\$ 3,636,285	13.280
2017 (Gain)/Loss*	5/1/2017	20	\$ 2,796,441	19	\$ 2,799,915	\$ 202,919	13.798
2018 (Gain)/Loss*	5/1/2018	20	\$ (6,224,058)	20	\$ (6,224,058)	\$ (435,314)	14.298
Total					\$ 210,746,850	\$ 14,852,490	

*Also includes differences between the Actuarially Determined Contribution and the actual contributions made.

Under the City ordinance, amortization payments are calculated using a 30-year open amortization method. The amortization payment as of May 1, 2018 is shown in the table below.

TABLE IV-4			
Unfunded Actuarial Liability Amortization Schedule			
UAL	Remaining Years*	Amortization Payment**	Amortization Factor
\$210,746,850	30	\$11,435,269	18.430

*30-year open amortization

** Results do not reflect the 5 year phase-in of the 2016 assumption changes

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION V – FINANCIAL STATEMENT INFORMATION

The Government Finance Officers Association (GFOA) maintains a checklist of items to be included in a public retirement system's Comprehensive Annual Financial Report (CAFR) in order to receive recognition for excellence in financial reporting. Although the Kansas City Employees' Retirement System does not issue a CAFR under GFOA guidelines, we have included certain schedules in this section for possible inclusion within the System's audited financial statements.

Tables V-1 through V-5 are exhibits which could be used with the CAFR report. Table V-1 is the Note to Required Supplementary Information, Table V-2 is a history of gains and losses in actuarial liability, Table V-3 is the Solvency Test which shows the portion of actuarial liability covered by assets, Table V-4 shows historical Actuarially Determined Contribution information, compared to what the City actually contributed, and Table V-5 is the Schedule of Funding Progress.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION V – FINANCIAL STATEMENT INFORMATION

**Table V-1
NOTE TO REQUIRED SUPPLEMENTARY INFORMATION**

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows.

Valuation date		May 1, 2018
Actuarial cost method		Entry age
Amortization method	20-year layered amortization, level percent of pay*	
Remaining amortization period for the UAL	Weighted average of 19.8 years	
Asset valuation method	Four year smoothing using Expected Value Method	
Actuarial assumptions:		
Investment rate of return		7.50%
Projected salary increases	Ranges from 5.0% to 3.75%	
Cost-of-living adjustments		3.0% simple
Inflation		3.0%

The actuarial assumptions used have been based upon recommendations by the actuary and adopted by the System's Board of Trustees. The most recent actuarial experience study was performed for the period May 1, 2010 through April 30, 2015.

The rate of employer actuarially determined contributions to the System is composed of the normal cost, expected administrative expenses, and an amortization of the unfunded actuarial liability. The normal cost is a level percent of payroll cost which, along with member contributions, will pay for projected benefits at retirement for the average plan participant. The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and the actuarial value of assets as of the same date is the unfunded actuarial liability. The contribution rate change as a result of the revised assumptions adopted as of May 1, 2016 is phased-in over five years.

** For all years except changes to the 5/1/2009 unfunded actuarial liability, which are amortized over 30 years.*

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION V – FINANCIAL STATEMENT INFORMATION

Table V-2

ANALYSIS OF FINANCIAL EXPERIENCE

**Gain and Loss in Unfunded Actuarial Liability During Years Ended April 30
Resulting from Differences Between Assumed Experience and Actual Experience**

*Gain (or Loss) for Year ending April 30,
(expressed in thousands)*

Type of Activity	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Investment Income*	\$(216,876)	\$ 5,151	\$ 18,253	\$ 880	\$ 12,225	\$ 20,897	\$ 23,876	\$ (8,394)	\$ (5,088)	\$ 274
Combined Liability Experience	12,781	15,972	(6,104)	(1,252)	(1,130)	8,868	6,077	5,670	2,292	5,950
Gain/(or Loss) during Year from Financial Experience	\$(204,095)	\$ 21,123	\$ 12,149	\$ (372)	\$ 11,095	\$ 29,765	\$ 29,953	\$ (2,724)	\$ (2,796)	\$ 6,224
Non-Recurring Gain/(or Loss) Items	0	0	32,093	(16,285)	0	(253)	0	(48,301)	0	0
Composite Gain/(or Loss) during Year	\$(204,095)	\$ 21,123	\$ 44,242	\$ (16,657)	\$ 11,095	\$ 29,512	\$ 29,953	\$ (51,025)	\$ (2,796)	\$ 6,224

* Investment experience includes differences in actual and recommended contributions

Table V-3

SOLVENCY TEST

**Aggregate Actuarial Liabilities for
(expressed in thousands)**

Valuation Date May 1	Active Member Contributions (1)	Retirees & Beneficiaries (2)	Active Member	Actuarial	Portion of Actuarial Liabilities		
			Employer Financed Contributions (3)	Value of Reported Assets	Covered by Reported Assets		
					(1)	(2)	(3)
2009	\$78,693	\$502,980	\$385,106	\$704,069	100%	100%	32%
2010	\$82,853	\$521,175	\$390,740	\$749,552	100%	100%	37%
2011	\$87,137	\$549,227	\$374,632	\$806,793	100%	100%	45%
2012	\$88,746	\$577,175	\$404,832	\$847,090	100%	100%	45%
2013	\$90,514	\$603,734	\$420,917	\$900,062	100%	100%	49%
2014	\$92,849	\$630,056	\$426,979	\$962,152	100%	100%	56%
2015	\$96,110	\$669,335	\$420,299	\$1,026,046	100%	100%	62%
2016	\$100,307	\$730,541	\$437,311	\$1,055,814	100%	100%	51%
2017	\$102,889	\$763,850	\$445,416	\$1,095,866	100%	100%	51%
2018	\$106,012	\$799,461	\$446,090	\$1,140,816	100%	100%	53%

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION V – FINANCIAL STATEMENT INFORMATION

Table V-4 Schedule of City Contributions				
Plan Year Ended April 30	Actuarially Determined Contributions		Actual Contributions	Percentage Contributed
2010	\$29,589,060	*	\$19,186,317	64.84%
2011	\$27,772,227	*	\$18,822,709	67.78%
2012	\$26,326,555	*	\$20,543,487	78.03%
2013	\$27,682,872	*	\$23,744,372	85.77%
2014	\$27,568,194	*	\$25,987,662	94.27%
2015	\$27,568,194	**	\$27,569,434	100.00%
2016	\$24,540,893	**	\$24,577,647	100.15%
2017	\$23,042,413	**	\$23,701,217	102.86%
2018	\$24,390,835	**	\$24,530,445	100.57%
2019	\$25,842,898	**	--	--

**The actuarially determined contribution for the plan years ended April 30, 2009 through April 30, 2014 is based on the actuarially computed contribution for the valuation year.*

***For plan years ended April 30, 2015 and later, the actuarially determined contribution is based on the calculation for the prior valuation year using estimated valuation payroll. The actuarially computed contribution for the current valuation year is described in Section IV, Table IV-2.*

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

SECTION V – FINANCIAL STATEMENT INFORMATION

**Table V-5
Schedule of Funding Progress**

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Liability (b)	Unfunded Actuarial Liability (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAL as a Percentage of Covered Payroll* [(b) - (a)] / (c)
5/1/2009	\$704,069,429	\$966,779,322	\$262,709,893	72.83%	\$160,200,649	163.99%
5/1/2010	\$749,551,649	\$994,767,684	\$245,216,035	75.35%	\$153,948,044	159.28%
5/1/2011	\$806,792,596	\$1,010,996,133	\$204,203,537	79.80%	\$163,113,722	125.19%
5/1/2012	\$847,089,856	\$1,070,752,440	\$223,662,584	79.11%	\$161,134,295	138.81%
5/1/2013	\$900,061,516	\$1,115,165,108	\$215,103,592	80.71%	\$166,877,688	128.90%
5/1/2014	\$962,152,010	\$1,149,883,725	\$187,731,715	83.67%	\$167,629,048	111.99%
5/1/2015	\$1,026,045,837	\$1,185,743,686	\$159,697,849	86.53%	\$166,853,097	95.71%
5/1/2016	\$1,055,813,977	\$1,268,159,303	\$212,345,326	83.26%	\$164,248,048	129.28%
5/1/2017	\$1,095,866,148	\$1,312,154,844	\$216,288,696	83.52%	\$167,811,028	128.89%
5/1/2018	\$1,140,815,771	\$1,351,562,621	\$210,746,850	84.41%	\$171,688,301	122.75%

* Not less than zero

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

City of Kansas City, Missouri Employees' Retirement System			
Active Member Data			
	May 1, 2017	May 1, 2018	% Change
<u>Total</u>			
Count	3,170	3,218	1.51%
Average Current Age	47.12	46.93	-0.40%
Average Service	12.08	11.85	-1.90%
Average Valuation Pay	\$ 52,937	\$ 53,352	0.78%
Annual Compensation	\$ 167,811,028	\$ 171,688,301	2.31%
<u>General Members</u>			
Count	3,165	3,214	1.55%
Average Current Age	47.11	46.92	-0.40%
Average Service	12.08	11.85	-1.90%
Average Valuation Pay	\$ 52,787	\$ 53,234	0.85%
Annual Compensation	\$ 167,069,713	\$ 171,095,249	2.41%
<u>Judges</u>			
Count	5	4	-20.00%
Average Current Age	54.69	53.61	-1.97%
Average Service	13.22	14.48	9.53%
Average Valuation Pay	\$ 148,263	\$ 148,263	0.00%
Annual Compensation	\$ 741,315	\$ 593,052	-20.00%
<u>Elected Officials</u>			
Count	0	0	0.00%
Average Current Age	0.00	0.00	0.00%
Average Service	0.00	0.00	0.00%
Average Valuation Pay	\$ 0	\$ 0	0.00%
Annual Compensation	\$ 0	\$ 0	0.00%

