



# **Employees Retirement System of the City of St. Louis**

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

**Produced by Cheiron**

**January 2019**

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## ***LETTER OF TRANSMITTAL***

January 25, 2019

Board of Pension Trustees  
Employees Retirement System of the City of St. Louis  
1114 Market Street, Suite 900  
St. Louis, Missouri 63101

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the Employees Retirement System of the City of St. Louis as of October 1, 2018. The valuation is organized as follows:

- In Section I **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 - Accounting 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), and a summary of pertinent plan provisions (Appendix C).

The results of this report rely on future System experience conforming to the underlying assumptions. To the extent that actual System experience deviates from the underlying assumptions, the results will vary accordingly. The actuarial assumptions were adopted by the Board based on our recommendations from the experience study performed for the period October 1, 2009 through September 30, 2014.

The purpose of this report is to present the annual actuarial valuation of the Employees Retirement System of the City of St. Louis. This report is for the use of Board and its auditors in preparing financial reports in accordance with applicable law and accounting requirements. The report does not include calculations related to GASB Statements No. 67 and 68, which are provided in a separate report.

In preparing our report, we relied on information supplied by the Employees Retirement System of the City of St. Louis staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice No. 23.

Board of Pension Trustees

January 25, 2019

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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 as 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 opinion 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 actuarial report was prepared exclusively for the Employees Retirement System of the City of St. Louis for the purpose described herein. Other users of this 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  
Principal Consulting Actuary



Michael J. Noble, FSA, FCA, EA  
Principal Consulting Actuary

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS**  
**OCTOBER 1, 2018 ACTUARIAL VALUATION REPORT**

**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 employers' contributions for Fiscal Year ending 2019, and
- Information required for accounting statements.

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 October 1, 2018 valuation represents Cheiron's ninth valuation performed for the Employees Retirement System of the City of St. Louis.

**B. Key Findings of this Valuation**

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

- The actuarially determined employer contribution rate for the City as a percent of total compensation decreased from 12.36% as of October 1, 2017 to 12.26% as of October 1, 2018.
- For the "Lawsuit Beneficiary Employers", the actuarially determined contribution rate has been decreased by 0.08% of compensation. Further information about this adjustment can be found in the description of the amortization method in Appendix B.
- The unfunded actuarial liability for the Employees Retirement System (ERS) decreased from \$172 million on October 1, 2017 to \$166 million on October 1, 2018.
- The System's funded ratio, the ratio of actuarial asset value over liabilities increased from 82.7% as of October 1, 2017 to 83.4% as of October 1, 2018.
- There was also an actuarial experience gain during the year of \$3.5 million.
  - During the year ended September 30, 2018, the System's assets had a 6.11% return on a market value basis, but due to smoothing of prior investment gains and losses, the return on the actuarial asset value was 6.31% (as compared to 7.50% investment return assumption). This resulted in an actuarial loss on investments of \$9.5 million.
  - On the liability side, the System experienced a total gain of \$13.0 million. Participants' frozen sick leave balances were updated for the 2018 valuation and were lower than expected which resulted in a gain of \$10.9 million. Other significant gains or losses were a \$2.0 million gain from smaller DROP balances than expected, \$1.3 million gain from actives terminating earlier than expected, and a \$2.4 million loss due to inactive mortality.
  - An additional reduction of UAL of \$1.2 million was created because contributions were more than expected.

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**SECTION I - BOARD SUMMARY**

Following is Table I-1 which summarizes all 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  
Employees Retirement System of the City of St. Louis  
Summary of Principal Results**

Valuation as of:	October 1, 2017	October 1, 2018	% Change
<b><u>Participant Counts</u></b>			
Active Participants*	5,279	5,202	(1.46%)
Disabled Participants	192	187	(2.60%)
Retirees and Beneficiaries	4,380	4,491	2.53%
Terminated Vested Participants	<u>2,499</u>	<u>2,512</u>	0.52%
<b>Total</b>	<b>12,350</b>	<b>12,392</b>	<b>0.34%</b>
Annual Salaries of Active Members	\$227,253,901	\$ 228,447,481	0.53%
Annual Retirement Allowances for Retired Members and Beneficiaries	\$ 54,205,272	\$ 57,019,734	5.19%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability (AL)	\$ 990,630,355	\$ 996,543,282	0.60%
Actuarial Value of Assets (AVA)	<u>818,839,562</u>	<u>831,005,302</u>	<u>1.49%</u>
Unfunded Actuarial Liability (UAL)	\$ 171,790,793	\$ 165,537,980	(3.64%)
Funded Ratio (AVA / AL)	82.7%	83.4%	
Market Value of Assets (MVA)	816,915,650	827,355,133	1.28%
Funded Ratio (MVA / AL)	82.5%	83.0%	
<b><u>Contributions as a Percentage of Payroll</u></b>			
	<b>Fiscal Year 2018</b>	<b>Fiscal Year 2019</b>	
Normal Cost Rate	5.90%	5.80%	
Administrative Expense Rate	0.30%	0.30%	
City UAL Rate	<u>6.16%</u>	<u>6.16%</u>	
Total City Contribution Rate	12.36%	12.26%	
Reduction in UAL Rate for Lawsuit Beneficiary Employers	0.09%	0.08%	
Total Contribution Rate for Lawsuit Beneficiary Employers	12.27%	12.18%	
Actuarially Determined Contribution	\$ 28,061,249	\$ 27,958,439	(0.37%)

\* Includes 406 DROP participants as of October 1, 2017 and 391 DROP participants as of October 1, 2018.

