



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

**Actuarial Valuation
as of May 1 2016**

Produced by Cheiron

September 2016

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September 14, 2016

Board of Pension Trustees
City of Kansas City, Missouri Employees' Retirement System
12th Floor, City Hall
414 East 12th Street
Kansas City, MO 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, 2016. 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 #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 14, 2016

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 R. 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 2017, 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, 2016 valuation represents Cheiron's tenth valuation performed for KCERS. Effective with this valuation, the actuarial assumptions have been revised based on the results of the experience study conducted for the period from May 1, 2010 to April 30, 2015. The contribution rate changes as a result of the revised assumptions will be phased-in over five years. 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, 2016 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 increased from 13.81% as of May 1, 2015 to 17.03% if the full effect of the revised actuarial assumptions had been recognized. Under the prior actuarial assumptions, the rate would have been 14.31%. Therefore, due to the five-year phase-in of the new assumptions, the actuarially determined employer contribution rate has been calculated as 14.85% as of May 1, 2016, which is 20% between the rate under the revised assumptions and the prior assumptions. The actual rate that the City is scheduled to contribute for the current year is 13.81% of payroll, which is the actuarially determined Board contribution rate for the prior year.
 - Under the City ordinance, the City's budgeted contribution rate for the year beginning May 1, 2017 will be based upon a 30-year open amortization for the entire amount of unfunded actuarial liability. This rate is 13.70% as of May 1, 2016, which also reflects the five-year phase-in of the revised actuarial assumptions.

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- The Employees' Retirement System's (ERS) unfunded actuarial liability increased from \$160 million on May 1, 2015 to \$212 million on May 1, 2016.
- The ERS's funding ratio, the ratio of actuarial asset value over liabilities, decreased from 86.5% as of May 1, 2015 to 83.3% as of May 1, 2016.
- The primary factor in the decrease of the Plan's funded status was an overall actuarial loss of \$51.0 million.
 - During the year ended April 30, 2016, the System's assets earned -2.47% on a market value basis. The return on the actuarial asset value was 6.44% (as compared to 7.50% assumed). This resulted in an actuarial loss on investments of \$10.7 million. However, the Plan also experienced a gain of \$2.3 million due to the difference between actual and recommended contributions as a result of payroll and timing differences.
 - On the liability side, the System experienced an actuarial gain of \$5.7 million.
 - The change in actuarial assumptions resulted in an increase in the actuarial liability of \$48.3 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, 2015	May 1, 2016	% Change
<u>Participant Counts</u>			
Active Participants	3,188	3,161	(0.8%)
Disabled Participants	9	9	0.0%
Retirees and Beneficiaries	2,297	2,353	2.4%
Terminated Vested Participants	88	101	14.8%
Inactive Participants	144	220	52.8%
Total	5,726	5,844	2.1%
Annual Salaries of Active Members	\$ 166,853,097	\$ 164,248,048	(1.6%)
Annual Retirement Allowances for Retired Members and Beneficiaries*	\$ 55,912,726	\$ 59,000,266	5.5%
<u>Assets and Liabilities</u>			
Actuarial Liability (AL)	\$ 1,185,743,686	\$ 1,268,159,303	7.0%
Actuarial Value of Assets (AVA)	1,026,045,837	1,055,813,977	2.9%
Unfunded Actuarial Liability (UAL)	\$ 159,697,849	\$ 212,345,326	33.0%
Funded Ratio (AVA)	86.5%	83.3%	
Funded Ratio (MVA)	91.5%	80.7%	
Present Value of Accrued Benefits (PVAB)	\$ 1,054,291,324	\$ 1,146,687,938	8.8%
Market Value of Assets (MVA)	1,085,133,277	1,023,610,172	(5.7%)
Unfunded/(Surplus) PVAB	\$ (30,841,953)	\$ 123,077,766	
Accrued Benefit Funding Ratio	102.9%	89.3%	
<u>Contributions as a Percentage of Payroll under Board's Funding Policy</u>			
	Fiscal Year 2016	Fiscal Year 2017 **	
Normal Cost Rate	7.69%	7.85%	
Administrative Expense Rate	0.24%	0.24%	
Unfunded Actuarial Liability Rate	5.88%	6.76%	
Total Actuarially Determined City Contribution Rate	13.81%	14.85%	
Actuarially Determined Contribution (GASB)	\$23,042,413	\$24,390,835	5.9%

* The annual retirement allowances do not include the subsidy benefits

** Fiscal Year 2017 contribution rate and ADC reflect the 5-year phase-in of the 2016 assumption changes

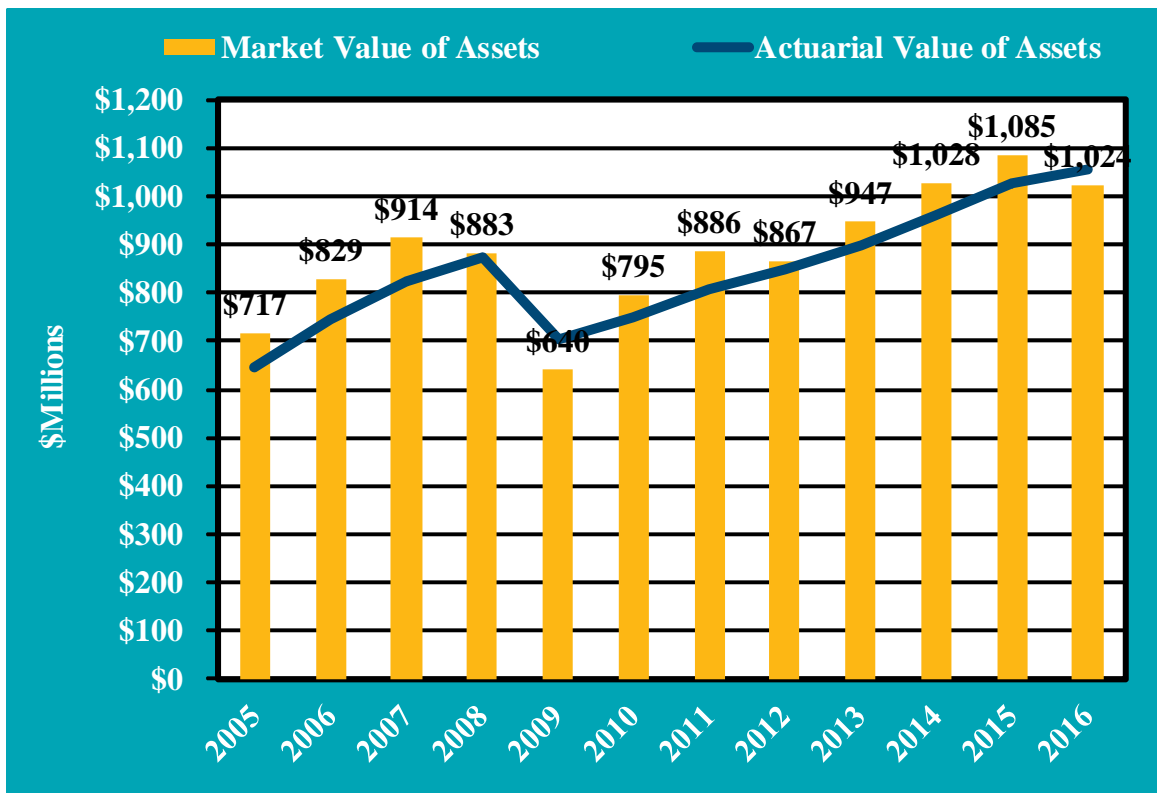
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C. Historical Trends

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

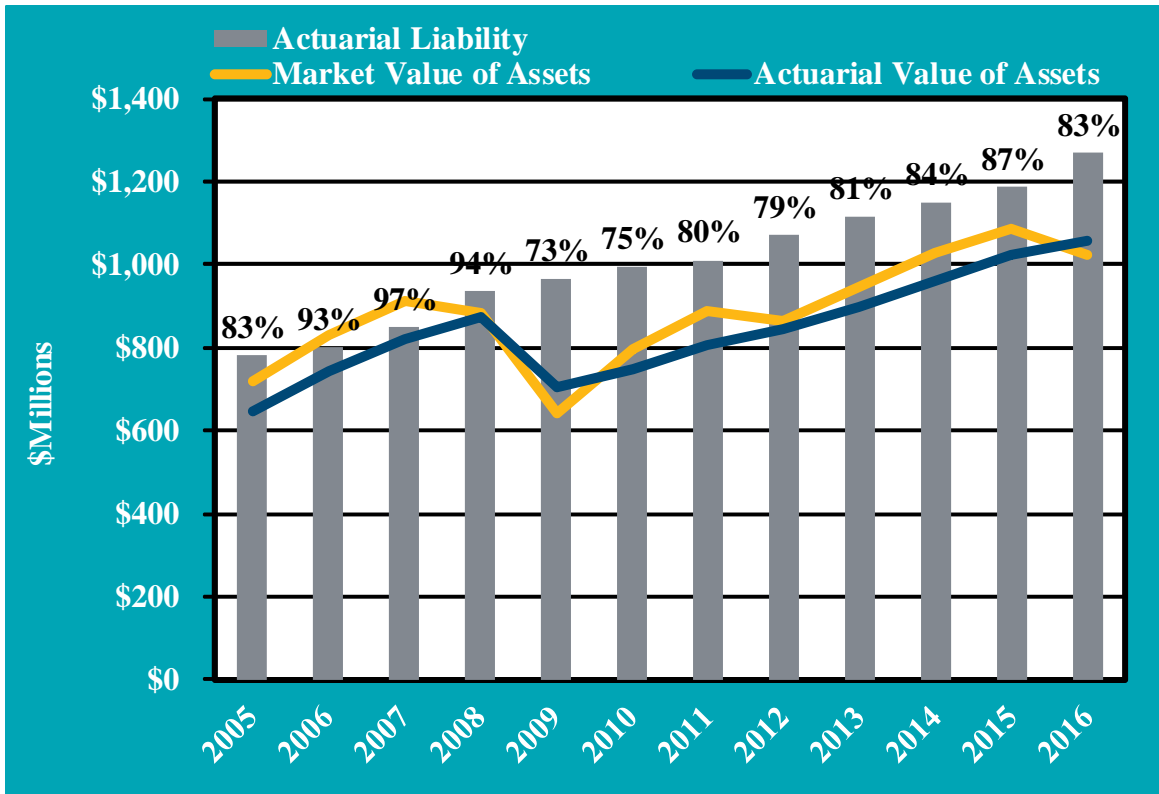


There was a market value of assets (MVA) loss on investments in 2016, returning -2.47%, decreasing from \$1,085 million to \$1,024 million. With the asset smoothing method in place, the actuarial value of assets has tracked a slightly smoother path through the volatility of the market value of assets. As can be seen in the graph, the actuarial value of assets (AVA) increased from 2015 to 2016, even though it returned 6.44%, which is less than the assumed earnings of 7.50%.