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System			
Table of Plan Coverage			
	May 1, 2017	May 1, 2018	% change
Active Members in Valuation			
<u>Tier 1</u>			
Number	2,415	2,234	-7.49%
Average Age	49.89	50.71	1.63%
Average Service	15.43	16.30	5.65%
Total Payroll	\$ 137,435,697	\$ 130,942,327	-4.72%
Average Anticipated Payroll	\$ 56,909	\$ 58,613	2.99%
Account Balance	\$ 100,877,071	\$ 102,473,640	1.58%
Eligible to Retire on:			
Normal Pension	104	104	0.00%
Optional Pension	404	417	3.22%
Early Pension	253	258	1.98%
Deferred Pension	<u>1,398</u>	<u>1,318</u>	-5.72%
Total Active Vested Members	2,159	2,097	-2.87%
<u>Tier 2</u>			
Number	755	984	30.33%
Average Age	38.25	38.35	0.26%
Average Service	1.38	1.77	28.26%
Total Payroll	\$ 30,375,332	\$ 40,745,974	34.14%
Average Anticipated Payroll	\$ 40,232	\$ 41,409	2.92%
Account Balance	\$ 2,012,180	\$ 3,538,526	75.86%
Eligible to Retire on:			
Normal Pension	0	0	N/A
Optional Pension	0	0	N/A
Early Pension	0	0	N/A
Deferred Pension	<u>0</u>	<u>0</u>	N/A
Total Active Vested Members	0	0	N/A
<u>Total</u>			
Number	3,170	3,218	1.51%
Average Age	47.12	46.93	-0.40%
Average Service	12.08	11.85	-1.90%
Total Payroll	\$ 167,811,028	\$ 171,688,301	2.31%
Average Anticipated Payroll	\$ 52,937	\$ 53,352	0.78%
Account Balance	\$ 102,889,251	\$ 106,012,166	3.04%
Eligible to Retire on:			
Normal Pension	104	104	0.00%
Optional Pension	404	417	3.22%
Early Pension	253	258	1.98%
Deferred Pension	<u>1,398</u>	<u>1,318</u>	-5.72%
Total Active Vested Members	2,159	2,097	-2.87%

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Table of Plan Coverage (cont.)			
	May 1, 2017	May 1, 2018	% change
Vested Terminated Members	111	189	70.27%
Deaths During the Plan Year	115	110	-4.35%
Pensioners:			
Number in Pay Status			
Retirees	2,012	2,054	2.09%
Disabled Retirees	<u>8</u>	<u>8</u>	0.00%
Total	2,020	2,062	2.08%
Average Age	70.29	70.40	0.16%
Average Monthly Benefit**	\$ 2,349	\$ 2,419	3.00%
Beneficiaries in Pay Status*	380	386	1.58%
Members Due Refunds	283	257	-9.19%

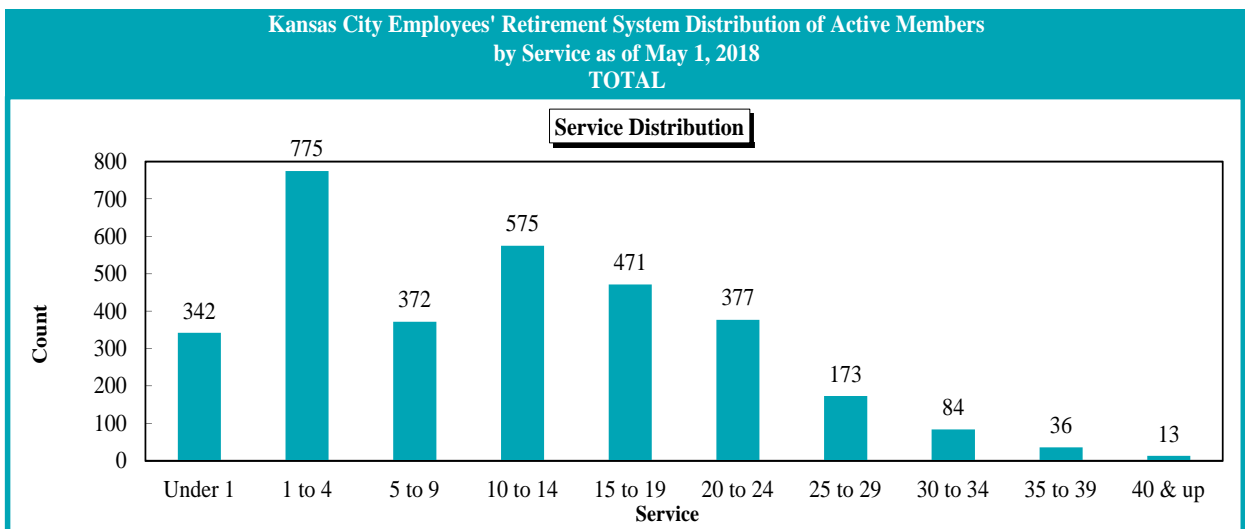
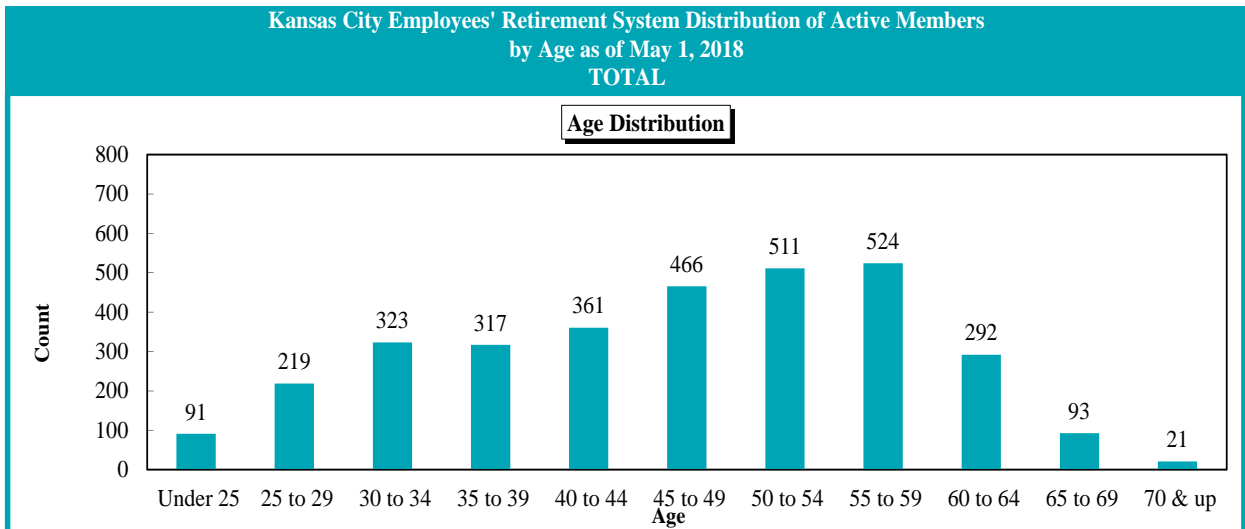
* Widows, QDROs, and Children

** The monthly benefit does not include the health insurance subsidy benefits

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

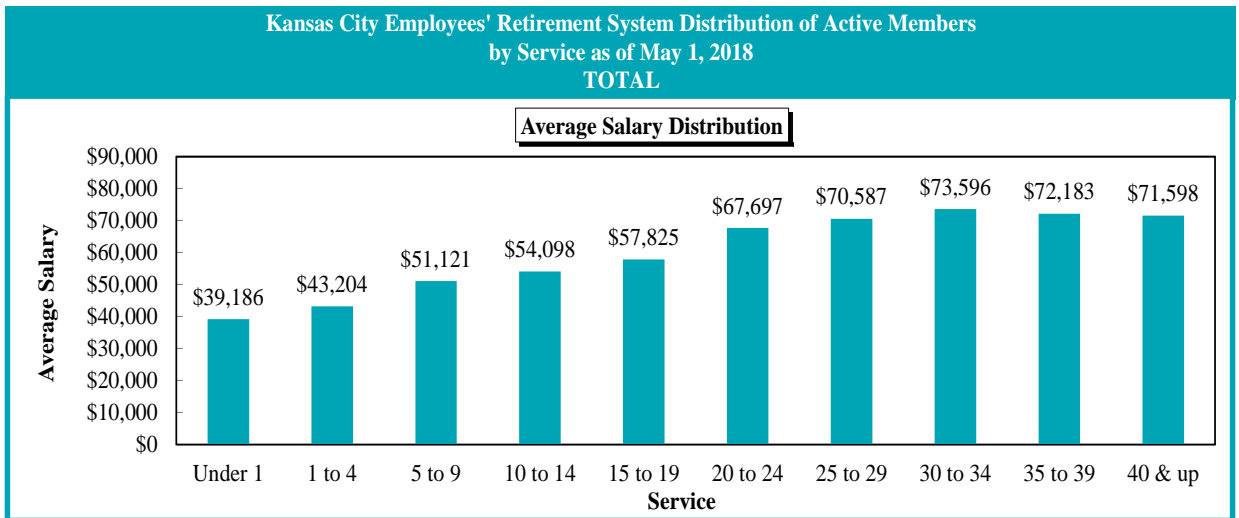
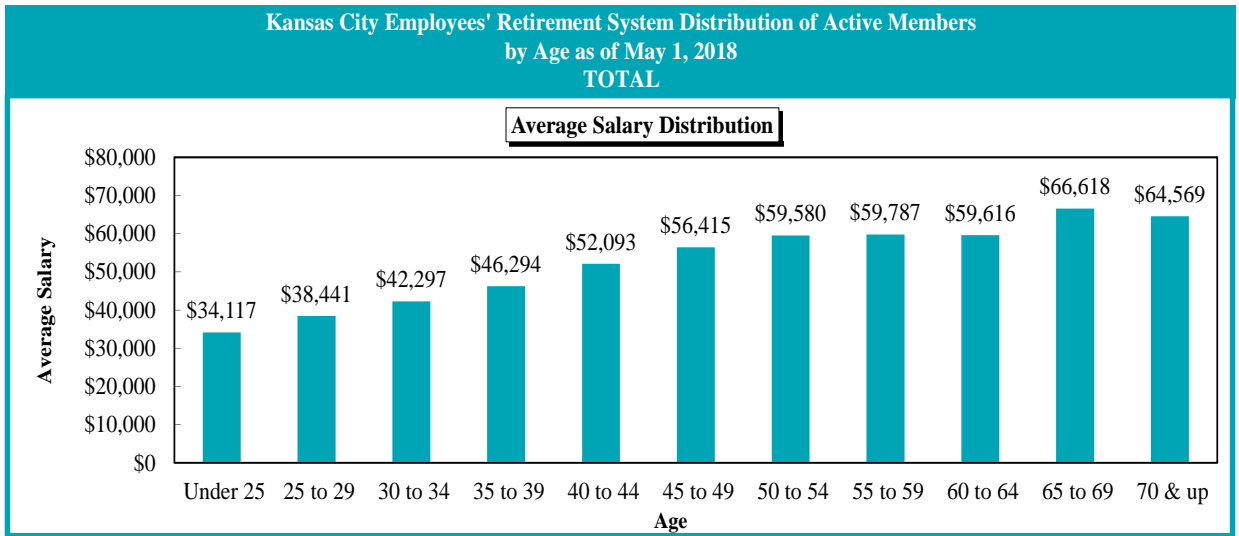
Kansas City Employees' Retirement System Distribution of Active Members by Age and Service as of May 1, 2018											
TOTAL											
COUNTS BY AGE/SERVICE											
Age	Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25	55	35	1	0	0	0	0	0	0	0	91
25 to 29	66	132	20	1	0	0	0	0	0	0	219
30 to 34	64	153	57	48	1	0	0	0	0	0	323
35 to 39	47	117	56	71	25	1	0	0	0	0	317
40 to 44	27	81	58	105	74	16	0	0	0	0	361
45 to 49	32	86	49	101	100	79	19	0	0	0	466
50 to 54	23	59	49	80	115	120	50	14	1	0	511
55 to 59	19	63	49	95	92	96	60	40	10	0	524
60 to 64	6	41	20	53	45	51	34	23	14	5	292
65 to 69	3	5	11	17	17	9	10	7	9	5	93
70 & up	0	3	2	4	2	5	0	0	2	3	21
Total	342	775	372	575	471	377	173	84	36	13	3,218