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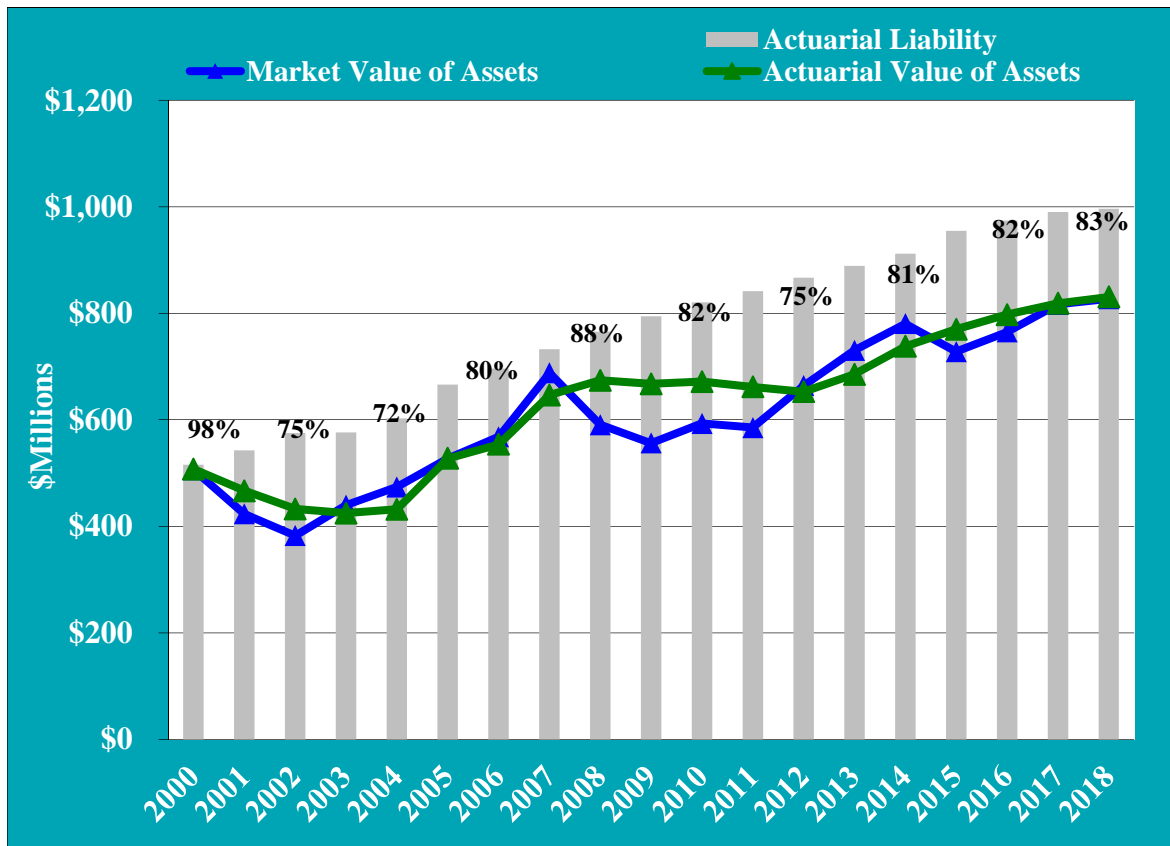
**SECTION I - BOARD SUMMARY**

**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 employer’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.

**Assets and Liabilities**

There was an increase in the market value of assets (MVA) from \$817 million to \$827 million, due to a 6.11% return during the year, which is less than the investment return assumption of 7.50%. With the asset smoothing method in place, the actuarial value of assets has tracked a slightly smoother path through the volatility of the market over recent years. The actuarial value of assets (AVA) increased from 2017 to 2018 returning 6.31% which includes three years of investment gains offset by the current year’s loss and a substantial investment loss for the year ending in 2015.