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Assets and Liabilities



The above chart compares the actuarial value of assets to the actuarial liabilities as well as the funded ratio, 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 until the most recent year where it decreased as a result of the changes to actuarial assumptions.

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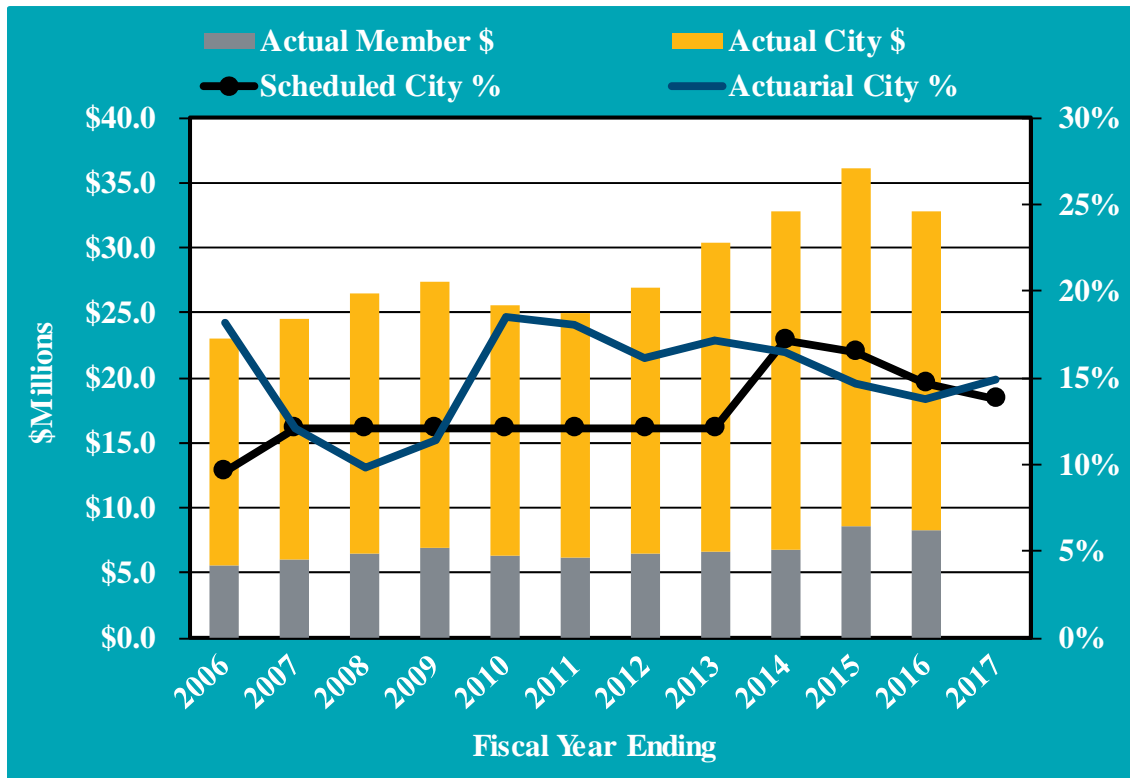
SECTION I – BOARD SUMMARY

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 2006. 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.

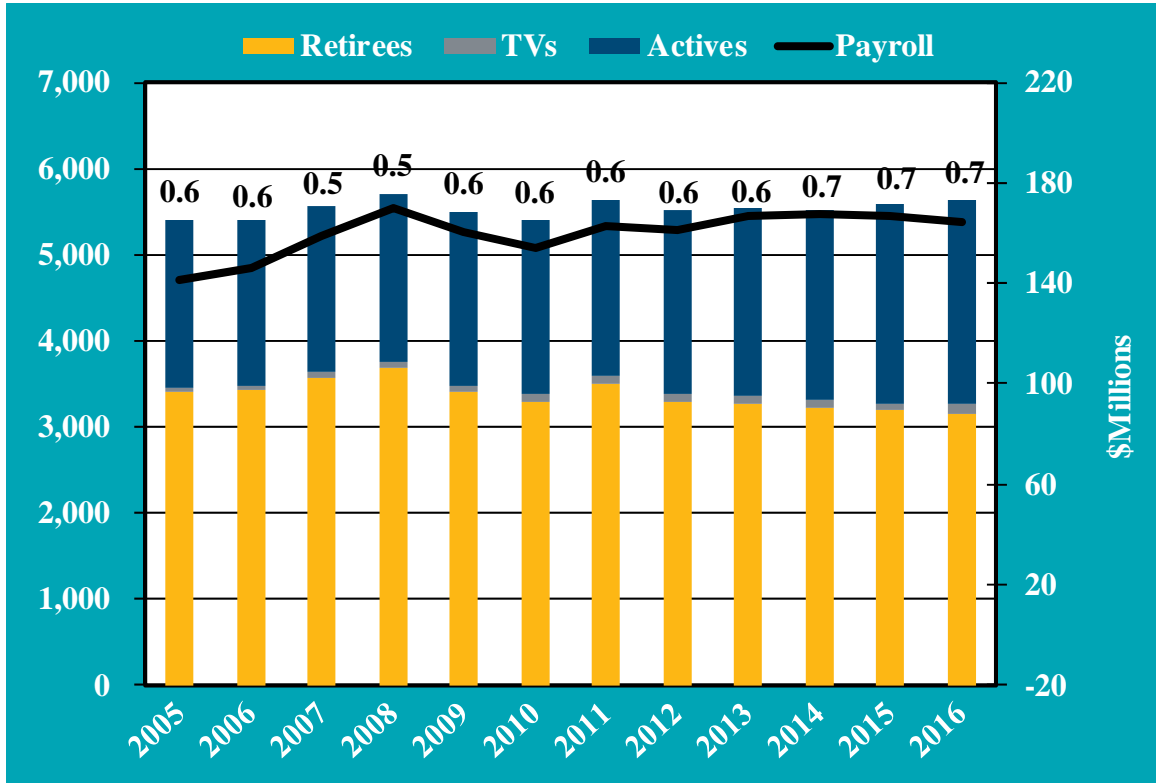
For Fiscal Years Ending from 2007 through 2013, the City contribution rate was 9.50% of payroll plus 2.53% of payroll for the retirement window offered in 2003 (paid annually through April 30, 2013) for General Employees, and 19.50% of payroll for Judges and Elected Officials. For Fiscal Years Ending 2014 and later, the scheduled City contribution rate is the actuarial contribution rate, determined under the City's funding policy, in the prior year's actuarial valuation. The actuarial contribution rate under the Board's funding policy increased from 13.81% of payroll in 2015 to 14.85% of payroll in 2016 reflecting investment losses and the phase-in of changes in actuarial assumptions. For the Fiscal Year Ending 2017, the City is contributing 13.81% 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 remained fairly constant. The System's active-to-inactive ratio was 0.6 in 2005, and there are 0.7 actives supporting each inactive member today. The black line shows the total active participating payroll for each valuation year.

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D. Future Expected Financial Trends

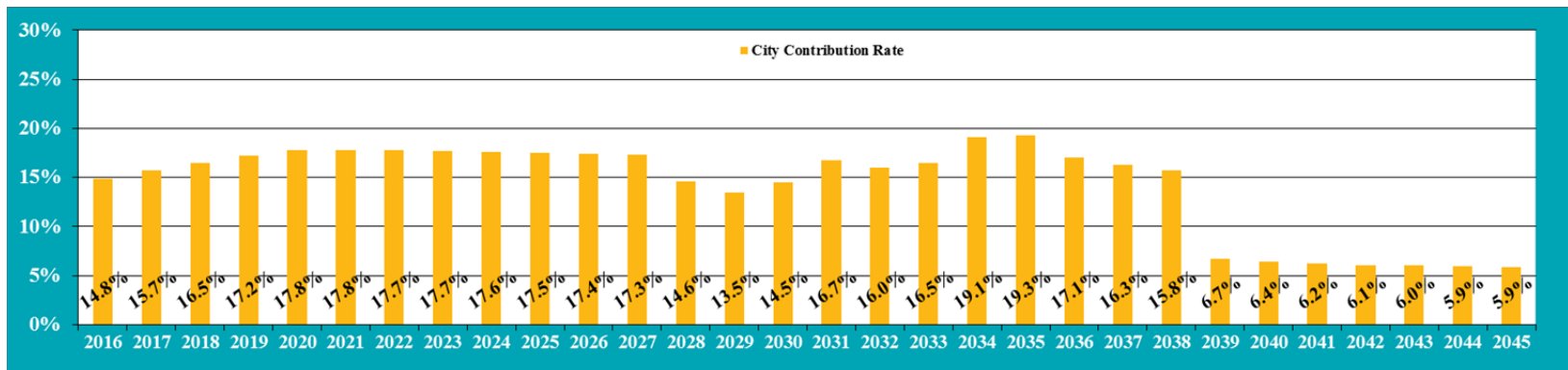
The analysis of projected financial trends is perhaps the most important component of this valuation. In this Section, we present the implications of the May 1, 2016 valuation results in terms of (1) the projected City’s contributions and (2) projected System’s funded status (ratio of assets over liabilities). 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 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 five 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.