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

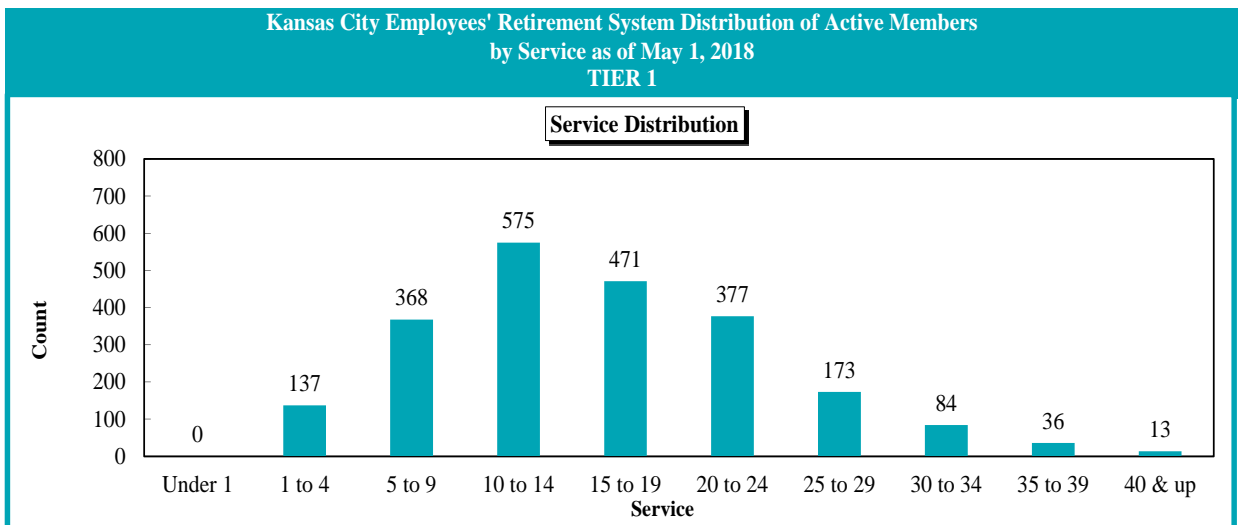
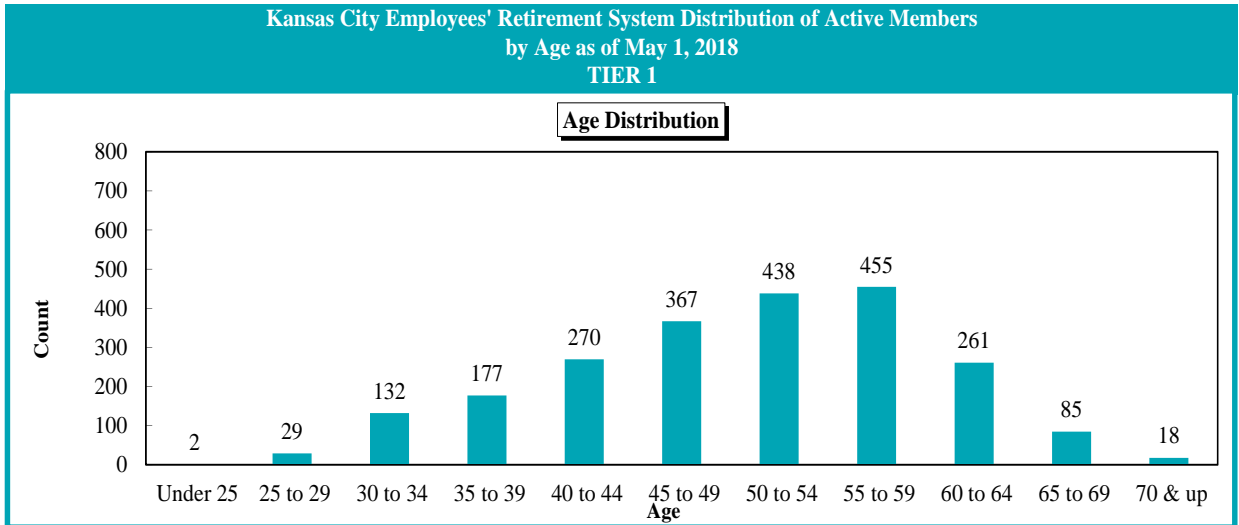
Kansas City Employees' Retirement System Distribution of Active Members by Age and Service as of May 1, 2018												
TOTAL												
AVERAGE SALARY BY AGE/SERVICE												
Age	Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up		
Under 25	\$ 32,713	\$ 36,073	\$ 42,888	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 34,117
25 to 29	37,568	38,869	38,280	42,888	-	-	-	-	-	-	-	38,441
30 to 34	38,324	41,924	45,608	43,944	85,932	-	-	-	-	-	-	42,297
35 to 39	36,420	45,189	52,513	49,015	48,338	46,992	-	-	-	-	-	46,294
40 to 44	42,592	45,376	51,180	57,215	54,384	61,229	-	-	-	-	-	52,093
45 to 49	39,111	43,431	55,171	57,555	59,539	69,663	69,944	-	-	-	-	56,415
50 to 54	42,116	45,917	58,313	52,117	60,416	70,174	66,535	70,430	59,184	-	-	59,580
55 to 59	57,674	48,242	48,656	56,167	54,796	66,272	72,435	73,537	78,253	-	-	59,787
60 to 64	65,056	43,870	48,515	53,730	62,623	64,410	68,373	76,797	64,043	62,079	-	59,616
65 to 69	33,992	49,116	62,539	63,914	60,008	66,371	88,515	69,742	71,423	87,970	-	66,618
70 & up	-	61,696	48,342	53,484	67,926	65,275	-	-	108,738	60,176	-	64,569
Total	\$ 39,186	\$ 43,204	\$ 51,121	\$ 54,098	\$ 57,825	\$ 67,697	\$ 70,587	\$ 73,596	\$ 72,183	\$ 71,598		\$ 53,352