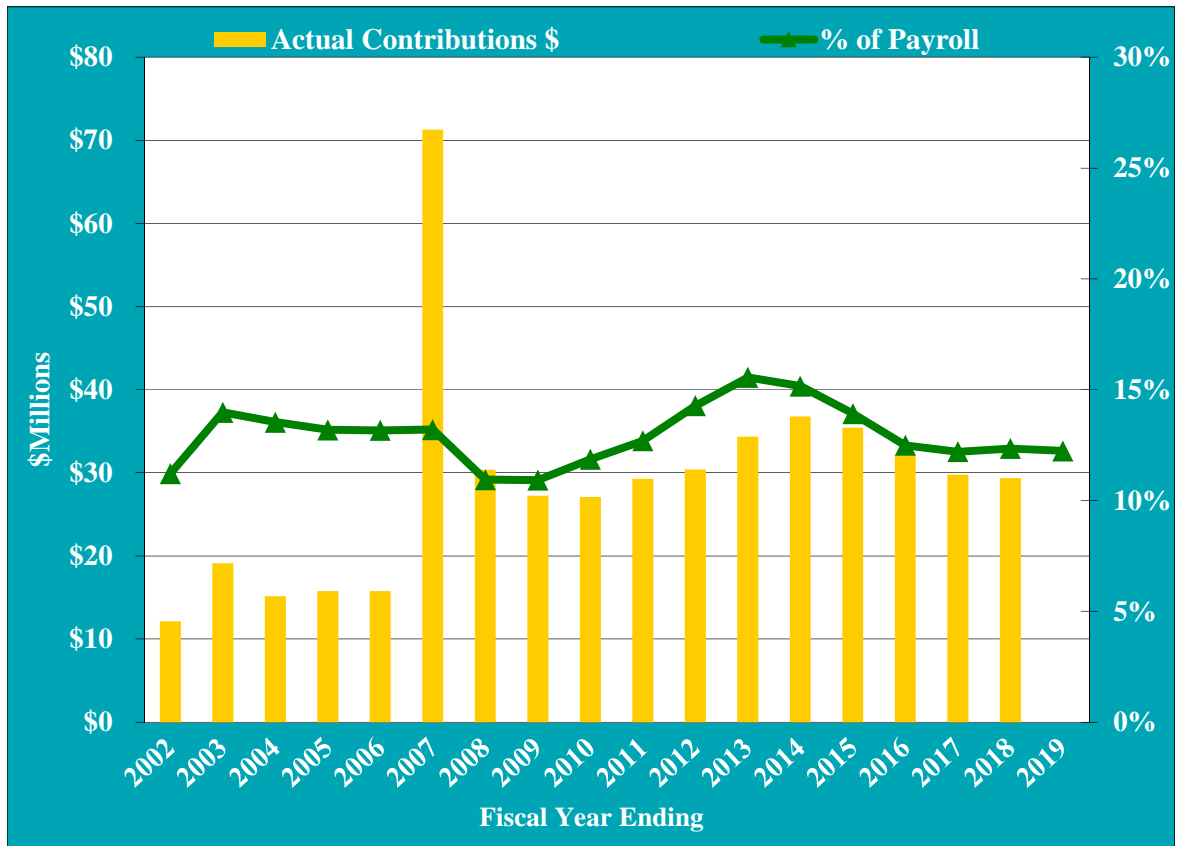
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SECTION I - BOARD SUMMARY

The chart on the prior page compares the actuarial value of assets to the actuarial liabilities and shows the funded ratio, which is a comparison of the Actuarial Value of Assets and Actuarial Liability. This chart shows that the funded ratio had decreased for the four valuations prior to 2013 due to the delayed recognition of the substantial market losses in 2008 and 2009, but has increased with the market rebounds since 2012.

**Contribution Rates**

The yellow bars in the graph below show the dollar amount of contributions made to the System (depicted on the left hand scale) since Fiscal Year Ending 2002. The green line shows the actuarial contribution rate (combined for all employers) as a percent of payroll (depicted on the right hand scale). Members do not make contributions to the System. The actuarial contribution rate decreased from 12.36% of payroll in 2017 to 12.26% of payroll in 2018 due to the updated sick leave balances and other experience gains.