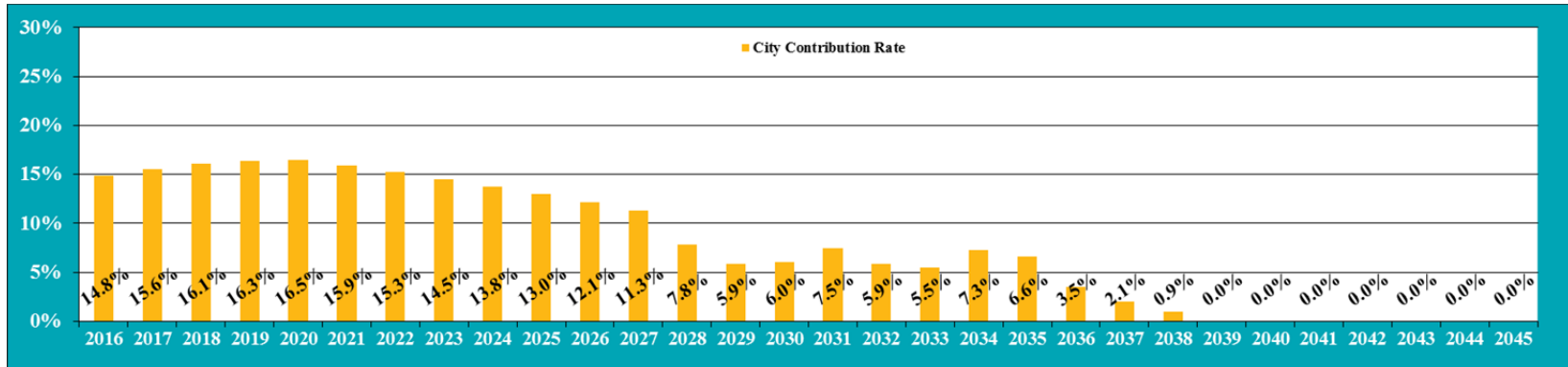


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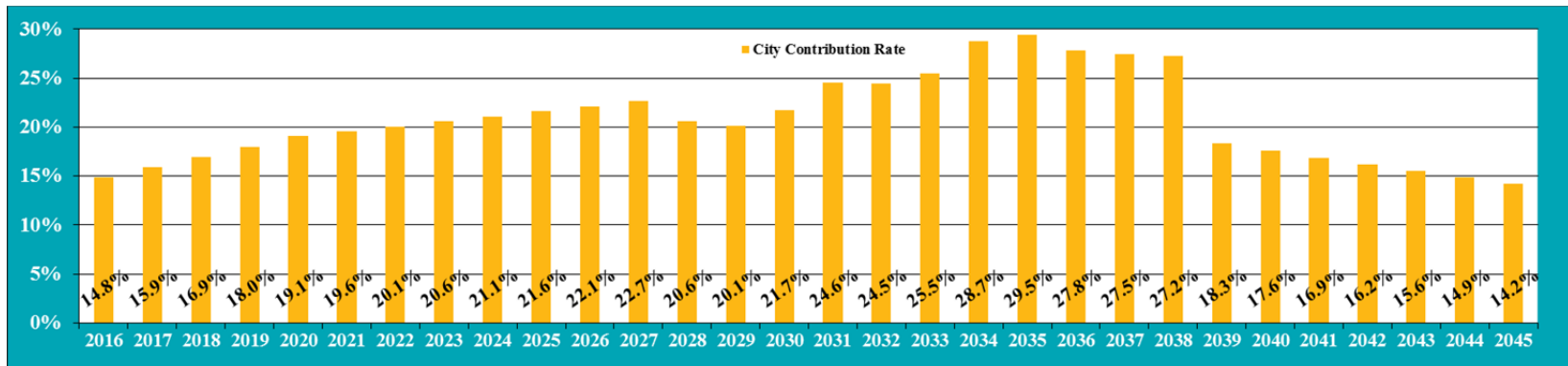
Optimistic Returns of 9.00%

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 2039 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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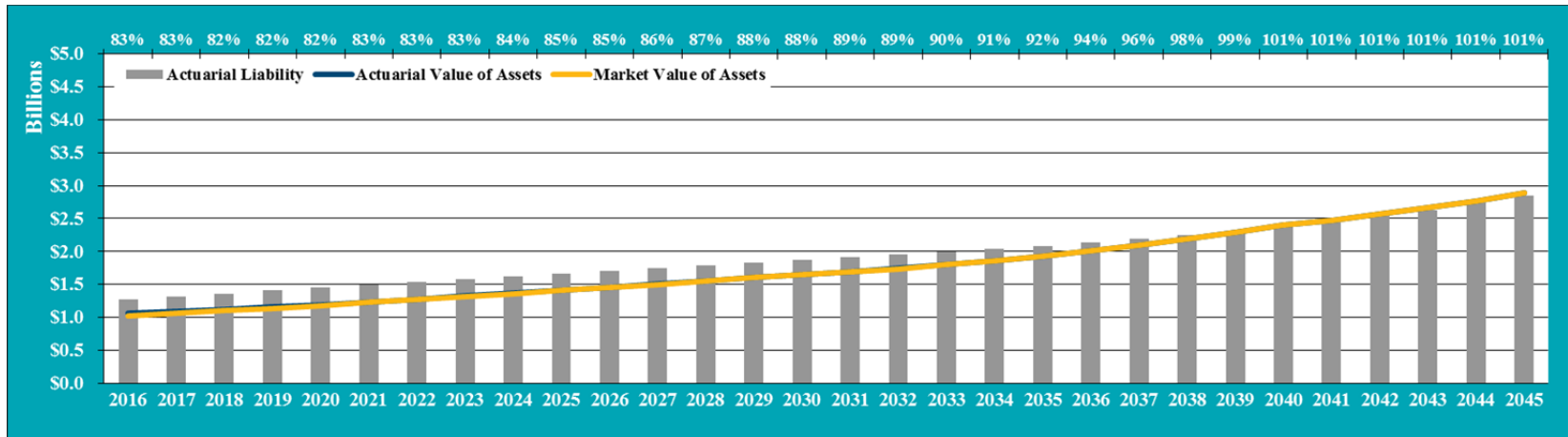
SECTION I – BOARD SUMMARY

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 100% by the end of the projection.

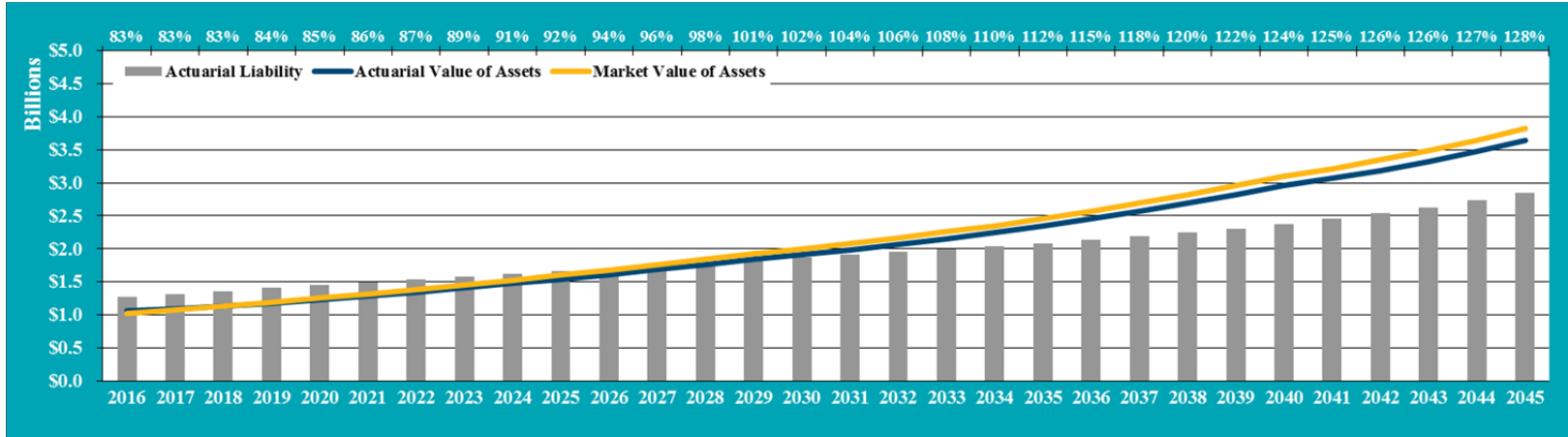


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Optimistic Returns of 9.00%

If the fund earns 1.50% greater than the assumed rate of return, the funded ratio will increase to 128% over the next 30 years.

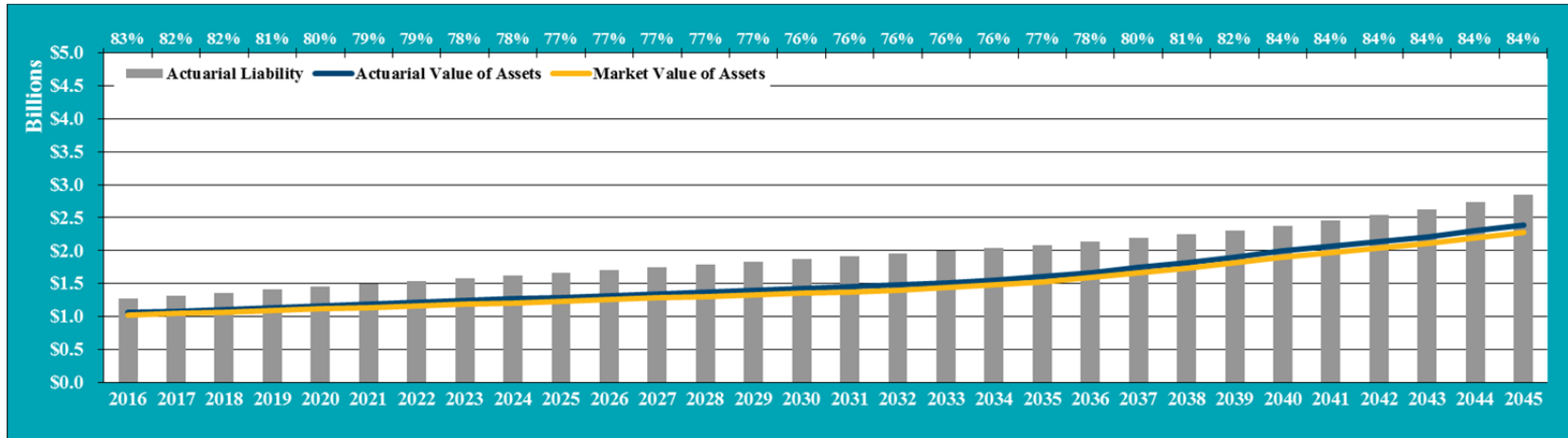


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Pessimistic Returns of 6.00%