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

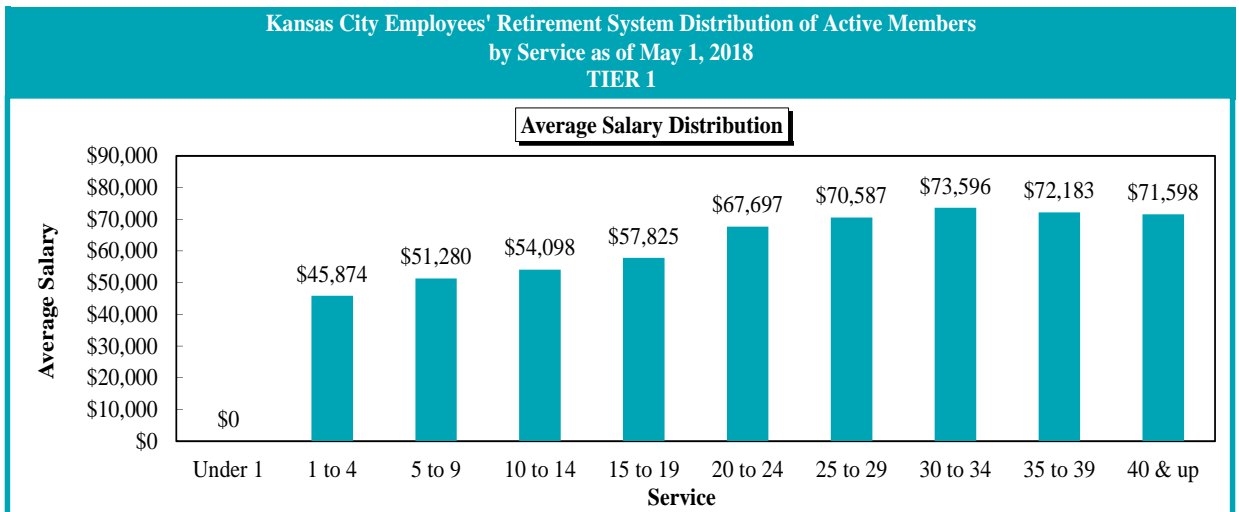
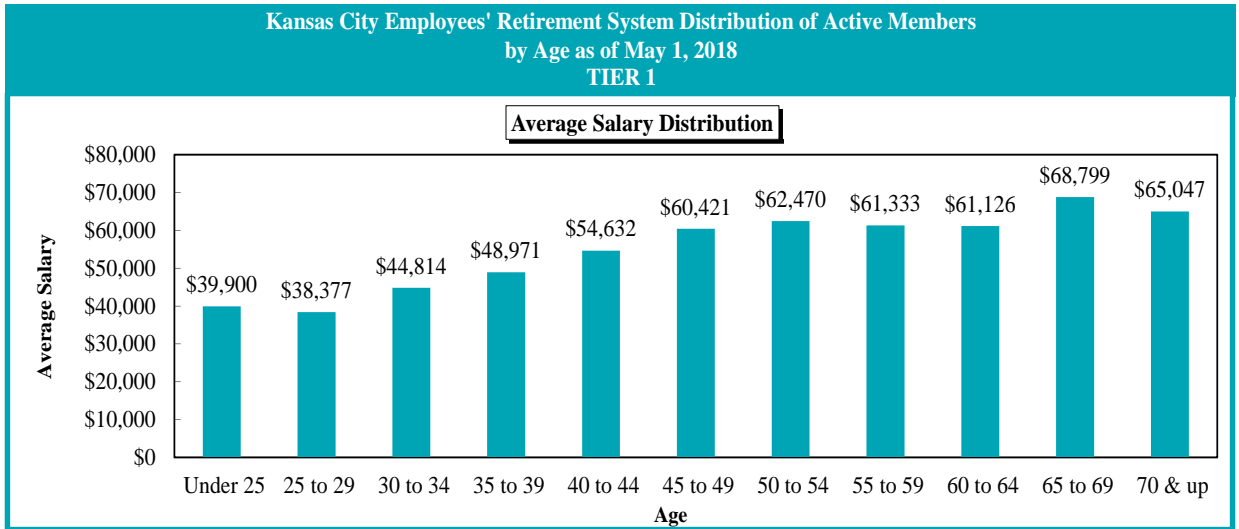
Kansas City Employees' Retirement System Distribution of Active Members by Age and Service as of May 1, 2018											
TIER 1											
COUNTS BY AGE/SERVICE											
Age	Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25	0	1	1	0	0	0	0	0	0	0	2
25 to 29	0	9	19	1	0	0	0	0	0	0	29
30 to 34	0	27	56	48	1	0	0	0	0	0	132
35 to 39	0	25	55	71	25	1	0	0	0	0	177
40 to 44	0	17	58	105	74	16	0	0	0	0	270
45 to 49	0	19	49	101	100	79	19	0	0	0	367
50 to 54	0	10	48	80	115	120	50	14	1	0	438
55 to 59	0	13	49	95	92	96	60	40	10	0	455
60 to 64	0	16	20	53	45	51	34	23	14	5	261
65 to 69	0	0	11	17	17	9	10	7	9	5	85
70 & up	0	0	2	4	2	5	0	0	2	3	18
Total	0	137	368	575	471	377	173	84	36	13	2,234



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

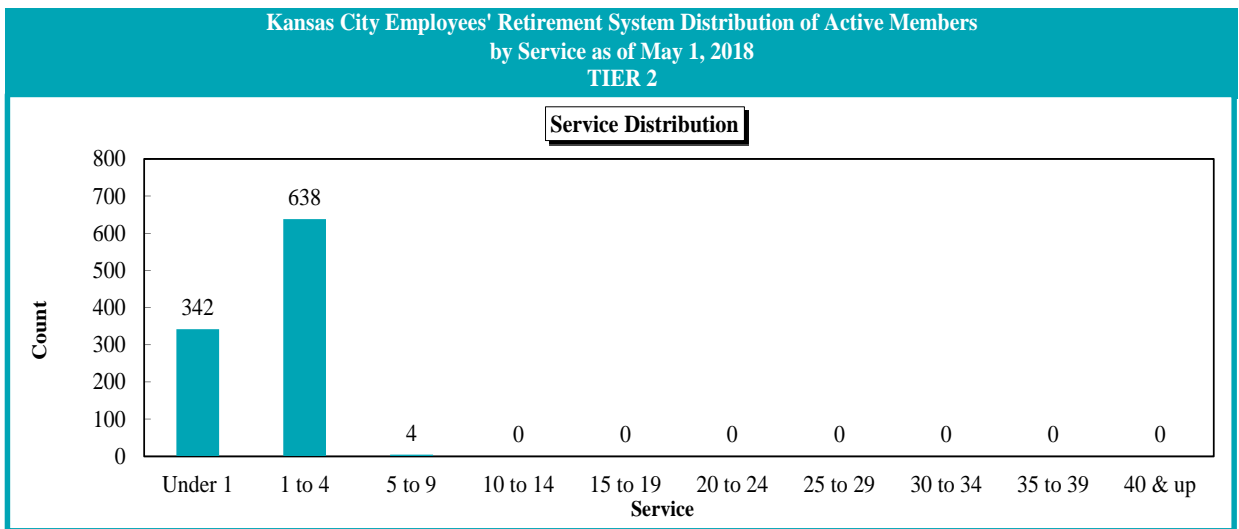
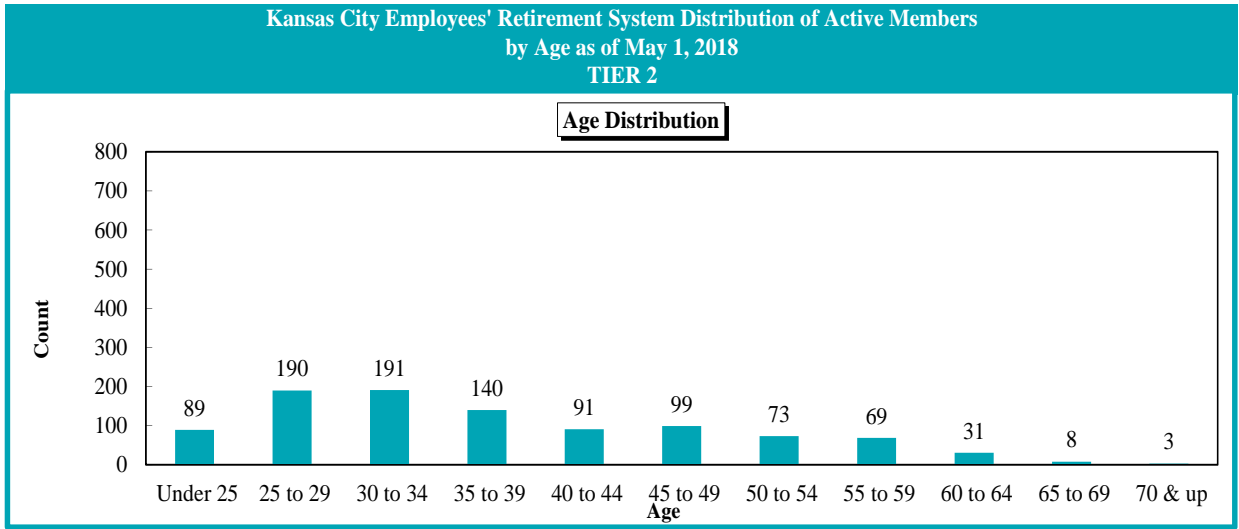
Kansas City Employees' Retirement System Distribution of Active Members by Age and Service as of May 1, 2018											
TIER 1											
AVERAGE SALARY BY AGE/SERVICE											
Age	Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25	\$ -	\$ 36,912	\$ 42,888	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 39,900
25 to 29	-	37,927	38,352	42,888	-	-	-	-	-	-	38,377
30 to 34	-	42,739	45,826	43,944	85,932	-	-	-	-	-	44,814
35 to 39	-	41,048	52,840	49,015	48,338	46,992	-	-	-	-	48,971
40 to 44	-	45,325	51,180	57,215	54,384	61,229	-	-	-	-	54,632
45 to 49	-	45,898	55,171	57,555	59,539	69,663	69,944	-	-	-	60,421
50 to 54	-	63,598	58,666	52,117	60,416	70,174	66,535	70,430	59,184	-	62,470
55 to 59	-	54,839	48,656	56,167	54,796	66,272	72,435	73,537	78,253	-	61,333
60 to 64	-	45,929	48,515	53,730	62,623	64,410	68,373	76,798	64,043	62,079	61,126
65 to 69	-	-	62,539	63,914	60,008	66,371	88,515	69,742	71,423	87,970	68,799
70 & up	-	-	48,342	53,484	67,926	65,275	-	-	108,738	60,176	65,047
Total	\$ -	\$ 45,874	\$ 51,280	\$ 54,098	\$ 57,825	\$ 67,697	\$ 70,587	\$ 73,596	\$ 72,183	\$ 71,598	\$ 58,613