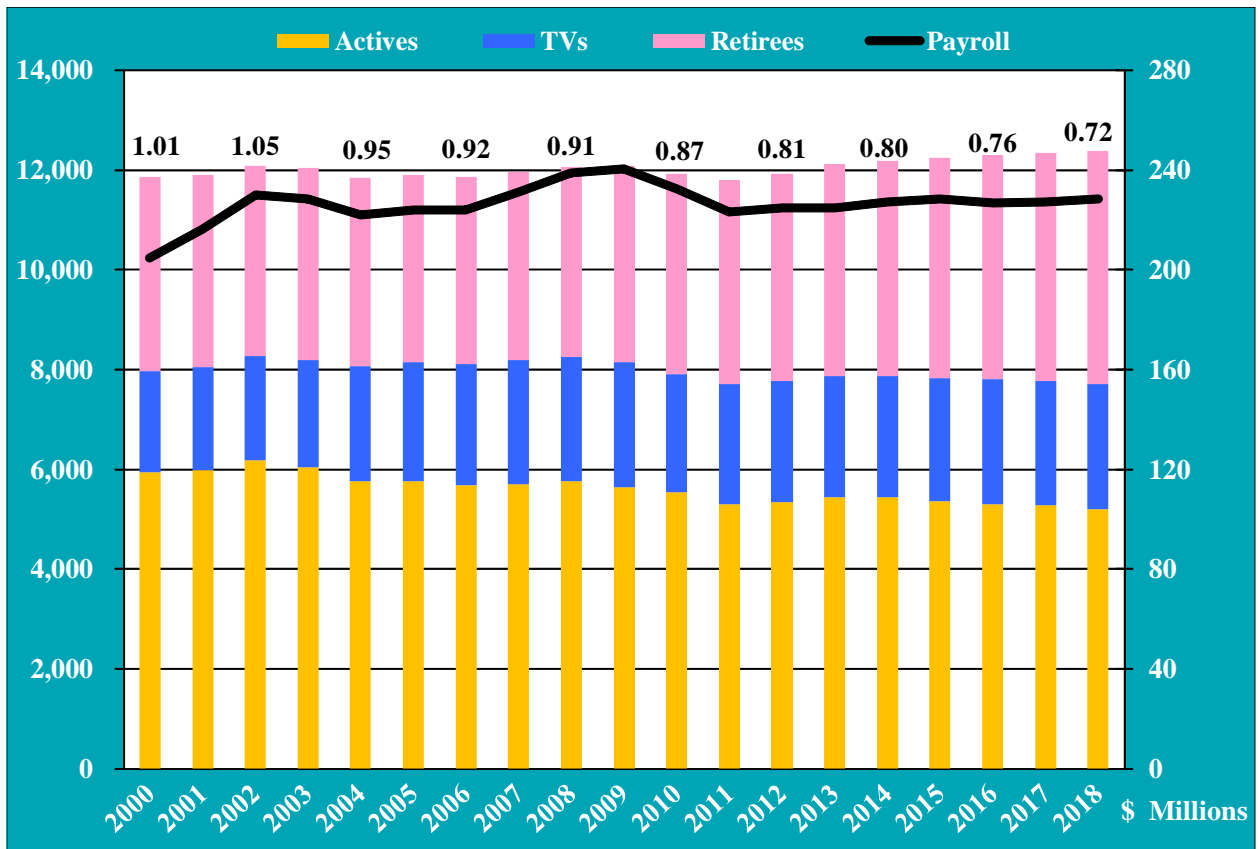




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**SECTION I - BOARD SUMMARY**

**Participant Trends**



The above chart provides a measure for the maturity in the System, by comparing the ratio of active members to inactive members (retirees and terminated-vesteds). The active-to-inactive ratio has generally declined since 2000 from 1.01 actives supporting each inactive member to 0.72 actives supporting each inactive member today. This decline is not necessarily bad in itself, but as more of the liability moves from actives to inactives, the plan will experience more volatility in contribution rates when actuarial gains and losses are recognized.

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SECTION I - BOARD SUMMARY

D. Future Expected Financial Trends

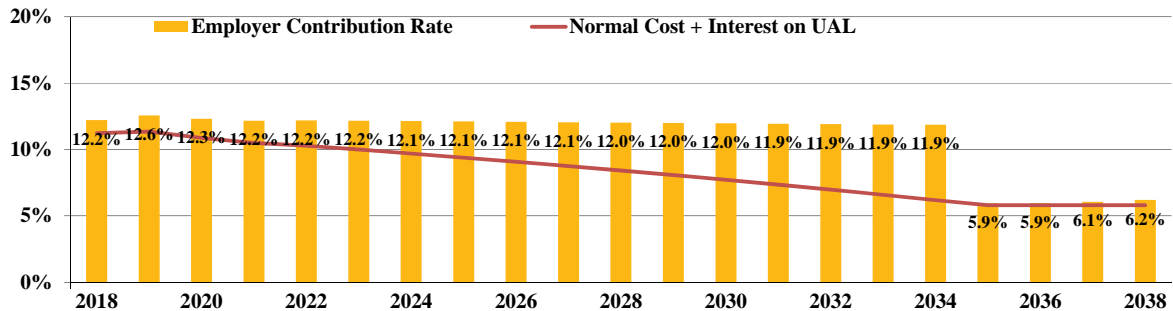
The analysis of projected financial trends is perhaps the most important component of this valuation. In this Section, we present the implications of the October 1, 2018 valuation results in terms of (1) the projected employer contributions, and (2) projected System's funded status (ratio of assets over liabilities). For each projection set, we assume three different future investment return scenarios: baseline returns of 7.50%, optimistic returns of 9.00%, and pessimistic returns of 6.00%. The projections assume there will be no future gains or losses on the liability.

1. Contribution Rate Projections

The first set of charts show the employer's projected actuarially determined combined contribution rates (gold bars). The years shown in the charts are plan years beginning October 1<sup>st</sup>.

**Baseline returns of 7.50%**

The chart below shows that the actuarially determined contribution rate will initially increase from 12.3% to 12.6% in 2019 and then slowly decrease to 11.9% over a 15 year period until the 2015 unfunded liability base has been fully amortized. In 2035, the contribution rate drops to 5.7%. These projections assume that the System earns the assumed investment rate of 7.50% on market value. The expected increase in contributions next year is due to continued recognition of the 2015 investment loss and current year investment loss into the actuarial value of assets.