If the fund earns 1.50% less than the assumed rate of return, the funded ratio will decrease gradually to 76%, then increase to 84% 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 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, 2016 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)	
2016	13.81%	5.01%	\$ 164,248	\$ 22,683	\$ 1,268,159	\$ 1,055,814	\$ 212,345	5.61%	7.85%	0.24%	13.70%	\$ 22,508	83.3%	
2017	13.70%	5.01%	\$ 170,407	\$ 23,329	\$ 1,313,360	\$ 1,085,486	\$ 227,874	6.20%	7.69%	0.24%	14.13%	\$ 24,086	82.6%	
2018	14.13%	5.01%	\$ 176,798	\$ 24,982	\$ 1,359,522	\$ 1,117,208	\$ 242,314	6.73%	7.58%	0.24%	14.55%	\$ 25,732	82.2%	
2019	14.55%	5.01%	\$ 183,428	\$ 26,689	\$ 1,405,330	\$ 1,150,406	\$ 254,925	7.19%	7.48%	0.24%	14.91%	\$ 27,356	81.9%	
2020	14.91%	5.01%	\$ 190,306	\$ 28,375	\$ 1,450,729	\$ 1,184,935	\$ 265,793	7.58%	7.40%	0.24%	15.22%	\$ 28,963	81.7%	
2021	15.22%	5.01%	\$ 197,443	\$ 30,051	\$ 1,495,669	\$ 1,220,627	\$ 275,042	7.56%	7.23%	0.24%	15.03%	\$ 29,673	81.6%	
2022	15.03%	5.01%	\$ 204,847	\$ 30,788	\$ 1,540,036	\$ 1,257,283	\$ 282,753	7.49%	7.07%	0.24%	14.80%	\$ 30,315	81.6%	
2023	14.80%	5.01%	\$ 212,528	\$ 31,454	\$ 1,583,581	\$ 1,293,642	\$ 289,938	7.40%	6.92%	0.24%	14.56%	\$ 30,942	81.7%	
2024	14.56%	5.00%	\$ 220,498	\$ 32,105	\$ 1,626,332	\$ 1,329,575	\$ 296,757	7.30%	6.78%	0.24%	14.32%	\$ 31,573	81.8%	
2025	14.32%	5.00%	\$ 228,767	\$ 32,759	\$ 1,668,179	\$ 1,364,866	\$ 303,313	7.19%	6.64%	0.24%	14.08%	\$ 32,201	81.8%	
2026	14.08%	5.00%	\$ 237,346	\$ 33,418	\$ 1,709,413	\$ 1,399,749	\$ 309,664	7.08%	6.52%	0.24%	13.84%	\$ 32,848	81.9%	
2027	13.84%	5.00%	\$ 246,246	\$ 34,080	\$ 1,750,162	\$ 1,434,281	\$ 315,881	6.96%	6.41%	0.24%	13.61%	\$ 33,515	82.0%	
2028	13.61%	5.00%	\$ 255,480	\$ 34,771	\$ 1,790,390	\$ 1,468,366	\$ 322,024	6.84%	6.31%	0.24%	13.39%	\$ 34,206	82.0%	
2029	13.39%	5.00%	\$ 265,061	\$ 35,492	\$ 1,830,238	\$ 1,502,111	\$ 328,127	6.72%	6.22%	0.24%	13.17%	\$ 34,922	82.1%	
2030	13.17%	5.00%	\$ 275,001	\$ 36,218	\$ 1,869,925	\$ 1,535,713	\$ 334,212	6.59%	6.14%	0.24%	12.97%	\$ 35,666	82.1%	
2031	12.97%	5.00%	\$ 285,313	\$ 37,005	\$ 1,910,007	\$ 1,569,679	\$ 340,328	6.47%	6.06%	0.24%	12.77%	\$ 36,442	82.2%	
2032	12.77%	5.00%	\$ 296,012	\$ 37,801	\$ 1,951,067	\$ 1,604,603	\$ 346,465	6.35%	6.00%	0.24%	12.59%	\$ 37,258	82.2%	
2033	12.59%	5.00%	\$ 307,113	\$ 38,666	\$ 1,993,333	\$ 1,640,662	\$ 352,671	6.23%	5.94%	0.24%	12.41%	\$ 38,104	82.3%	
2034	12.41%	5.00%	\$ 318,630	\$ 39,542	\$ 2,037,481	\$ 1,678,560	\$ 358,921	6.11%	5.88%	0.24%	12.24%	\$ 38,991	82.4%	
2035	12.24%	5.00%	\$ 330,578	\$ 40,463	\$ 2,083,956	\$ 1,718,700	\$ 365,256	6.00%	5.84%	0.24%	12.07%	\$ 39,914	82.5%	
2036	12.07%	5.00%	\$ 342,975	\$ 41,397	\$ 2,133,363	\$ 1,761,686	\$ 371,677	5.88%	5.80%	0.24%	11.92%	\$ 40,881	82.6%	
2037	11.92%	5.00%	\$ 355,836	\$ 42,416	\$ 2,186,430	\$ 1,808,205	\$ 378,225	5.77%	5.76%	0.24%	11.77%	\$ 41,886	82.7%	
2038	11.77%	5.00%	\$ 369,180	\$ 43,453	\$ 2,244,135	\$ 1,859,277	\$ 384,858	5.66%	5.73%	0.24%	11.63%	\$ 42,939	82.9%	
2039	11.63%	5.00%	\$ 383,025	\$ 44,546	\$ 2,307,143	\$ 1,915,529	\$ 391,615	5.55%	5.71%	0.24%	11.50%	\$ 44,034	83.0%	
2040	11.50%	5.00%	\$ 397,388	\$ 45,700	\$ 2,376,244	\$ 1,977,759	\$ 398,485	5.44%	5.69%	0.24%	11.37%	\$ 45,174	83.2%	
2041	11.37%	5.00%	\$ 412,290	\$ 46,877	\$ 2,452,526	\$ 2,047,069	\$ 405,457	5.34%	5.67%	0.24%	11.24%	\$ 46,359	83.5%	
2042	11.24%	5.00%	\$ 427,751	\$ 48,079	\$ 2,536,832	\$ 2,124,273	\$ 412,559	5.23%	5.65%	0.24%	11.13%	\$ 47,590	83.7%	
2043	11.13%	5.00%	\$ 443,792	\$ 49,394	\$ 2,630,167	\$ 2,210,352	\$ 419,816	5.13%	5.64%	0.24%	11.01%	\$ 48,873	84.0%	
2044	11.01%	5.00%	\$ 460,434	\$ 50,694	\$ 2,733,833	\$ 2,306,663	\$ 427,170	5.03%	5.63%	0.24%	10.90%	\$ 50,203	84.4%	
2045	10.90%	5.00%	\$ 477,700	\$ 52,069	\$ 2,849,043	\$ 2,414,355	\$ 434,688	4.94%	5.62%	0.24%	10.80%	\$ 51,584	84.7%	
2046	10.80%	5.00%	\$ 495,614	\$ 53,526	\$ 2,977,070	\$ 2,534,722	\$ 442,348	4.84%	5.61%	0.24%	10.70%	\$ 53,016	85.1%	

Projections assume a constant population and no actuarial gains and losses



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SECTION I – BOARD SUMMARY

30-Year Closed Amortization Method:

City of Kansas City, Missouri Employees' Retirement System Projection Based on April 30, 2016 Actuarial Valuation 30-Year Closed 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)	
2016	13.81%	5.01%	\$ 164,248	\$ 22,683	\$ 1,268,159	\$ 1,055,814	\$ 212,345	5.89%	7.85%	0.24%	13.99%	\$ 22,972	83.3%	
2017	13.99%	5.01%	\$ 170,407	\$ 23,823	\$ 1,313,360	\$ 1,085,486	\$ 227,874	6.66%	7.69%	0.24%	14.59%	\$ 24,863	82.6%	
2018	14.59%	5.01%	\$ 176,798	\$ 25,795	\$ 1,359,522	\$ 1,117,720	\$ 241,802	7.36%	7.58%	0.24%	15.19%	\$ 26,850	82.2%	
2019	15.19%	5.01%	\$ 183,428	\$ 27,863	\$ 1,405,330	\$ 1,151,800	\$ 253,531	8.00%	7.48%	0.24%	15.73%	\$ 28,846	82.0%	
2020	15.73%	5.01%	\$ 190,306	\$ 29,935	\$ 1,450,729	\$ 1,187,651	\$ 263,078	8.57%	7.40%	0.24%	16.21%	\$ 30,853	81.9%	
2021	16.21%	5.01%	\$ 197,443	\$ 32,005	\$ 1,495,669	\$ 1,225,165	\$ 270,504	8.73%	7.23%	0.24%	16.20%	\$ 31,984	81.9%	
2022	16.20%	5.01%	\$ 204,847	\$ 33,185	\$ 1,540,036	\$ 1,264,188	\$ 275,849	8.83%	7.07%	0.24%	16.14%	\$ 33,066	82.1%	
2023	16.14%	5.01%	\$ 212,528	\$ 34,302	\$ 1,583,581	\$ 1,303,549	\$ 280,031	8.91%	6.92%	0.24%	16.07%	\$ 34,156	82.3%	
2024	16.07%	5.00%	\$ 220,498	\$ 35,434	\$ 1,626,332	\$ 1,343,178	\$ 283,154	8.98%	6.78%	0.24%	16.00%	\$ 35,275	82.6%	
2025	16.00%	5.00%	\$ 228,767	\$ 36,603	\$ 1,668,179	\$ 1,382,941	\$ 285,238	9.04%	6.64%	0.24%	15.92%	\$ 36,415	82.9%	
2026	15.92%	5.00%	\$ 237,346	\$ 37,785	\$ 1,709,413	\$ 1,423,165	\$ 286,249	9.08%	6.52%	0.24%	15.84%	\$ 37,599	83.3%	
2027	15.84%	5.00%	\$ 246,246	\$ 39,005	\$ 1,750,162	\$ 1,463,981	\$ 286,181	9.12%	6.41%	0.24%	15.77%	\$ 38,831	83.6%	
2028	15.77%	5.00%	\$ 255,480	\$ 40,289	\$ 1,790,390	\$ 1,505,400	\$ 284,991	9.15%	6.31%	0.24%	15.70%	\$ 40,115	84.1%	
2029	15.70%	5.00%	\$ 265,061	\$ 41,615	\$ 1,830,238	\$ 1,547,644	\$ 282,594	9.18%	6.22%	0.24%	15.64%	\$ 41,453	84.6%	
2030	15.64%	5.00%	\$ 275,001	\$ 43,010	\$ 1,869,925	\$ 1,591,009	\$ 278,916	9.21%	6.14%	0.24%	15.58%	\$ 42,852	85.1%	
2031	15.58%	5.00%	\$ 285,313	\$ 44,452	\$ 1,910,007	\$ 1,636,165	\$ 273,842	9.23%	6.06%	0.24%	15.53%	\$ 44,314	85.7%	
2032	15.53%	5.00%	\$ 296,012	\$ 45,971	\$ 1,951,067	\$ 1,683,796	\$ 267,271	9.25%	6.00%	0.24%	15.49%	\$ 45,853	86.3%	
2033	15.49%	5.00%	\$ 307,113	\$ 47,572	\$ 1,993,333	\$ 1,734,265	\$ 259,068	9.28%	5.94%	0.24%	15.45%	\$ 47,460	87.0%	
2034	15.45%	5.00%	\$ 318,630	\$ 49,228	\$ 2,037,481	\$ 1,788,418	\$ 249,063	9.30%	5.88%	0.24%	15.43%	\$ 49,149	87.8%	
2035	15.43%	5.00%	\$ 330,578	\$ 51,008	\$ 2,083,956	\$ 1,846,840	\$ 237,116	9.32%	5.84%	0.24%	15.40%	\$ 50,920	88.6%	
2036	15.40%	5.00%	\$ 342,975	\$ 52,818	\$ 2,133,363	\$ 1,910,371	\$ 222,993	9.35%	5.80%	0.24%	15.39%	\$ 52,781	89.5%	
2037	15.39%	5.00%	\$ 355,836	\$ 54,763	\$ 2,186,430	\$ 1,979,883	\$ 206,547	9.38%	5.76%	0.24%	15.38%	\$ 54,738	90.6%	
2038	15.38%	5.00%	\$ 369,180	\$ 56,780	\$ 2,244,135	\$ 2,056,632	\$ 187,503	9.41%	5.73%	0.24%	15.39%	\$ 56,806	91.6%	
2039	15.39%	5.00%	\$ 383,025	\$ 58,947	\$ 2,307,143	\$ 2,141,504	\$ 165,639	9.45%	5.71%	0.24%	15.40%	\$ 58,994	92.8%	
2040	15.40%	5.00%	\$ 397,388	\$ 61,198	\$ 2,376,244	\$ 2,235,614	\$ 140,630	9.50%	5.69%	0.24%	15.43%	\$ 61,321	94.1%	
2041	15.43%	5.00%	\$ 412,290	\$ 63,616	\$ 2,452,526	\$ 2,340,332	\$ 112,194	9.58%	5.67%	0.24%	15.48%	\$ 63,842	95.4%	
2042	15.48%	5.00%	\$ 427,751	\$ 66,216	\$ 2,536,832	\$ 2,456,886	\$ 79,945	9.69%	5.65%	0.24%	15.59%	\$ 66,674	96.8%	
2043	15.59%	5.00%	\$ 443,792	\$ 69,187	\$ 2,630,167	\$ 2,586,716	\$ 43,452	9.98%	5.64%	0.24%	15.86%	\$ 70,387	98.3%	
2044	15.86%	5.00%	\$ 460,434	\$ 73,025	\$ 2,733,833	\$ 2,731,776	\$ 2,056	0.46%	5.63%	0.24%	6.32%	\$ 29,121	99.9%	
2045	6.32%	5.00%	\$ 477,700	\$ 30,191	\$ 2,849,043	\$ 2,894,505	\$ (45,462)	-9.70%	5.62%	0.24%	0.00%	\$ -	101.6%	
2046	0.00%	5.00%	\$ 495,614	\$ -	\$ 2,977,070	\$ 3,028,199	\$ (51,129)	-10.52%	5.61%	0.24%	0.00%	\$ -	101.7%	