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

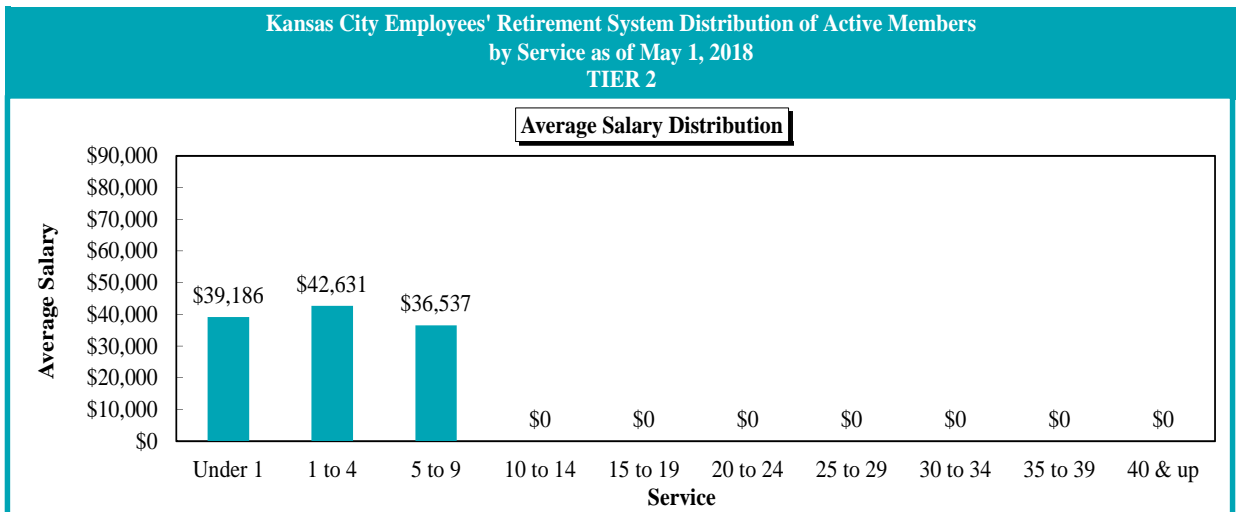
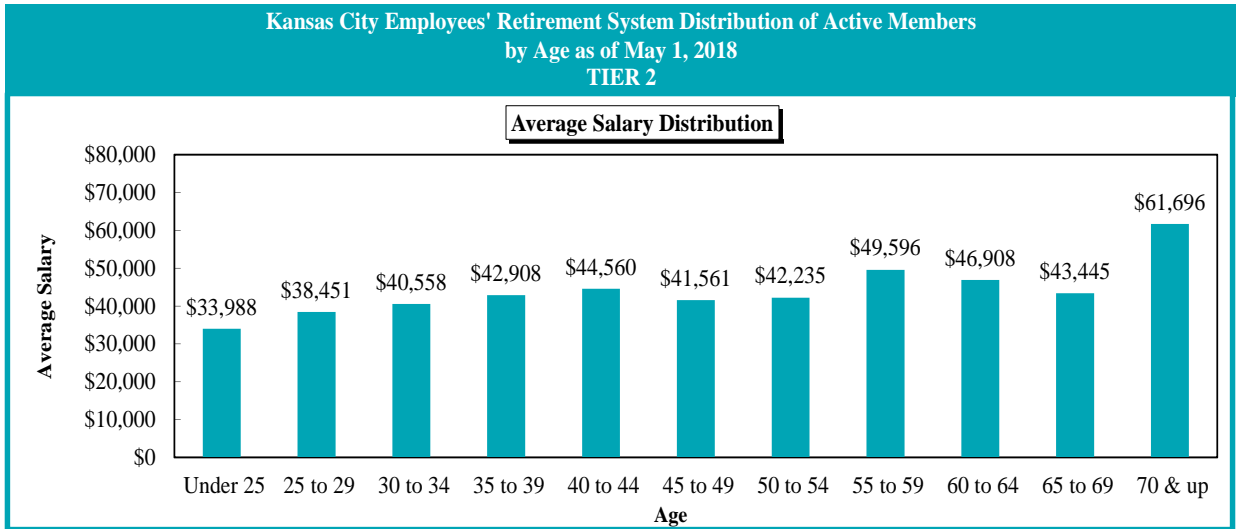
Kansas City Employees' Retirement System Distribution of Active Members by Age and Service as of May 1, 2018 TIER 2 COUNTS BY AGE/SERVICE											
Age	Service										Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	
Under 25	55	34	0	0	0	0	0	0	0	0	89
25 to 29	66	123	1	0	0	0	0	0	0	0	190
30 to 34	64	126	1	0	0	0	0	0	0	0	191
35 to 39	47	92	1	0	0	0	0	0	0	0	140
40 to 44	27	64	0	0	0	0	0	0	0	0	91
45 to 49	32	67	0	0	0	0	0	0	0	0	99
50 to 54	23	49	1	0	0	0	0	0	0	0	73
55 to 59	19	50	0	0	0	0	0	0	0	0	69
60 to 64	6	25	0	0	0	0	0	0	0	0	31
65 to 69	3	5	0	0	0	0	0	0	0	0	8
70 & up	0	3	0	0	0	0	0	0	0	0	3
Total	342	638	4	0	0	0	0	0	0	0	984



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Distribution of Active Members by Age and Service as of May 1, 2018 TIER 2 AVERAGE SALARY BY AGE/SERVICE												
Age	Service										Total	
	Under 1	1 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	\$ 32,713	\$ 36,049	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 33,988
25 to 29	37,568	38,938	36,912	-	-	-	-	-	-	-	-	38,451
30 to 34	38,324	41,750	33,384	-	-	-	-	-	-	-	-	40,558
35 to 39	36,420	46,315	34,476	-	-	-	-	-	-	-	-	42,908
40 to 44	42,592	45,390	-	-	-	-	-	-	-	-	-	44,560
45 to 49	39,111	42,731	-	-	-	-	-	-	-	-	-	41,561
50 to 54	42,116	42,309	41,376	-	-	-	-	-	-	-	-	42,235
55 to 59	57,674	46,527	-	-	-	-	-	-	-	-	-	49,596
60 to 64	65,056	42,552	-	-	-	-	-	-	-	-	-	46,908
65 to 69	33,992	49,116	-	-	-	-	-	-	-	-	-	43,445
70 & up	-	61,696	-	-	-	-	-	-	-	-	-	61,696
Total	\$ 39,186	\$ 42,631	\$ 36,537	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 41,409



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Pensions in Payment Status by Type and Monthly Amount as of May 1, 2018								
Monthly Amount	Total	Normal	Early	Optional	Vested	Disability	QDROs	Widows & Children
Total	2,448	287	212	1,341	214	8	33	353
Under \$500	234	21	48	2	39	0	16	108
\$500-\$1,000	389	66	78	70	74	1	6	94
\$1,000-\$1,500	341	47	44	130	56	7	3	54
\$1,500-\$2,000	319	36	24	190	26	0	3	40
\$2,000-\$2,500	290	34	11	213	10	0	3	19
\$2,500-\$3,000	254	24	2	202	7	0	1	18
\$3,000-\$3,500	186	12	2	163	1	0	0	8
\$3,500-\$4,000	124	15	0	103	1	0	0	5
\$4,000-\$4,500	99	10	1	87	0	0	1	0
\$4,500-\$5,000	71	10	1	59	0	0	0	1
\$5,000-\$5,500	38	4	0	33	0	0	0	1
\$5,500-\$6,000	24	0	0	23	0	0	0	1
\$6,000-\$6,500	21	2	0	17	0	0	0	2
\$6,500-\$7,000	14	2	0	12	0	0	0	0
\$7,000 & over	44	4	1	37	0	0	0	2

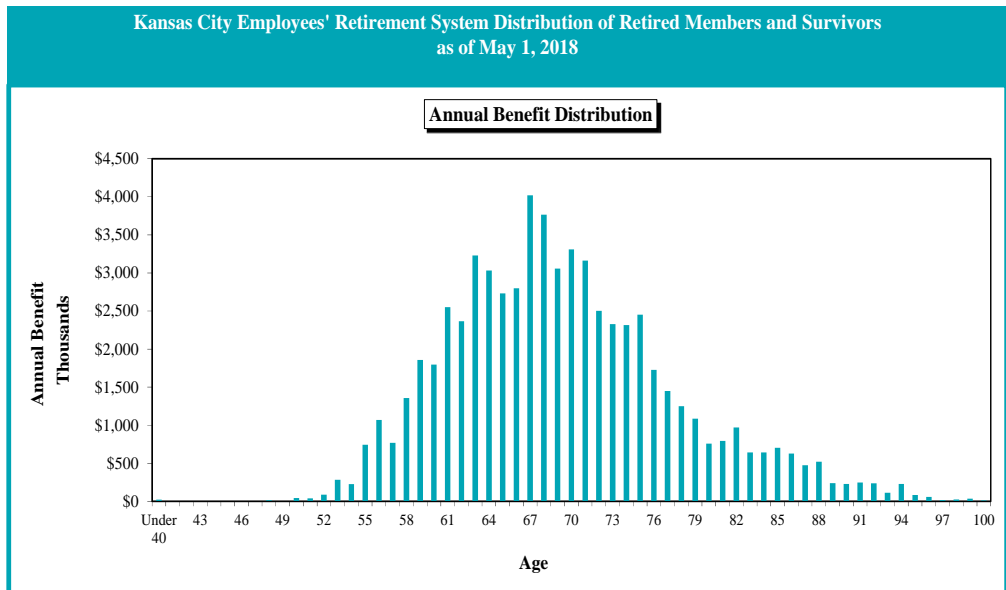
During the year ended April 30, 2018 there were 155 new pensions awarded (27 Normal, 10 Early, 62 Optional, 22 Vested, 0 Disability, and 34 Widows and QDROs)

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Distribution of Retired Members and Survivors as of May 1, 2018								
Age	Count	Annual Benefit*	Age	Count	Annual Benefit*	Age	Count	Annual Benefit*
<25	0	\$0	57	28	\$770,417	89	15	\$239,468
25	0	0	58	47	1,357,845	90	16	228,868
26	0	0	59	61	1,855,158	91	21	248,738
27	0	0	60	62	1,795,209	92	21	238,683
28	0	0	61	84	2,548,997	93	10	114,891
29	0	0	62	80	2,366,119	94	17	229,797
30	0	0	63	110	3,230,434	95	8	84,526
31	0	0	64	103	3,032,642	96	7	59,379
32	0	0	65	100	2,732,866	97	2	18,176
33	0	0	66	104	2,796,820	98	4	26,475
34	0	0	67	138	4,020,596	99	5	37,587
35	0	0	68	128	3,762,923	100	2	7,604
36	0	0	69	108	3,056,855	101	0	0
37	0	0	70	111	3,308,680	102	1	3,481
38	0	0	71	104	3,162,386	103	0	0
39	0	0	72	77	2,503,976	104	0	0
40	1	23,258	73	81	2,326,914	105	0	0
41	0	0	74	81	2,317,268	106	0	0
42	0	0	75	84	2,449,936	107	0	0
43	0	0	76	60	1,728,248	108	0	0
44	0	0	77	58	1,449,041	109	0	0
45	0	0	78	54	1,250,816	110	0	0
46	0	0	79	49	1,084,888	111	0	0
47	0	0	80	35	758,359	112	0	0
48	1	13,630	81	40	792,639	113	0	0
49	1	4,592	82	43	971,043	114	0	0
50	2	44,886	83	31	643,040	115	0	0
51	2	39,624	84	32	641,367	116	0	0
52	4	90,052	85	34	702,497	117	0	0
53	7	284,906	86	30	627,979	118	0	0
54	8	227,030	87	38	473,419	119	0	0
55	27	744,560	88	27	521,041	120	0	0
56	36	1,068,603						
Totals							2,440	\$65,119,232