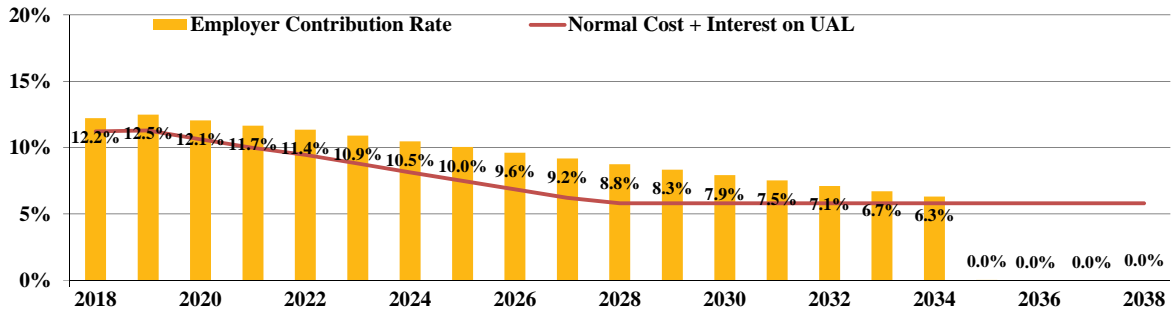


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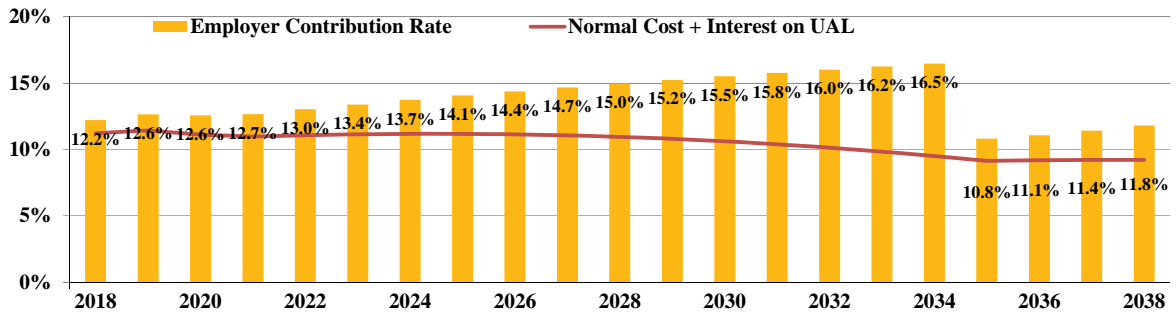
**Optimistic returns of 9.00%**

If the System earns 1.50% greater than the assumed rate in each year of the projection, the actuarially determined contribution rate will steadily decrease to about 6.3% in 16 years. In 2035, the contribution would drop to 0.0% as the surplus assets will be sufficient to cover the majority of both the expected normal cost and administrative expenses.



**Pessimistic returns 6.00%**

If the System earns 1.50% less than the assumed rate in each year of the projection, the actuarially determined contribution rate will steadily increase to 16.5% as of 2034 before dropping to a rate of 10.6% after the initial unfunded liability has been paid off.



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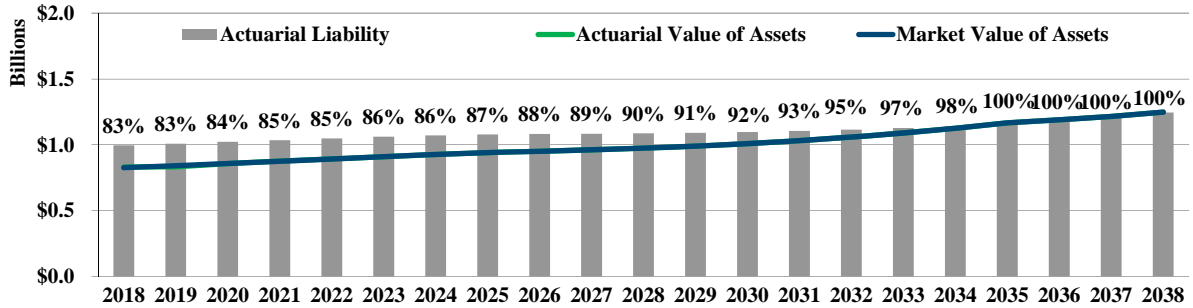
**SECTION I - BOARD SUMMARY**

**2. Asset and Liability Projections**

This next set of projection charts compare the market value of assets (blue line) and the actuarial or smoothed value of assets (green line) to the System’s actuarial liabilities (gray bars). In addition, above the bars, we show the System’s funded ratio (ratio of actuarial value of assets to actuarial liabilities). The projections assume that the actuarially determined contributions, as shown in the previous charts, are made each year. The years shown in the chart signify the valuation date as of October 1<sup>st</sup>.

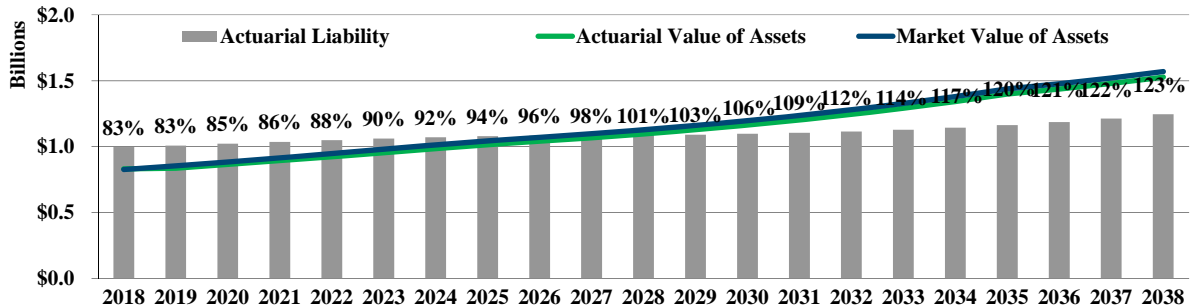
**Baseline returns of 7.50%**

Assuming that the System earns the assumed investment rate of 7.50%, the funded ratio will increase from 83% to 100% during the 20 year projection period.