Projections assume a constant population and no actuarial gains and losses



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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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, 2015 and April 30, 2016;
- 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, 2015 and 2016.

Table II-1				
Statement of Assets at Market Value as of April 30,				
Assets	2015	2016	% Change	
Cash	\$ 18,614,805	\$ 18,204,817	(2.20%)	
Stock and Collective Trusts	1,067,057,623	1,004,136,284	(5.90%)	
Accounts Receivable	4,211,198	1,341,477	(68.15%)	
Interest and Dividends	827,254	981,168	18.61%	
Contributions Receivable	1,136,292	1,200,795	5.68%	
Expenses	(1,805,453)	(495,404)	(72.56%)	
Purchase of Investments	(4,908,442)	(1,758,965)	(64.16%)	
Market Value of Assets	\$1,085,133,277	\$1,023,610,172	(5.67%)	

**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, 2015 and April 30, 2016.

Table II-2	
Changes in Market Values	
Value of Assets – April 30, 2015	\$ 1,085,133,277
<u>Additions</u>	
Member Contributions	\$ 8,235,363
Employer Contributions	24,577,647
Interest and Dividends	16,421,253
Investment Return	<u>(38,431,141)</u>
Total Additions	\$ 10,803,122
<u>Deductions</u>	
Benefit Payments	\$ (67,603,613)
Investment Expenses	(4,357,043)
Administrative Expenses	<u>(365,571)</u>
Total Deductions	\$ (72,326,227)
Value of Assets – April 30, 2016	\$ 1,023,610,172

**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, 2015	\$ 1,026,045,837
2. Contributions	32,813,010
3. Benefit Payments and Administrative Expenses	(67,969,184)
4. Expected Return	75,658,915
5. Expected Actuarial Value at End of Year	1,066,548,578
= (1) + (2) + (3) + (4)	
6. Actual Market Value of Assets at April 30, 2016	1,023,610,172
7. Excess of (6) over (5)	(42,938,406)
8. Adjustment toward market value: 25% of (7)	(10,734,601)
9. Adjustment to be within 85%/110% corridor	0
10. Actuarial Value of Assets at May 1, 2016 = (5) + (8) + (9)	\$ 1,055,813,977

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

Investment Performance

The market value of assets (MVA) returned -2.47% during plan year ending April 30, 2016, which is less than the assumed 7.50% return. A return of 6.44% was experienced on the actuarial value of assets (AVA). Below, we show additional historical returns.

Table II-4 Historical Returns		
	MVA	AVA
2007	12.36%	12.58%
2008	(1.73%)	8.14%
2009	(25.78%)	(17.92%)
2010	28.14%	9.24%
2011	14.76%	10.62%
2012	0.68%	8.32%
2013	12.39%	9.38%
2014	11.44%	9.96%
2015	8.33%	9.58%
2016	(2.47%)	6.44%

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	
2016	\$ (70,319)	\$ 30,911	\$ (39,408)	
2017	(73,059)	33,824	(39,235)	
2018	(77,206)	36,629	(40,577)	
2019	(81,412)	39,432	(41,980)	
2020	(85,665)	42,242	(43,423)	
2021	(90,033)	45,029	(45,004)	
2022	(94,629)	46,716	(47,913)	
2023	(99,163)	48,340	(50,823)	
2024	(103,788)	49,975	(53,813)	
2025	(108,091)	51,665	(56,426)	

* *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 graph on page 10.*

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

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

- **Disclosure** of the System liabilities as of May 1, 2015 and May 1, 2016, 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, 2015	May 1, 2016
<u>Present Value of Future Benefits</u>		
Active Participant Benefits	\$ 659,173,651	\$ 682,374,676
Retiree and Inactive Benefits	669,334,615	730,541,280
Present Value of Future Benefits (PVB)	\$ 1,328,508,266	\$ 1,412,915,956
<u>Actuarial Liability</u>		
Present Value of Future Benefits (PVB)	\$ 1,328,508,266	\$ 1,412,915,956
Present Value of Future Normal Costs (PVFNC)	142,764,580	144,756,653
Actuarial Liability (AAL = PVB – PVFNC)	1,185,743,686	1,268,159,303
Actuarial Value of Assets (AVA)	1,026,045,837	1,055,813,977
Net (Surplus)/Unfunded (AL – AVA)	\$ 159,697,849	\$ 212,345,326
<u>Present Value of Accrued Benefits</u>		
Present Value of Future Benefits (PVB)	\$ 1,328,508,266	\$ 1,412,915,956
Present Value of Future Benefit Accruals (PVFBA)	274,216,942	266,228,018
Present Value of Accrued Benefits (PVAB = PVB – PVFBA)	1,054,291,324	1,146,687,938
Market Value of Assets (MVA)	1,085,133,277	1,023,610,172
Net Unfunded/(Surplus)	\$ (30,841,953)	\$ 123,077,766

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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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, 2015 and May 1, 2016.

Table III-2	
	Actuarial Liability
Liabilities May 1, 2015	\$ 1,185,743,686
Liabilities May 1, 2016	1,268,159,303
Liability Increase/(Decrease)	82,415,617
Change Due to:	
Plan Amendments	0
Assumption Changes	48,300,635
Actuarial (Gain)/Loss	(5,669,684)
Benefits Accumulated and Other Sources	39,784,666

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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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, 2016	
Turnover	\$ 1,909,000
Retirement	(462,000)
Pre-retirement mortality	708,000
Post-retirement mortality	168,000
Salary increase more/(less) than expected for continuing actives	(16,962,000)
New entrants	2,552,000
Data Composition & Miscellaneous changes	<u>6,417,000</u>
Total (Gain)/Loss	\$ (5,670,000)

Table III-4 Historical Liability (Gains)/Losses (\$ Millions)					
Change due to:	2012	2013	2014	2015	2016
Turnover	\$ 3.4	\$ (1.1)	\$ (6.1)	\$ (0.4)	\$ 1.9
Retirement	(0.1)	(0.5)	1.5	0.7	(0.5)
Pre-retirement mortality	0.6	0.7	0.8	0.7	0.7
Post-retirement mortality	0.8	(2.7)	(4.1)	1.5	0.2
Salary change	(1.6)	5.7	(5.4)	(11.2)	(17.0)
New entrants	0.7	3.0	1.6	0.9	2.6
Miscellaneous	<u>1.7</u>	<u>(4.0)</u>	<u>2.8</u>	<u>1.7</u>	<u>6.4</u>
Total (Gain)/Loss	\$ 5.5	\$ 1.1	\$ (8.9)	\$ (6.1)	\$ (5.7)

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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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.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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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, 2015	May 1, 2016*
<u>Current Board Funding Policy</u>		
Entry Age Normal Cost Rate	7.69%	7.85%
Administrative Expense Rate	0.24%	0.24%
Amortization Payment	5.88%	6.76%
Actuarially Determined Contribution	<u>13.81%</u>	<u>14.85%</u>
<u>30-Year Open Amortization Method</u>		
Entry Age Normal Cost Rate	7.69%	7.85%
Administrative Expense Rate	0.24%	0.24%
Amortization Payment	5.04%	5.61%
Actuarially Determined Contribution	<u>12.97%</u>	<u>13.70%</u>

** May 1, 2016 rates reflect the 5-year phase-in of the 2016 assumption changes*

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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SECTION IV – CONTRIBUTIONS

Table IV-2 below presents the May 1, 2016 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, 2017 is 13.81% of payroll.

Table IV -2 Development of Plan Contribution Rate as of May 1, 2016			
	General Employees	Judges and Elected Officials	Total
1. Normal Cost (Monthly):			
a. Total Normal Cost	13.24%	18.84%	13.27%
b. Administrative Expense	0.24%	0.24%	0.24%
c. Expected Members Contribution	<u>5.01%</u>	<u>5.00%</u>	<u>5.01%</u>
d. Employer Paid Normal Cost (a) + (b) - (c)	8.47%	14.08%	8.50%
2. Amortization of Unfunded Liability			
a. Actuarial Liability	\$1,253,845,845	\$ 14,313,458	\$1,268,159,303
b. Actuarial Value of Assets ¹	<u>1,043,897,218</u>	<u>11,916,759</u>	<u>1,055,813,977</u>
c. Unfunded Liability (a) - (b)	209,948,627	2,396,699	212,345,326
d. Amortization of Unfunded Liability	8.48%	19.71%	8.53%
3. Actuarially Determined Employer Contribution Rate (1) + (2d)	16.95%	33.79%	17.03%
4. Actuarially Determined Employer Contribution Rate under prior assumptions	14.24%	30.10%	14.31%
5. Increase due to change in assumptions (3) - (4)	2.71%	3.69%	2.72%
6. Actuarially Determined Employer Contribution Rate after phase-in (3) - (80% x (5)) ²	14.78%	30.84%	14.85%
7. Scheduled City Contributions ³	13.81%	13.81%	13.81%

¹ Allocated in proportion to the Actuarial Liability

² Total payroll is \$164,248,048, and the actuarially determined contribution for plan year ending April 30, 2016 is \$24,390,835 based on the total employer actuarially determined contribution rate. The payroll for the judges and elected officials is \$726,715, and the actuarially determined contribution for this group for the plan year ending April 30, 2016 is \$224,119