*The annual benefit does not include the subsidy benefits

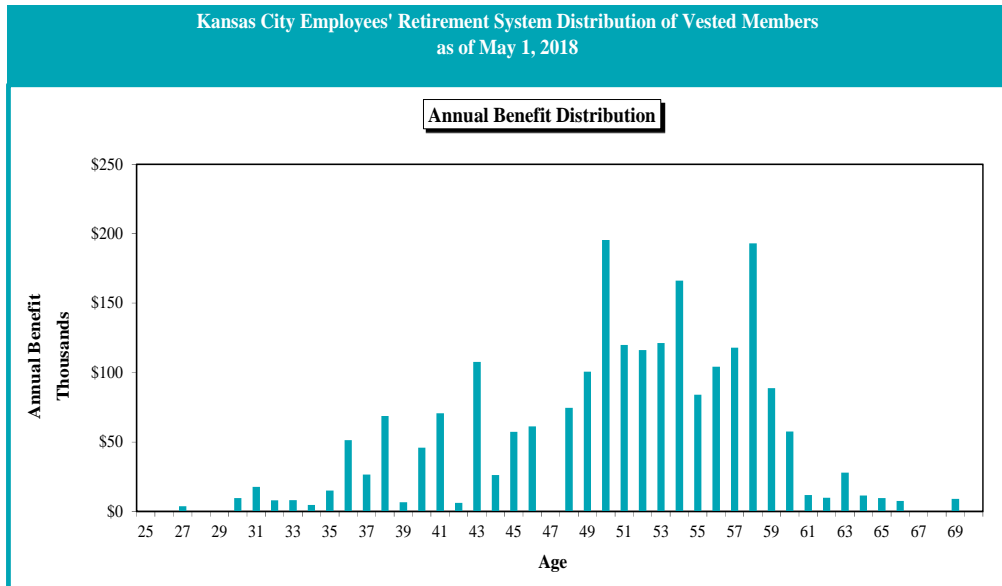


**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Distribution of Vested Members as of May 1, 2018								
Age	Count	Annual Unreduced Benefit*	Age	Count	Annual Unreduced Benefit*	Age	Count	Annual Unreduced Benefit*
<25	0	\$0	57	7	\$117,933	89	0	\$0
25	0	0	58	12	193,034	90	0	0
26	0	0	59	10	88,696	91	0	0
27	1	3,718	60	6	57,416	92	0	0
28	0	0	61	2	11,687	93	0	0
29	0	0	62	1	9,735	94	0	0
30	2	9,650	63	4	27,828	95	0	0
31	2	17,673	64	2	11,455	96	0	0
32	1	7,949	65	1	9,626	97	0	0
33	1	8,180	66	1	7,581	98	0	0
34	1	4,601	67	0	0	99	0	0
35	2	15,012	68	0	0	100	0	0
36	6	51,289	69	2	9,095	101	0	0
37	3	26,528	70	0	0	102	0	0
38	8	68,720	71	0	0	103	0	0
39	1	6,650	72	0	0	104	0	0
40	4	45,938	73	0	0	105	0	0
41	7	70,657	74	0	0	106	0	0
42	1	6,219	75	0	0	107	0	0
43	8	107,540	76	0	0	108	0	0
44	4	26,295	77	0	0	109	0	0
45	5	57,347	78	0	0	110	0	0
46	4	61,288	79	0	0	111	0	0
47	0	0	80	0	0	112	0	0
48	5	74,583	81	0	0	113	0	0
49	7	100,658	82	0	0	114	0	0
50	10	195,492	83	0	0	115	0	0
51	6	119,881	84	0	0	116	0	0
52	8	116,150	85	0	0	117	0	0
53	11	121,265	86	0	0	118	0	0
54	13	166,175	87	0	0	119	0	0
55	9	84,043	88	0	0	120	0	0
56	11	104,104						
Totals							189	\$2,221,691

*The annual benefit does not include the subsidy benefits

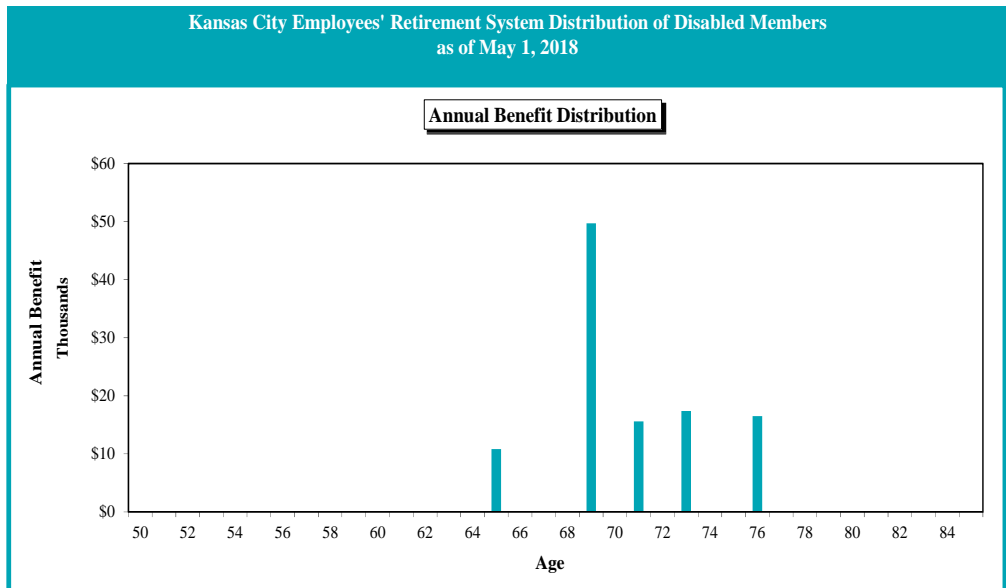


**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Distribution of Disabled Members as of May 1, 2018								
Age	Count	Annual Benefit*	Age	Count	Annual Benefit*	Age	Count	Annual Benefit*
<25	0	\$0	57	0	\$0	89	0	\$0
25	0	0	58	0	0	90	0	0
26	0	0	59	0	0	91	0	0
27	0	0	60	0	0	92	0	0
28	0	0	61	0	0	93	0	0
29	0	0	62	0	0	94	0	0
30	0	0	63	0	0	95	0	0
31	0	0	64	0	0	96	0	0
32	0	0	65	1	10,831	97	0	0
33	0	0	66	0	0	98	0	0
34	0	0	67	0	0	99	0	0
35	0	0	68	0	0	100	0	0
36	0	0	69	3	49,710	101	0	0
37	0	0	70	0	0	102	0	0
38	0	0	71	1	15,564	103	0	0
39	0	0	72	0	0	104	0	0
40	0	0	73	1	17,374	105	0	0
41	0	0	74	0	0	106	0	0
42	0	0	75	0	0	107	0	0
43	0	0	76	1	16,470	108	0	0
44	0	0	77	0	0	109	0	0
45	0	0	78	0	0	110	0	0
46	0	0	79	0	0	111	0	0
47	0	0	80	0	0	112	0	0
48	0	0	81	0	0	113	0	0
49	0	0	82	0	0	114	0	0
50	0	0	83	0	0	115	0	0
51	0	0	84	0	0	116	0	0
52	0	0	85	0	0	117	0	0
53	0	0	86	1	14,486	118	0	0
54	0	0	87	0	0	119	0	0
55	0	0	88	0	0	120	0	0
56	0	0						
Totals							8	\$124,435

* The annual benefit does not include the subsidy benefits



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Change in Plan Membership							
Tier 1							
	Actives	Vested Terminations	Refund Due	Disabilities	Retirees	Beneficiaries*	Total
May 1, 2017	2,415	111	141	8	2,012	380	5,067
New Entrants	0	0	0	0	0	0	0
Rehires	1	0	(1)	0	0	0	0
Vested Terminations	(29)	80	(51)	0	0	0	0
Terminated with Refund Due	(12)	0	12	0	0	0	0
Return of Contributions	(39)	0	(48)	0	0	0	(87)
Disabilities	0	0	0	0	0	0	0
Retirements	(97)	(9)	(3)	0	109	0	0
Benefits Suspended	0	0	0	0	(2)	0	(2)
Deaths	(3)	(1)	(1)	0	(76)	(29)	(110)
New Survivor	0	0	0	0	0	33	33
Miscellaneous Adjustments	(2)	8	19	0	11	2	38
May 1, 2018	2,234	189	68	8	2,054	386	4,939
Tier 2							
	Actives	Vested Terminations	Refund Due	Disabilities	Retirees	Beneficiaries*	Total
May 1, 2017	755	0	142	0	0	0	897
New Entrants	350	0	39	0	0	0	389
Rehires	10	0	(4)	0	0	0	6
Vested Terminations	0	0	0	0	0	0	0
Terminated with Refund Due	(47)	0	47	0	0	0	0
Return of Contributions	(84)	0	(36)	0	0	0	(120)
Disabilities	0	0	0	0	0	0	0
Retirements	0	0	0	0	0	0	0
Benefits Suspended	0	0	0	0	0	0	0
Deaths	0	0	0	0	0	0	0
New Survivor	0	0	0	0	0	0	0
Miscellaneous Adjustments	0	0	1	0	0	0	1
May 1, 2018	984	0	189	0	0	0	1,173
Total							
	Actives	Vested Terminations	Refund Due	Disabilities	Retirees	Beneficiaries*	Total
May 1, 2017	3,170	111	283	8	2,012	380	5,964
New Entrants	350	0	39	0	0	0	389
Rehires	11	0	(5)	0	0	0	6
Vested Terminations	(29)	80	(51)	0	0	0	0
Terminated with Refund Due	(59)	0	59	0	0	0	0
Return of Contributions	(123)	0	(84)	0	0	0	(207)
Disabilities	0	0	0	0	0	0	0
Retirements	(97)	(9)	(3)	0	109	0	0
Benefits Suspended	0	0	0	0	(2)	0	(2)
Deaths	(3)	(1)	(1)	0	(76)	(29)	(110)
New Survivor	0	0	0	0	0	33	33
Miscellaneous Adjustments	(2)	8	20	0	11	2	39
May 1, 2018	3,218	189	257	8	2,054	386	6,112

* Widows & QDROs

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

1. Net Investment Return

7.50% per annum, including inflation of 3.00% and net of investment fees.