**Optimistic returns of 9.00%**

If the System earns 1.50% greater than the assumed rate of return in each year of the projection, the funded ratio is projected to increase to 100% by 2028.

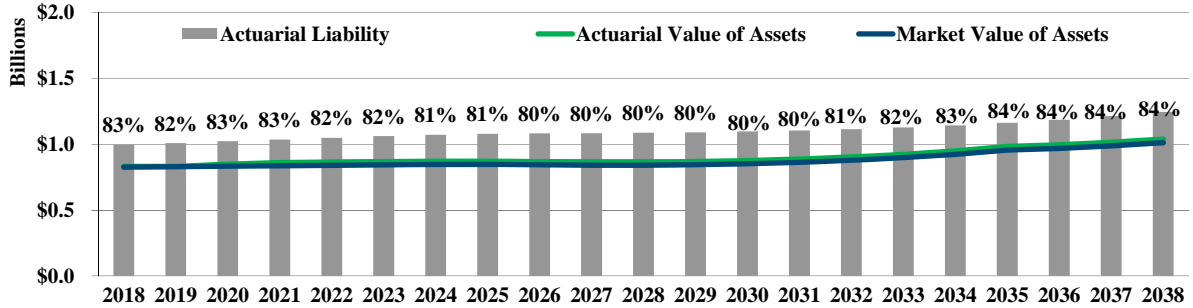


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**SECTION I - BOARD SUMMARY**

**Pessimistic returns of 6.00%**

If the System earns 1.50% less than the assumed rate of return in each year of the projection, the funded ratio will decrease to 80% by 2026 but recover to 84% by the end of the 20 year projection period due to the significant increase in contributions attributable to the underfunding.



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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, employer 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 October 1, 2017 and October 1, 2018;
- Statement of the changes in market values during the year;
- Development of the Actuarial Value of Assets;
- An assessment of investment performance; and
- A projection of the System's expected cash flows for the next ten 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 long-range planning 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 September 30, 2017 and 2018.

<b>Table II-1</b>			
<b>Statement of Assets at Market Value as of September 30,</b>			
<b>Assets</b>	<b>2017</b>	<b>2018</b>	<b>% Change</b>
Cash	\$ 156,516	\$ 386,227	146.77%
Receivables	926,657	846,933	(8.60%)
Temporary investments	11,406,226	5,700,414	(50.02%)
U.S Government Securities	23,427,864	23,744,120	1.35%
Corporate Bonds	30,335,609	29,520,269	(2.69%)
Global Bond Portfolio	31,991,381	32,303,782	0.98%
Stocks	198,735,935	216,847,893	9.11%
Energy Master Limited Partnerships	44,792,227	47,646,145	6.37%
Domestic Bond Funds	86,173,018	86,376,386	0.24%
Managed Real Estate Fund	88,420,093	89,869,706	1.64%
Managed International Equity Funds	225,386,201	215,527,892	(4.37%)
Managed Hedge Fund of Funds	75,879,449	79,444,239	4.70%
Accounts Payable	<u>(715,526)</u>	<u>(858,873)</u>	20.03%
<b>Market Value of Assets</b>	<b>\$ 816,915,650</b>	<b>\$827,355,133</b>	<b>1.28%</b>

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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 September 30, 2017 and September 30, 2018.

<b>Table II-2 Changes in Market Values</b>		
<b>Value of Assets – September 30, 2017</b>		<b>\$ 816,915,650</b>
<b><u>Additions</u></b>		
Payments from Members	\$ 58,201	
Employer Contributions	29,361,102	
Interest and Dividends	9,899,808	
Investment Return	44,615,306	
<b>Total Additions</b>	<b>\$ 83,934,417</b>	
<b><u>Deductions</u></b>		
Investment Expenses	\$ 5,744,123	
Benefit Payments	66,788,634	
Administrative Expenses	962,177	
<b>Total Deductions</b>	<b>\$ 73,494,934</b>	
<b>Value of Assets – September 30, 2018</b>		<b>\$ 827,355,133</b>

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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. The actuarial value of assets method was initialized at market value as of October 1, 2005.

The actuarial value of assets represents a “smoothed” value developed by the actuary to reduce, or eliminate, erratic results which could develop from short-term fluctuations in the market value of assets. For this System, the actuarial value has been calculated by taking the market value of assets less 80% of the investment gain (loss) during the preceding year, less 60% of the investment gain (loss) during the second preceding year, less 40% of the investment gain (loss) during the third preceding year, and less 20% of the investment gain (loss) in the fourth preceding year. The investment gain (loss) is calculated by taking the difference between the expected value of assets based on an expected return of 7.50% for the year ended September 30, 2018 and the actual value of assets. If the actuarial value of assets is less than 80% or more than 120% of the market value, an adjustment is made to the actuarial value to bring the value within this corridor. The table below illustrates the calculation of actuarial value of assets for the October 1, 2018 valuation.