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
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SECTION IV – CONTRIBUTIONS

Under 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, 2016 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	12	\$ 55,539,937	\$ 5,692,575	9.757
2009 (Gain)/Loss*	5/1/2009	30	\$ 201,970,870	23	\$ 223,620,979	\$ 14,248,183	15.695
2010 (Gain)/Loss*	5/1/2010	20	\$ (21,123,472)	14	\$ (20,334,145)	\$ (1,845,954)	11.016
2011 (Gain)/Loss*	5/1/2011	20	\$ (12,149,092)	15	\$ (11,890,443)	\$ (1,023,956)	11.612
2011 Assumption Change	5/1/2011	20	\$ (32,092,544)	15	\$ (31,409,310)	\$ (2,704,840)	11.612
2012 (Gain)/Loss*	5/1/2012	20	\$ 372,006	16	\$ 368,464	\$ 30,231	12.188
2012 Plan Amendment	5/1/2012	20	\$ 16,284,519	16	\$ 16,129,480	\$ 1,323,370	12.188
2013 (Gain)/Loss*	5/1/2013	20	\$ (11,094,653)	17	\$ (11,076,454)	\$ (869,149)	12.744
2014 (Gain)/Loss*	5/1/2014	20	\$ (29,765,565)	18	\$ (29,847,060)	\$ (2,247,441)	13.280
2014 Plan Amendment	5/1/2014	20	\$ 253,038	18	\$ 253,731	\$ 19,106	13.280
2015 (Gain)/Loss*	5/1/2015	20	\$ (29,953,245)	19	\$ (30,034,506)	\$ (2,176,699)	13.798
2016 (Gain)/Loss*	5/1/2016	20	\$ 2,724,018	20	\$ 2,724,018	\$ 190,519	14.298
2016 Assumption Change**	5/1/2016	20	\$ 48,300,635	20	\$ 48,300,635	\$ 3,378,172	14.298
Total					\$ 212,345,326	\$ 14,014,118	

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

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

Under the City ordinance, amortization payments are calculated using a 30-year open amortization method. The amortization payment as of May 1, 2016 is shown in the table below.

TABLE IV-4			
Unfunded Actuarial Liability Amortization Schedule			
UAL	Remaining Years*	Amortization Payment**	Amortization Factor
\$212,345,326	30	\$11,522,004	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
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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, 2016 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, 2016
Actuarial cost method	Entry age
Amortization method	20-year layered amortization, level percent of pay*
Remaining amortization period for the UAL	Weighted average of 21.8 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.

** 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
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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
Investment Income*	\$ (216,876)	\$ 5,151	\$ 18,253	\$ 880	\$ 12,225	\$ 20,897	\$ 23,876	\$ (8,394)
Combined Liability Experience	12,781	15,972	(6,104)	(1,252)	(1,130)	8,868	6,077	5,670
Gain/(or Loss) during Year from Financial Experience	\$ (204,095)	\$ 21,123	\$ 12,149	\$ (372)	\$ 11,095	\$ 29,765	\$ 29,953	\$ (2,724)
Non-Recurring Gain/(or Loss) Items	0	0	32,093	(16,285)	0	(253)	0	(48,301)
Composite Gain/(or Loss) during Year	\$ (204,095)	\$ 21,123	\$ 44,242	\$ (16,657)	\$ 11,095	\$ 29,512	\$ 29,953	\$ (51,025)

* Investment experience includes differences in actual and recommended contributions

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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SECTION V – FINANCIAL STATEMENT INFORMATION

**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)
2007	\$73,078	\$446,908	\$327,407	\$823,014	100%	100%	93%
2008	\$78,339	\$468,489	\$387,506	\$873,680	100%	100%	84%
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%

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
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SECTION V – FINANCIAL STATEMENT INFORMATION

Table V-4				
Schedule of City Contributions				
Plan Year Ended	Actuarially Determined		Actual	Percentage
April 30	Contributions		Contributions	Contributed
2008	\$15,623,936 *		\$20,011,617	128.08%
2009	\$19,364,846 *		\$20,330,486	104.99%
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 **		--	--

**The actuarially determined contribution for the plan years ended April 30, 2008 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, 2016 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)
5/1/2007	\$823,014,181	\$847,393,167	\$24,378,986	97.12%	\$158,779,836	15.35%
5/1/2008	\$873,680,276	\$934,333,865	\$60,653,589	93.51%	\$169,867,066	35.71%
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%

* Not less than zero

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

City of Kansas City, Missouri Employees' Retirement System			
Active Member Data			
	May 1, 2015	May 1, 2016	% Change
<u>Total</u>			
Count	3,188	3,161	-0.85%
Average Current Age	46.97	47.14	0.36%
Average Service	12.08	12.08	0.00%
Average Valuation Pay	\$ 52,338	\$ 51,961	-0.72%
Annual Compensation	\$ 166,853,097	\$ 164,248,048	-1.56%
<u>General Members</u>			
Count	3,176	3,156	-0.63%
Average Current Age	46.93	47.13	0.43%
Average Service	12.08	12.08	0.00%
Average Valuation Pay	\$ 52,145	\$ 51,813	-0.64%
Annual Compensation	\$ 165,611,625	\$ 163,521,333	-1.26%
<u>Judges</u>			
Count	6	5	-16.67%
Average Current Age	55.10	53.69	-2.56%
Average Service	12.67	12.22	-3.55%
Average Valuation Pay	\$ 145,343	\$ 145,343	0.00%
Annual Compensation	\$ 872,058	\$ 726,715	-16.67%
<u>Elected Officials</u>			
Count	6	0	-100.00%
Average Current Age	62.19	0.00	-100.00%
Average Service	9.33	0.00	-100.00%
Average Valuation Pay	\$ 61,569	\$ 0	-100.00%
Annual Compensation	\$ 369,414	\$ 0	-100.00%

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Table of Plan Coverage			
	May 1, 2015	May 1, 2016	% change
Active Members in Valuation			
<u>Tier 1</u>			
Number	2,904	2,647	-8.85%
Average Age	47.95	48.98	2.14%
Average Service	13.21	14.25	7.84%
Total Payroll	\$ 156,408,115	\$ 144,497,880	-7.61%
Average Anticipated Payroll	\$ 53,860	\$ 54,589	1.35%
Account Balance	\$ 95,879,129	\$ 99,454,710	3.73%
Eligible to Retire on:			
Normal Pension	96	101	5.21%
Optional Pension	377	378	0.27%
Early Pension	239	247	3.35%
Deferred Pension	<u>1,615</u>	<u>1,498</u>	-7.24%
Total Active Vested Members	2,327	2,224	-4.43%
<u>Tier 2</u>			
Number	284	514	80.99%
Average Age	36.93	37.70	2.09%
Average Service	0.49	0.92	87.76%
Total Payroll	\$ 10,444,982	\$ 19,750,168	89.09%
Average Anticipated Payroll	\$ 36,778	\$ 38,424	4.48%
Account Balance	\$ 230,966	\$ 852,530	269.11%
Eligible to Retire on:			
Normal Pension	0	0	N/A
Optional Pension	0	0	N/A
Early Pension	0	0	N/A
Deferred Pension	0	0	N/A
Total Active Vested Members	0	0	N/A
<u>Total</u>			
Number	3,188	3,161	-0.85%
Average Age	46.97	47.14	0.36%
Average Service	12.08	12.08	0.00%
Total Payroll	\$ 166,853,097	\$ 164,248,048	-1.56%
Average Anticipated Payroll	\$ 52,338	\$ 51,961	-0.72%
Account Balance	\$ 96,110,095	\$ 100,307,240	4.37%
Eligible to Retire on:			
Normal Pension	96	101	5.21%
Optional Pension	377	378	0.27%
Early Pension	239	247	3.35%
Deferred Pension	<u>1,615</u>	<u>1,498</u>	-7.24%
Total Active Vested Members	2,327	2,224	-4.43%

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Table of Plan Coverage (cont.)			
	May 1, 2015	May 1, 2016	% change
Vested Terminated Members	88	101	14.77%
Deaths During the Plan Year	92	94	2.17%
Pensioners:			
Number in Pay Status			
Retirees	1,910	1,967	2.98%
Disabled Retirees	<u>9</u>	<u>9</u>	0.00%
Total	1,919	1,976	2.97%
Average Age	69.95	70.08	0.19%
Average Monthly Benefit**	\$ 2,223	\$ 2,283	2.69%
Beneficiaries in Pay Status*	387	386	-0.26%
Members Due Refunds	144	220	52.78%

* Widows, QDROs, and Children

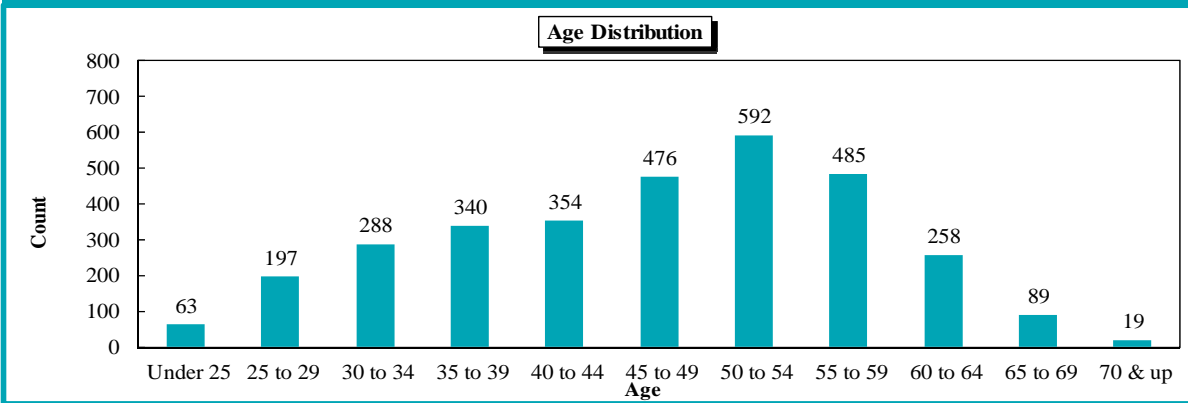
** The monthly benefit does not include the health insurance subsidy benefits