2. Mortality Rates

Non-annuitant mortality: RP-2000 Combined Healthy Non-Annuitant Mortality Table (multiplied by 0.956 for males and 0.960 for females), projected using a modified Scale MP-2015 on a generational basis.

Healthy annuitant mortality: RP-2000 Combined Healthy Annuitant Mortality Table (multiplied by 1.078 for males and 1.065 for females), projected using a modified Scale MP-2015 on a generational basis.

Disabled annuitant mortality: RP-2000 Combined Disabled Mortality Table (multiplied by 1.300 for males and 1.500 for females), projected using a modified Scale MP-2015 on a generational basis.

Modified Projection Scale: Modified Scale MP-2015 using the Society of Actuaries' model implementation tool with rates converging to the ultimate rate in 2019 (instead of 2029) and an ultimate rate improvement of 0.85% (instead of 1.0%) up to age 85 decreasing to 0.7% (instead of 0.85%) at age 95.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

3. Termination Rates before Retirement

Sample Withdrawal Rates*			
Age	General Employees**	Judges	Elected Officials
20	12%	0	30%
25	9	0	30
30	8	0	30
35	7	0	30
40	5	0	30
45	4	0	30
50	4	0	30
55	4	0	30
60	4	0	30
65	4	0	30
70	0	0	0

* Withdrawal rates end upon first assumed retirement age.

** Select rates for first four years of service for General Employees:

Select Period	
Years of Service	Rate
0 – 1	17.5%
1 – 2	15.0%
2 – 3	12.0%
3 – 4	10.0%

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

4. Retirement Rates

Age	General Employees			Judges and Elected Officials
	Age Plus Service Less than 80/85* Points	Age Plus Service Equal to 80/85* Points	Age Plus Service Greater than 80/85* Points	
Under 55	0.0%	25.0%	12.5%	0.0%
55	5.0	25.0	12.5	0.0
56	5.0	25.0	12.5	0.0
57	5.0	25.0	12.5	0.0
58	5.0	25.0	12.5	0.0
59	5.0	25.0	12.5	0.0
60	10.0	25.0	12.5	10.0
61	10.0	25.0	20.0	10.0
62	10.0	25.0	20.0	10.0
63	15.0	25.0	20.0	10.0
64	15.0	25.0	20.0	10.0
65	30.0	35.0	40.0	50.0
66	30.0	35.0	30.0	50.0
67	30.0	35.0	30.0	50.0
68	30.0	35.0	30.0	50.0
69	30.0	35.0	30.0	50.0
70	100.0	100.0	100.0	100.0

* 80 points for Tier 1 members and 85 points for Tier 2 members.

5. Retirement Age for Inactive Vested Members

58 if years of service is greater than or equal to 10, and 62 if years of service is less than 10.

6. Percent Married

70% for males and 40% for females in active status.

7. Age of Spouse

Male participants are three-years older than their spouses and female participants are two-years younger than their spouses.

8. Joint and Survivor Election Assumption

90% for married males and 75% for married females in active status.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

9. Sick Leave and Vacation Service Conversion

No additional service granted.

10. Administrative Expenses

0.24% of payroll is added to the normal cost of the system for expected administrative expenses.

11. Salary Increases

General Employees	
Service	Rate (%)
0	5.000%
1	4.940
2	4.880
3	4.820
4	4.760
5	4.700
6	4.640
7	4.580
8	4.520
9	4.460
10	4.400
11	4.340
12	4.280
13	4.220
14	4.160
15	4.100
16	4.040
17	3.980
18	3.920
19	3.860
20	3.800
21 and up	3.750

Judges and Elected Official: 3.75% per year for all ages.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

12. Interest on Employee Contributions

5.00% per year, compounded annually.

13. Cost-of-Living Adjustments for Tier 2 Members

For purposes of valuing future Cost-of-Living Adjustments for Tier 2 members, it is assumed that the percentage increase in the Consumer Price Index will equal or exceed 2.5% and that the funded ratio will equal or exceed 80% at the time that such adjustments would be applied.

14. Unknown Data for Members

Same as those exhibited by Members with similar known characteristics. If not specified, Members are assumed to be male.

15. Changes since Last Valuation

None

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

B. Rationale for Assumptions

1. Economic Assumptions

The investment return assumption of 7.50% was selected based upon an analysis that included (a) capital market assumptions provided by the investment consultant, (b) the asset allocation of the fund, and (c) investment return assumptions of other public retirement systems.

The inflation assumption of 3.0% was selected based upon an analysis that included (a) input from the investment consultant, (b) historical inflation as measured by the Consumer Price Index, and (c) implied inflation in long-term government bonds.

The long-term wage growth assumption of 3.75% was based upon the inflation assumption of 3.0% plus a real wage growth assumption of 0.75%, which was derived from an analysis of historical increases in Social Security Average earnings.

2. Demographic Assumptions

The demographic assumptions are based upon the most recent experience study covering the period 2010-2015.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

C. Actuarial Methods

1. Actuarial Value of Assets

Asset values are gradually adjusted toward market value by adding 25% of the difference between the market value and expected actuarial asset value to the expected actuarial asset value. The expected actuarial asset value is the actuarial asset value at the beginning of the year plus contributions, less benefit payments and administrative expenses, all with interest at the assumed net rate of investment return on an actuarial basis. If the actuarial value of assets is less than 85% or more than 110% of the market value, an adjustment is made to the actuarial value to bring the value within this corridor.

2. Actuarial Cost Method

Entry Age Normal Actuarial Cost Method: Entry age is the age at the time the participant commenced employment. Normal cost and actuarial liability are calculated on an individual basis and are allocated by salary, with normal cost determined as if the current benefit accrual rate had always been in effect.

3. Amortization of Unfunded Actuarial Liability/Surplus

- i. Board Funding Policy: 20-year layered amortization method; level percent of pay for all years except the May 1, 2009 Plan Year (30-year layer). Under the layered approach, the May 1, 2009 changes to the unfunded actuarial liability will be written down over a 30-year period and all future changes to the unfunded actuarial liability will establish new 20-year amortization periods. Payroll is expected to increase 3.75% per year.
- ii. City Contribution Policy: Under the Ordinance, the City's contribution will be based on an open 30-year amortization period, level percent of pay.
- iii. Contribution rate changes as a result of revised assumptions adopted as of May 1, 2016 are phased-in over five years (20% phase-in per year).

4. Changes since Last Valuation

None

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**APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1**

1. Plan Year

May 1 through April 30.

2. Membership

All full-time permanent employees hired prior to April 20, 2014 in the classified and unclassified services shall become members as a condition of employment. Employees of any administrative board or board of control as organized and existing under general laws of Missouri and as defined in Revised Statutes of Missouri, Section 95.540, whose governing body has elected membership, shall become members. Unless otherwise provided, no members of the Council, including the Mayor, who commence a term of office after April 30, 2011 shall participate in this Plan for any service after April 30, 2011. However, members of the Council, including the Mayor, elected on March 27, 2007 for a term beginning May 1, 2007 and also elected on March 22, 2011 for a term beginning May 1, 2011 are members of this Plan as long as they are continuously a member of the Council, including the Mayor. Membership shall begin on the first day of employment.

3. Credited Service

Total creditable service is defined as the sum of the number of years of membership service and prior service.

Membership Service: Years and full calendar months of employment while a contributing member of this System.

Prior Service: Years and full calendar months of employment preceding December 21, 1962, if continuous with membership service.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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**APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1**

MAST employees are credited with service after April 25, 2010, plus a fraction of their service earned prior to April 25, 2010. This Fraction is based on their age and service as of April 25, 2010 as shown in the following table:

Sum of Age and Prior Service as of 4/25/10 Less Adjustment for Prior Retirement Benefit	Percent of Prior Service Credit
Over 80	100%
74 to 79	90
68 to 73	80
62 to 67	70
56 to 61	60
50 to 55	50
44 to 49	40
38 to 43	30
32 to 37	20
26 to 31	10
20 to 25	5

4. Normal Retirement

Age Requirement: General Employees: 65
Judges and Elected Officials: Later of age 60 or expiration of term of office.

Service Requirement: General Employees: 5 years of creditable service.
Judges and Elected Officials: One elective term.

Amount: General Employees:
If unmarried or married and not electing a joint & survivor benefit at time of retirement, 2.22% of final average compensation multiplied by years and months of creditable service.

If married and electing a joint & survivor benefit at date of retirement, 2.00% of final average compensation multiplied by years and months of creditable service.

Minimum benefit: \$400 per month if retirement with at least 10-years of creditable service.

Maximum benefit: 70% of final average compensation.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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**APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1**

Judges and Elected Officials:

2.22% of average monthly compensation received by then serving Judges and Elected Officials of the same office during the 24 months preceding the beginning of the annuity multiplied by years and months of creditable service.

Maximum benefit: 70% of the existing salary for then serving Judges and Elected Officials of the same office.

A member retiring with a normal, optional, service or early retirement benefit may elect to withdraw all, or a portion of, member accumulated contributions and interest, and receive a reduced annuity.

Final average compensation is defined as the monthly average of the two highest years of compensation in the last ten years (for Elected Officials, last 24 months for then serving elected official of same office). Compensation does not include bonus, overtime, expense allowance or other extraordinary compensation.

5. Optional Retirement

Age/Service Requirement: 60 and 10 years of creditable service, or the sum of age and service equals 80, if earlier.

Amount: Same as normal retirement.

6. Early Retirement

Age/Service Requirement: General Employees: 60 and 5 years of creditable service, or 55 and 10 years of creditable service.

Judges and Elected Officials: 55 and 10 years of creditable service.

Amount: Accrued benefit reduced by ½ of 1% per month of age less than 60 or, if service is less than ten, ½ of 1% per month of age less than 65.