<b>Table II-3 Development of Actuarial Value of Assets</b>		
Market value of assets at September 30, 2017		\$ 816,915,650
Employer Contributions		29,361,102
Payments from Members		58,201
Benefit payments		(66,788,634)
Administrative Expenses		(962,177)
Expected return at 7.50% %		<u>59,857,229</u>
Expected Value at September 30, 2018		\$ 838,441,371
Actual Value at September 30, 2018		<u>827,355,133</u>
Investment (gain)/ loss		\$ 11,086,238
	<b>Total</b>	
	<b>Gain/(Loss)</b>	<b>Excluded Portion</b>
Exclude 0% of 2014 gain/(loss)	\$ 11,726,911	\$ 0
Exclude 20% of 2015 gain/(loss)	(90,682,656)	(18,136,531)
Exclude 40% of 2016 gain/(loss)	12,949,499	5,179,800
Exclude 60% of 2017 gain/(loss)	30,292,586	18,175,552
Exclude 80% of 2018 gain/(loss)	(11,086,238)	<u>(8,868,990)</u>
Total excluded gain/(loss) for AVA calculation		\$ (3,650,169)
Market value of assets at September 30, 2018		\$ 827,355,133
Total gain/(loss) excluded		<u>(3,650,169)</u>
Actuarial value of assets at September 30, 2018		\$ 831,005,302



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SECTION II - ASSETS

**Investment Performance**

The market value of assets (MVA) returned 6.11% during plan year ending September 30, 2018, which is less than the assumed 7.50% return. A return of 6.31% was experienced on the actuarial value of assets (AVA), resulting in an actuarial loss for the year. Below, we show additional historical returns.

<b>Table II-4 Historical Returns</b>		
	<b>MVA</b>	<b>AVA</b>
2007	14.65%	10.17%
2008	-12.76%	5.85%
2009	-3.09%	1.52%
2010	10.11%	3.42%
2011	1.79%	1.25%
2012	16.95%	1.56%
2013	13.04%	7.99%
2014	9.63%	10.65%
2015	-3.79%	7.62%
2016	9.32%	7.58%
2017	11.55%	7.12%
2018	6.11%	6.31%

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**SECTION II - ASSETS**

**Projection of System's Future Cash Flows**

<b>Table II-5 Projection of System's Expected Cash Flows</b>				
<b>Year Beginning October 1,</b>	<b>Benefit Payments and Administrative Expenses</b>	<b>Contributions</b>	<b>Net Cash Flow</b>	
2018	\$ 74,176,285	\$ 27,958,439	\$ (46,217,846)	
2019	74,050,718	29,773,841	(44,276,877)	
2020	76,506,677	30,206,429	(46,300,248)	
2021	77,081,638	30,887,137	(46,194,501)	
2022	78,954,113	32,071,423	(46,882,690)	
2023	84,416,393	33,113,464	(51,302,929)	
2024	87,188,788	34,189,563	(52,999,225)	
2025	92,803,997	35,300,840	(57,503,157)	
2026	95,315,608	36,448,451	(58,867,157)	
2027	94,700,713	37,633,590	(57,067,123)	

Expected contributions assume contribution rates as shown in the graph on page 6 and that payroll will increase at the actuarially assumed rate of 3.0% per year. Expected benefit payments are projected for the closed group valued at October 1, 2018. Projecting any farther than ten years using a closed-group would not yield reliable predictions due to the omission of new hires.

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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 October 1, 2017 and October 1, 2018, and
- Statement of **changes** in these liabilities during the year.

**Disclosure**

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

- **Present Value of All Future Benefits:** Used for measuring all future System obligations, represents the amount of money needed today to fully 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:** Calculated as of the valuation date as the present value of benefits allocated to service prior to that date. Effective October 1, 2015, the actuarial liability is determined using the Entry Age Normal method.

These liabilities are for funding purposes and are not appropriate for measuring the cost of settling plan liabilities by purchasing annuities or paying 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**.

<b>Table III-1</b>		
<b>Liabilities/Net (Surplus)/Unfunded</b>		
	<b>October 1, 2017</b>	<b>October 1, 2018</b>
<b><u>Present Value of Future Benefits</u></b>		
Active Participant Benefits	\$ 522,183,366	\$ 504,707,076
Participants currently receiving payments	478,606,627	501,260,397
Participants with a deferred vested benefit	<u>62,140,552</u>	<u>62,519,282</u>
<b>Present Value of Future Benefits (PVB)</b>	<b>\$ 1,062,930,545</b>	<b>\$ 1,068,486,755</b>
<b><u>Actuarial Liability</u></b>		
Active Participant Benefits	\$ 449,883,176	\$ 432,763,603
Participants currently receiving payments	478,606,627	501,260,397
Participants with a deferred vested benefit	<u>62,140,552</u>	<u>62,519,282</u>
<b>Actuarial Liability (AL)</b>	<b>\$ 990,630,355</b>	<b>\$ 996,543,282</b>
Actuarial Value of Assets (AVA)	<u>\$ 818,839,562</u>	<u>\$ 831,005,302</u>
<b>Net (Surplus)/Unfunded (AL – AVA)</b>	<b>\$ 171,790,793</b>	<b>\$ 165,537,980</b>

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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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 changing 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 October 1, 2017 and October 1, 2018.