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

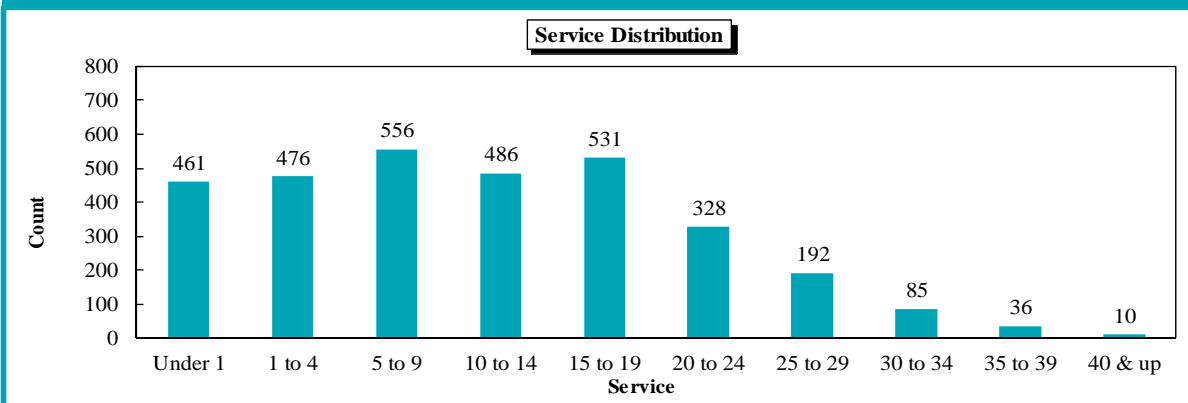
APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Distribution of Active Members by Age and Service as of May 1, 2016											
Age	COUNTS BY AGE/SERVICE										Total
	Service										
	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	39	24	0	0	0	0	0	0	0	0	63
25 to 29	93	74	29	1	0	0	0	0	0	0	197
30 to 34	86	87	83	32	0	0	0	0	0	0	288
35 to 39	73	80	91	61	34	1	0	0	0	0	340
40 to 44	40	55	81	85	80	13	0	0	0	0	354
45 to 49	49	45	70	94	121	72	24	1	0	0	476
50 to 54	34	45	86	86	143	108	65	22	3	0	592
55 to 59	28	41	68	72	93	77	63	30	13	0	485
60 to 64	17	18	33	39	42	41	31	24	11	2	258
65 to 69	2	6	15	14	17	12	7	6	8	2	89
70 & up	0	1	0	2	1	4	2	2	1	6	19
Total	461	476	556	486	531	328	192	85	36	10	3,161

Kansas City Employees' Retirement System Distribution of Active Members
by Age as of May 1, 2016



Kansas City Employees' Retirement System Distribution of Active Members
by Service as of May 1, 2016



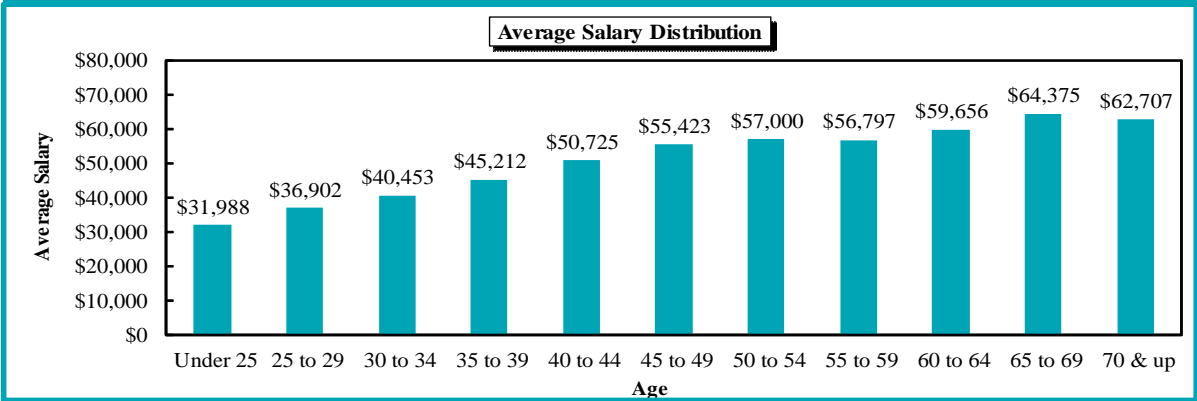
**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

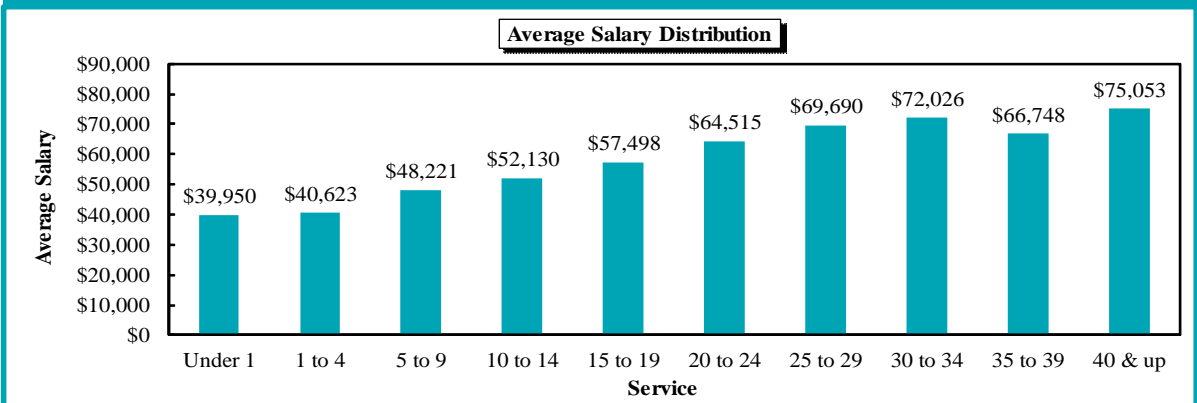
**Kansas City Employees' Retirement System Distribution of Active Members
by Age and Service as of May 1, 2016**

Age	AVERAGE SALARY BY AGE/SERVICE										Total
	Service										
	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	\$ 31,932	\$ 32,078	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 31,988
25 to 29	36,718	36,246	38,893	44,748	-	-	-	-	-	-	36,902
30 to 34	38,092	39,973	42,659	42,380	-	-	-	-	-	-	40,453
35 to 39	42,734	41,738	47,906	46,395	49,296	48,012	-	-	-	-	45,212
40 to 44	40,331	43,651	52,834	53,065	54,989	57,945	-	-	-	-	50,725
45 to 49	43,597	44,108	52,700	51,484	61,292	64,167	68,217	58,140	-	-	55,423
50 to 54	45,033	45,720	48,159	50,996	57,001	66,685	68,357	71,819	83,928	-	57,000
55 to 59	45,388	37,978	45,966	57,801	55,184	64,629	70,535	68,644	63,051	-	56,797
60 to 64	44,202	43,299	50,352	58,565	60,831	62,716	71,872	73,794	60,387	62,652	59,656
65 to 69	29,196	42,858	59,009	60,195	67,761	64,807	70,929	69,390	76,136	117,216	64,375
70 & up	-	31,128	-	40,140	49,704	53,064	65,880	118,686	58,140	65,132	62,707
Total	\$ 39,950	\$ 40,623	\$ 48,221	\$ 52,130	\$ 57,498	\$ 64,515	\$ 69,690	\$ 72,026	\$ 66,748	\$ 75,053	\$51,961

**Kansas City Employees' Retirement System Distribution of Active Members
by Age as of May 1, 2016**



**Kansas City Employees' Retirement System Distribution of Active Members
by Service as of May 1, 2016**



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 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, 2016							
Monthly Amount	Total	Normal	Early	Optional	Vested	Disability	Widows & QDROs
Total	2,362	252	219	1,313	183	9	386
Under \$500	252	26	57	4	34	0	131
\$500-\$1,000	418	70	84	81	69	2	112
\$1,000-\$1,500	346	38	47	150	45	7	59
\$1,500-\$2,000	310	39	18	199	20	0	34
\$2,000-\$2,500	277	22	7	216	10	0	22
\$2,500-\$3,000	244	17	1	211	4	0	11
\$3,000-\$3,500	146	8	2	132	0	0	4
\$3,500-\$4,000	115	11	1	97	1	0	5
\$4,000-\$4,500	77	6	1	68	0	0	2
\$4,500-\$5,000	59	6	0	53	0	0	0
\$5,000 & over	118	9	1	102	0	0	6

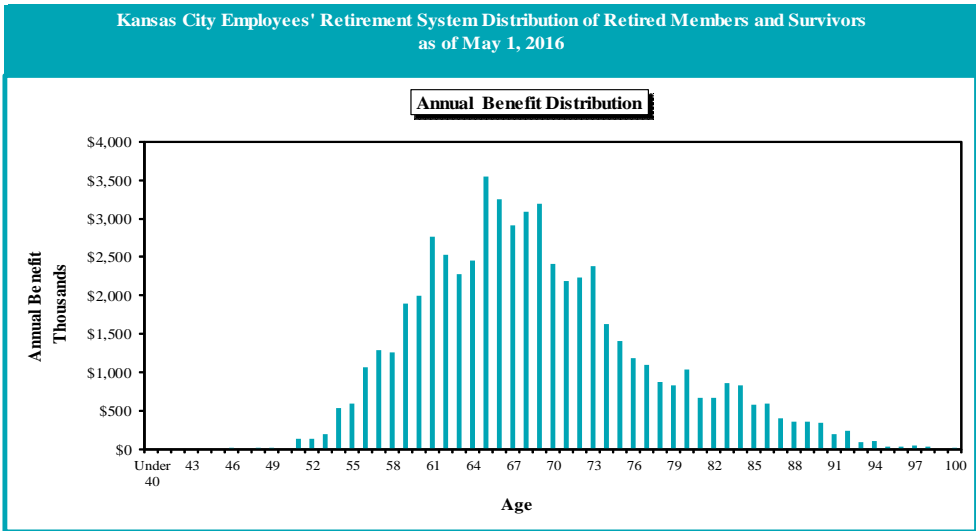
During the year ended April 30, 2016 there were 147 new pensions awarded (25 Normal, 7 Early, 78 Optional, 13 Vested, 0 Disability, and 24 Widows and QDROs)

**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, 2016								
Age	Count	Annual Benefit*	Age	Count	Annual Benefit*	Age	Count	Annual Benefit*
<25	0	\$0	57	45	\$1,292,060	89	26	\$359,686
25	0	0	58	41	1,254,970	90	30	341,832
26	0	0	59	57	1,888,090	91	18	200,060
27	0	0	60	65	2,003,445	92	19	244,936
28	0	0	61	96	2,764,759	93	9	88,496
29	0	0	62	87	2,528,455	94	17	112,293
30	0	0	63	93	2,275,239	95	6	40,388
31	0	0	64	95	2,461,789	96	6	32,849
32	0	0	65	122	3,548,538	97	7	51,062
33	0	0	66	116	3,247,040	98	3	29,565
34	0	0	67	108	2,913,580	99	0	0
35	0	0	68	109	3,093,729	100	1	3,364
36	0	0	69	109	3,188,378	101	0	0
37	0	0	70	77	2,407,750	102	1	5,940
38	0	0	71	82	2,195,587	103	0	0
39	0	0	72	83	2,231,793	104	0	0
40	0	0	73	88	2,380,910	105	0	0
41	0	0	74	62	1,628,818	106	0	0
42	0	0	75	58	1,413,045	107	0	0
43	0	0	76	51	1,178,985	108	0	0
44	0	0	77	53	1,100,743	109	0	0
45	0	0	78	42	873,652	110	0	0
46	1	12,918	79	43	828,117	111	0	0
47	0	0	80	46	1,034,641	112	0	0
48	1	3,427	81	34	666,667	113	0	0
49	1	5,880	82	35	661,591	114	0	0
50	0	0	83	44	863,919	115	0	0
51	4	130,162	84	41	829,069	116	0	0
52	5	133,598	85	44	581,493	117	0	0
53	7	197,534	86	36	588,194	118	0	0
54	17	538,183	87	24	398,365	119	0	0
55	25	593,669	88	25	358,446	120	0	0
56	38	1,064,034						
Totals							2,353	\$58,871,733