7. Disability Benefit

Disability benefits are provided through a separate long-term disability program, effective June 1, 1996.

APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1

8. Vesting

Age Requirement: None

Service Requirement: Five years of service.

Amount: Accrued benefit payable at age 60, or payable at age 65 if service less than 10.

9. Withdrawal (Refund) Benefit

Age Requirement: None

Service Requirement: Less than five years of service.

Amount: An employee terminating before becoming eligible for a deferred pension or choosing not to elect a deferred benefit, will receive a return of contributions with interest.

10. Pre-Retirement Death Benefit

Service less than five years

Age Requirement: None

Service Requirement: Less than five years.

Amount: Lump sum equal to the member's accumulated contributions and interest shall be paid to the surviving spouse or, if no surviving spouse, to the designated beneficiary, or, if none, to the member's estate.

Service of five or more years but less than 20 years:

Age Requirement: None

Service Requirement: Five or more years of service but less than 20 years.

Amount: The surviving spouse may elect, in lieu of the lump sum settlement above, an annuity equal to 50% of the member's accrued annuity at the time of death. The effective date of this annuity shall be the later of the first day of the month following the member's death or

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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**APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1**

attainment of what would have been the member's early retirement date. The annuity is reduced for early retirement if paid at the member's early retirement date.

Service of 20 or more years of service:

Age Requirement: None

Service Requirement: 20 or more years of service.

Amount: The surviving spouse may elect, in lieu of the settlements above, an annuity equal to 100% of the member's accrued annuity at the time of death, actuarially reduced for 100% joint and survivor coverage. The effective date of this annuity shall be the first day of the month following the member's death.

11. Post-Retirement Death Benefit

Age Requirement: None

Service Requirement: None

Amount: The surviving spouse shall receive an annuity equal to 50% of the member's accrued annuity, or, if the member elected the actuarially equivalent 100% joint and survivor annuity, this annuity shall continue to be paid to the surviving spouse. Either annuity is payable until death of the spouse.

12. Minimum Surviving Spouses' Pension

A minimum benefit of \$200 per month is paid to surviving spouses of members with 10 or more years of creditable service.

13. Health Insurance Subsidy

A monthly health insurance subsidy of \$200 is paid to all current and future pensioners. Benefits are payable for the lifetime of the member and are not subject to an annual cost-of-living adjustment.

14. Cost-of-Living Adjustment (COLA)

An increase of 3.00% of the original pension will be made annually. Members must retire on or before January 1 in order to receive a COLA in the following year.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2018 ACTUARIAL VALUATION REPORT**

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1**

15. Contributions

- a. Member
 - 5.00% of salary for non-MAST employees.
 - Between 5.00% and 7.00% for MAST employees based on their age and service as of April 25, 2010, (see following table).
- b. City
 - The City “picks up” these employee contributions.
 - For the year beginning May 1, 2018, the City is contributing 15.40% of payroll, which is the actuarially determined Board contribution rate for the prior year. Future City contributions will be determined through the City’s budgeting process.

The contribution rate for MAST employees is based upon the following table:

Sum of Age and Prior Service as of 4/25/10 Less Adjustment for Prior Retirement Benefit	Contribution Rate
Over 80	7.0%
74 to 79	6.0%
68 to 73	5.8%
62 to 67	5.6%
56 to 61	5.4%
50 to 55	5.2%
44 to 49	5.1%
38 to 43	5.0%
32 to 37	5.0%
26 to 31	5.0%
20 to 25	5.0%

16. Interest on Employee Contributions

As determined by the Board of Trustees.

17. Changes since Last Valuation

None

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**APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 2**

1. Plan Year

May 1 through April 30.

2. Membership

All full-time permanent employees hired on or after April 20, 2014 in the classified and unclassified services shall become members as a condition of employment.

3. Credited Service

Total creditable service is defined as the sum of the number of years of membership service and prior service.

Membership Service: Years and full calendar months of employment while a contributing member of this System.

Prior Service: Years and full calendar months of employment preceding December 21, 1962, if continuous with membership service.

4. Normal Retirement

Age Requirement: 67

Service Requirement: 10 years of creditable service.

Amount: 1.75% of final average compensation multiplied by years and months of creditable service.

Minimum benefit: \$400 per month if retirement with at least 10 years of creditable service.

Maximum benefit: 70% of final average compensation.

A member retiring with a normal, optional, service or early retirement benefit may elect to withdraw all, or a portion of, member accumulated contributions and interest, and receive a reduced annuity.

Final average compensation is defined as the monthly average of the three highest years of compensation in the last 10 years. Compensation does not include bonus, overtime, expense allowance or other extraordinary compensation.

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APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 2

5. Optional Retirement

Age/Service Requirement: The earlier of age 62 and 10 years of creditable service, or the sum of age and service equals 85.

Amount: Same as normal retirement.

6. Early Retirement

Age/Service Requirement: 57 and 10 years of creditable service.

Amount: Accrued benefit reduced by ½ of 1% per month of age less than 62.

7. Disability Benefit

Disability benefits are provided through a separate long-term disability program.

8. Vesting

Age Requirement: None

Service Requirement: Ten years of service

Amount: Accrued benefit payable at age 62

9. Withdrawal (Refund) Benefit

Age Requirement: None

Service Requirement: Less than ten years of service

Amount: An employee terminating before becoming eligible for a deferred pension or choosing not to elect a deferred benefit, will receive a return of contributions with interest.

10. Pre-Retirement Death Benefit

Service less than ten years

Age Requirement: None

Service Requirement: Less than ten years

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APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 2

Amount: Lump sum equal to the member's accumulated contributions and interest shall be paid to the surviving spouse or, if no surviving spouse, to the designated beneficiary, or, if none, to the member's estate.

Service of ten or more years but less than 20 years:

Age Requirement: None

Service Requirement: Ten or more years of service but less than 20 years.

Amount: The surviving spouse may elect, in lieu of the lump sum settlement above, an annuity equal to 50% of the member's accrued annuity at the time of death. The effective date of this annuity shall be the later of the first day of the month following the member's death or attainment of what would have been the member's early retirement date. The annuity is reduced for early retirement if paid at the member's early retirement date.

Service of 20 or more years of service:

Age Requirement: None

Service Requirement: 20 or more years of service.

Amount: The surviving spouse may elect, in lieu of the settlements above, an annuity equal to 100% of the member's accrued annuity at the time of death, actuarially reduced for 100% joint and survivor coverage. The effective date of this annuity shall be the first day of the month following the member's death.

11. Post-Retirement Death Benefit

Age Requirement: None

Service Requirement: None

Amount: The surviving spouse shall receive an annuity equal to 50% of the member's accrued annuity, or, if the member elected the actuarially equivalent 100% joint and survivor annuity, this annuity shall continue to be paid to the surviving spouse. Either annuity is payable until death of the spouse.

**APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 2**

12. Minimum Surviving Spouses' Pension

A minimum benefit of \$200 per month is paid to surviving spouses of members with 10 or more years of creditable service.

13. Health Insurance Subsidy

A monthly health insurance subsidy of \$200 is paid to all current and future pensioners. Benefits are payable for the lifetime of the member and are not subject to an annual cost-of-living adjustment.

14. Cost-of-Living Adjustment (COLA)

COLA will only be payable if the prior year's funding ratio is greater than or equal to 80% and will be equal to the percentage increase in the consumer price index, up to a maximum of 2.50%, payable at age 62. Members must retire on or before January 1, in order to receive a COLA in the next year.

15. Contributions

- a. Member
 - 5.00% of salary.
 - The City "picks up" these employee contributions.
- b. City
 - For the year beginning May 1, 2018, the City is contributing 15.40% of payroll, which is the actuarially determined Board contribution rate for the prior year. Future City contributions will be determined through the City's budgeting process.

16. Interest on Employee Contributions

As determined by the Board of Trustees.

17. Changes since Last Valuation

None

APPENDIX D – GLOSSARY OF TERMS

1. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation; inflation; rates of investment earnings, and asset appreciation or depreciation; and other relevant items.

2. Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a Normal Cost and an Actuarial Liability.

3. Actuarial Gain/(Loss)

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

4. Actuarial Liability

The portion of the Actuarial Present Value of Projected Benefits which will not be paid by future Normal Costs. It represents the value of the past Normal Costs with interest to the valuation date.

5. Actuarial Present Value (Present Value)

The value as of a given date of a future amount or series of payments. The Actuarial Present Value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made. As a simple example: assume you owe \$100 to a friend one year from now. Also, assume there is a 1% probability of your friend dying over the next year, in which case you won't be obligated to pay him. If the assumed investment return is 10%, the actuarial present value is:

$$\frac{\text{Amount}}{\text{Probability of Payment}} \times \frac{1}{(1+\text{Investment Return})} = \text{Present Value}$$

$$\$100 \times (1 - .01) \times \frac{1}{(1+.1)} = \$90$$

6. Actuarial Valuation

The determination, as of a specified date, of the Normal Cost, Actuarial Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

APPENDIX D – GLOSSARY OF TERMS

7. Actuarial Value of Assets

The value of cash, investments and other property belonging to a pension plan as used by the actuary for the purpose of an Actuarial Valuation. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values. This way long-term costs are not distorted by short-term fluctuations in the market.

8. Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

9. Amortization Payment

The portion of the pension plan contribution which is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

10. Entry Age Normal Actuarial Cost Method

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages.

11. Funded Percentage

The ratio of the Actuarial Value of Assets to the Actuarial Liabilities.

12. Investment Return Assumption

The assumed interest rate used for projecting dollar related values in the future.

13. Mortality Table

A set of percentages that estimate the probability of death at a particular point in time. Typically, the rates are annual and based on age and sex.

14. Normal Cost

That portion of the Actuarial Present Value of pension plan benefits and expenses, which is allocated to a valuation year by the Actuarial Cost Method.

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APPENDIX D – GLOSSARY OF TERMS

15. Projected Benefits

Those pension plan benefit amounts which are expected to be paid in the future under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and increases in future compensation and service credits.

16. Unfunded Actuarial Liability

The excess of the Actuarial Liability over the Actuarial Value of Assets.