*The annual benefit does not include the subsidy benefits

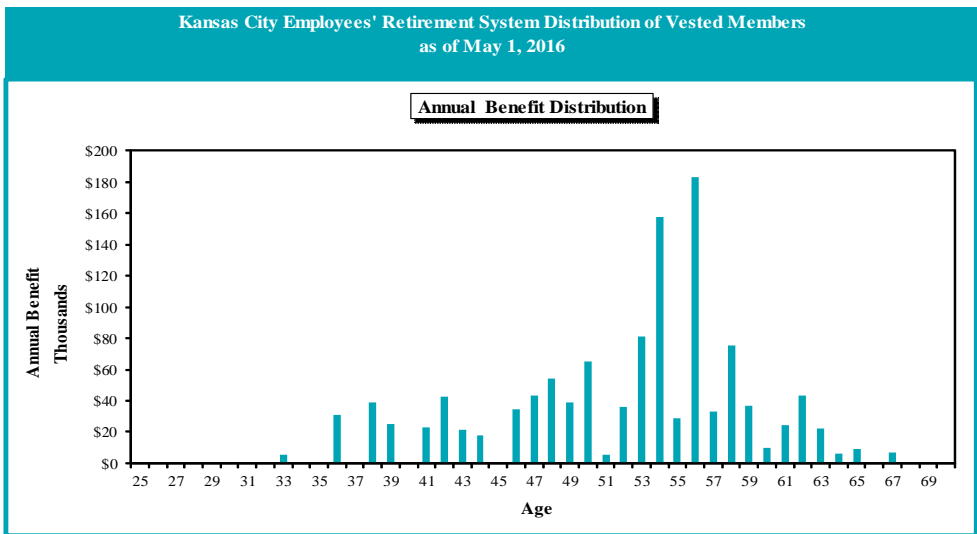


**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Distribution of Vested Members as of May 1, 2016											
Age	Count	Annual Unreduced Benefit*	Age	Count	Annual Unreduced Benefit*	Age	Count	Annual Unreduced Benefit*	Age	Count	Annual Unreduced Benefit*
<25	0	\$0	57	5	\$33,025	89	0	\$0			
25	0	0	58	6	75,098	90	0	0			
26	0	0	59	2	36,545	91	0	0			
27	0	0	60	1	9,735	92	0	0			
28	0	0	61	4	24,098	93	0	0			
29	0	0	62	4	43,422	94	0	0			
30	0	0	63	3	22,406	95	0	0			
31	0	0	64	1	6,425	96	0	0			
32	0	0	65	1	9,066	97	0	0			
33	1	5,463	66	0	0	98	0	0			
34	0	0	67	2	6,793	99	0	0			
35	0	0	68	0	0	100	0	0			
36	4	30,529	69	0	0	101	0	0			
37	0	0	70	0	0	102	0	0			
38	3	39,233	71	0	0	103	0	0			
39	3	24,679	72	0	0	104	0	0			
40	0	0	73	0	0	105	0	0			
41	2	23,081	74	0	0	106	0	0			
42	4	42,469	75	0	0	107	0	0			
43	2	21,140	76	0	0	108	0	0			
44	2	17,625	77	0	0	109	0	0			
45	0	0	78	0	0	110	0	0			
46	2	34,741	79	0	0	111	0	0			
47	3	43,357	80	0	0	112	0	0			
48	4	54,180	81	0	0	113	0	0			
49	3	39,050	82	0	0	114	0	0			
50	4	65,354	83	0	0	115	0	0			
51	1	5,363	84	0	0	116	0	0			
52	3	35,927	85	0	0	117	0	0			
53	7	81,403	86	0	0	118	0	0			
54	11	157,443	87	0	0	119	0	0			
55	3	28,758	88	0	0	120	0	0			
56	10	183,175									
Totals							101	\$1,199,583			

* The annual benefit does not include the subsidy benefits

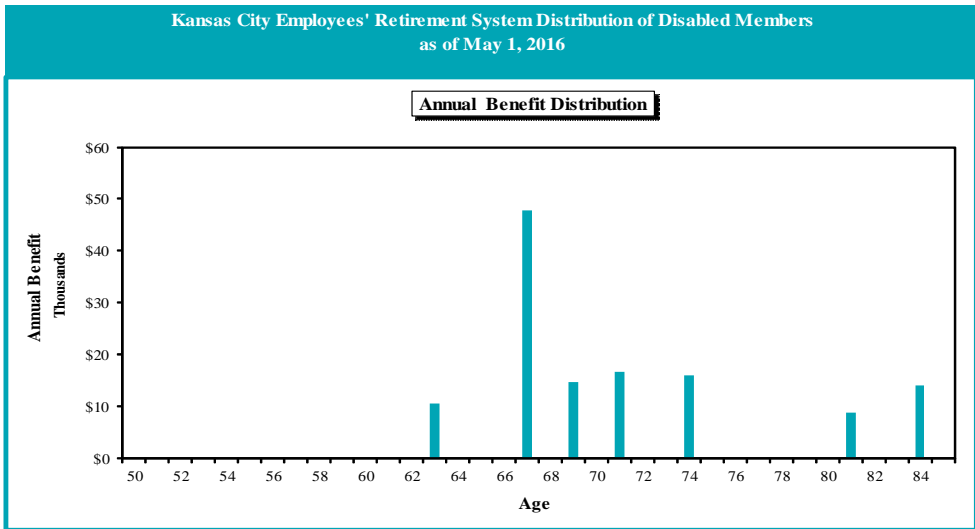


**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System Distribution of Disabled Members as of May 1, 2016								
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	1	10,461	95	0	0
31	0	0	64	0	0	96	0	0
32	0	0	65	0	0	97	0	0
33	0	0	66	0	0	98	0	0
34	0	0	67	3	47,886	99	0	0
35	0	0	68	0	0	100	0	0
36	0	0	69	1	14,738	101	0	0
37	0	0	70	0	0	102	0	0
38	0	0	71	1	16,761	103	0	0
39	0	0	72	0	0	104	0	0
40	0	0	73	0	0	105	0	0
41	0	0	74	1	15,924	106	0	0
42	0	0	75	0	0	107	0	0
43	0	0	76	0	0	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	1	8,750	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	1	14,011	116	0	0
52	0	0	85	0	0	117	0	0
53	0	0	86	0	0	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							9	\$128,531

*The annual benefit does not include the subsidy benefits



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX A – MEMBERSHIP INFORMATION

Kansas City Employees' Retirement System							
Change in Plan Membership							
Tier 1							
	Vested						
	Actives	Terminations	Refund Due	Disabilities	Retirees	Beneficiaries*	Total
May 1, 2015	2,904	88	111	9	1,910	387	5,409
New Entrants	0	0	0	0	0	0	0
Rehires	1	(1)	0	0	0	0	0
Vested Terminations	(13)	13	(3)	0	0	0	(3)
Terminated with Refund Due	(54)	3	54	0	0	0	3
Return of Contributions	(87)	(1)	(40)	0	0	0	(128)
Disabilities	0	0	0	0	0	0	0
Retirements	(107)	(6)	(6)	0	119	0	0
Benefits Suspended	0	0	0	0	(1)	0	(1)
Deaths	0	0	0	0	(66)	(27)	(93)
New Survivor	0	0	0	0	0	26	26
Miscellaneous Adjustments	3	5	8	0	5	0	21
May 1, 2016	2,647	101	124	9	1,967	386	5,234
Tier 2							
	Vested						
	Actives	Terminations	Refund Due	Disabilities	Retirees	Beneficiaries*	Total
May 1, 2015	284	0	33	0	0	0	317
New Entrants	289	0	32	0	0	0	321
Rehires	6	0	1	0	0	0	7
Vested Terminations	0	0	0	0	0	0	0
Terminated with Refund Due	(36)	0	36	0	0	0	0
Return of Contributions	(29)	0	(6)	0	0	0	(35)
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	0	0	0	0	0
May 1, 2016	514	0	96	0	0	0	610
Total							
	Vested						
	Actives	Terminations	Refund Due	Disabilities	Retirees	Beneficiaries*	Total
May 1, 2015	3,188	88	144	9	1,910	387	5,726
New Entrants	289	0	32	0	0	0	321
Rehires	7	(1)	1	0	0	0	7
Vested Terminations	(13)	13	(3)	0	0	0	(3)
Terminated with Refund Due	(90)	3	90	0	0	0	3
Return of Contributions	(116)	(1)	(46)	0	0	0	(163)
Disabilities	0	0	0	0	0	0	0
Retirements	(107)	(6)	(6)	0	119	0	0
Benefits Suspended	0	0	0	0	(1)	0	(1)
Deaths	0	0	0	0	(66)	(27)	(93)
New Survivor	0	0	0	0	0	26	26
Miscellaneous Adjustments	3	5	8	0	5	0	21
May 1, 2016	3,161	101	220	9	1,967	386	5,844

* Widows & QDROs



**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

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
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

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, 2016 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, 2016 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.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

12. Interest on Employee Contributions

5.00% per year, compounded annually.

13. Unknown Data for Members

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

14. Changes since Last Valuation

All assumptions, other than the assumed investment return, have been revised based on the results of the experience study conducted for the period May 1, 2010 to April 30, 2015.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

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

A five-year phase-in was adopted for contribution changes that occurred as a result of the actuarial assumption changes as of May 1, 2016.

The expected payroll increases for amortization decreased from 4.00% to 3.75%.

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

**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.

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:

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

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

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.

Judges and Elected Officials:

CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1

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 Judges and Elected Officials, last ten years 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.

CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT

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 attainment of what would have been the member's early retirement

CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT

APPENDIX C – SUMMARY OF PLAN PROVISIONS
TIER 1

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, 2016 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, 2016, the City is contributing 13.81% 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

**CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT**

**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.

CITY OF KANSAS CITY, MISSOURI EMPLOYEES' RETIREMENT SYSTEM
MAY 1, 2016 ACTUARIAL VALUATION REPORT

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, 2016, the City is contributing 13.81% 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.



Classic Values, Innovative Advice