<b>Table III-2</b>	
	<b>Actuarial Liability</b>
Liabilities October 1, 2017	\$ 990,630,355
Liabilities October 1, 2018	996,543,282
Liability Increase (Decrease)	5,912,927
Change Due to:	
Plan Amendments	0
Method Changes	0
Assumption Changes	0
Experience (Gain)/Loss	(13,001,556)
Benefits Accumulated and Other Sources	18,914,483

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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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.

<b>Table III-3</b>	
<b>(Gain)/Loss by Source as of October 1, 2018</b>	
COLA less than expected	\$ (409,628)
Inactive mortality less than expected	2,442,765
Salary increase less than expected for continuing actives	(372,398)
Actives retiring earlier than expected	1,764,360
Actives terminating earlier than expected	(1,293,797)
New entrants	859,134
Change to retiree DROP balances	(2,018,502)
Updated frozen sick leave balances	(10,919,825)
Other active Decrements	(979,177)
Miscellaneous changes	<u>(2,074,488)</u>
<b>Experience (Gain)/Loss</b>	<b>\$ (13,001,556)</b>

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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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 technique that will result in a pattern of contributions that are both stable and predictable.

For this System, the funding method employed as of the October 1, 2018 valuation is the **Entry Age Normal Actuarial Cost Method**. This method is used to determine the normal cost rate at which an average level percent of pay is required to fund the retirement benefits for all participants between their dates of hire and assumed dates of retirement. The EAN actuarial liability is the difference between the plan’s total present value of future benefits and the present value of future normal costs. The difference between the Entry Age Normal actuarial liability and the actuarial value of assets is the unfunded actuarial liability. Effective October 1, 2015, an administrative expense rate of 0.30% of payroll was added to the normal cost.

The unfunded actuarial liability as of October 1, 2015 is amortized over a fixed 20-year period as a level percentage of payroll. Future gains and losses and changes in actuarial assumptions will be amortized in layers over separate 20 year periods.

Table IV-1 below presents and compares the employer contribution rates for the System for this valuation and the prior one.

<b>Table IV-1 Employer Contribution Rate</b>		
	<b>Fiscal Year Ending 2018</b>	<b>Fiscal Year Ending 2019</b>
Normal Cost Rate	5.90%	5.80%
Administrative Expense Rate	0.30%	0.30%
UAL Amortization Payment for City	6.16%	6.16%
Actuarially Determined Contribution Rate for City	12.36%	12.26%
Reduction in UAL Amortization Payment for Lawsuit Beneficiary Employers	0.09%	0.08%
Actuarially Determined Contribution Rate for Lawsuit Beneficiary Employers	12.27%	12.18%

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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**SECTION IV - CONTRIBUTIONS**

The Unfunded Actuarial Liability (UAL) is amortized over layered 20 year periods beginning with the total UAL as of October 1, 2015. The amortization payment as a percent of payroll is different for City Employers and for Lawsuit Beneficiary Employers. Table IV-2 shows the detailed calculation of the current year UAL amortization rates for the City and Lawsuit Beneficiary Employers.

<b>Table IV-2 Amortization Schedule</b>							
	<b>Date</b>	<b>Initial Amortization Period</b>	<b>Unamortized Amount</b>	<b>Remaining Amortization Period</b>	<b>Amortization Amount</b>	<b>Applicable Payroll</b>	<b>UAL Rate</b>
2015 Initial Unfunded Actuarial Liability	10/1/2015	20	\$ 181,799,739	17	\$ 15,315,997		
2016 Actuarial (gain)/loss <sup>1</sup>	10/1/2016	20	(7,954,113)	18	(644,850)		
2017 Actuarial (gain)/loss <sup>1</sup>	10/1/2017	20	(3,613,756)	19	(282,760)		
2018 Actuarial (gain)/loss <sup>1</sup>	10/1/2018	20	(4,693,890)	20	(355,406)		
Total UAL			\$ 165,537,980		\$ 14,032,981		
Unamortized Amounts from Library Settlement			<u>(395,892)</u>	17	<u>(33,352)</u>	\$ 40,482,381 <sup>2</sup>	-0.08%
<b>Total without regard to Library Settlement</b>			<b>\$ 165,933,872</b>		<b>\$ 14,066,333</b>	\$ 228,447,481 <sup>3</sup>	<b>6.16%</b>

<sup>1</sup> (Gain) or loss includes differences between actual and expected contributions

<sup>2</sup> Payroll for Lawsuit Beneficiary Employers

<sup>3</sup> Total payroll for all participating employers

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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**SECTION V - ACCOUNTING STATEMENT INFORMATION**

**GFOA Recommended 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 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. These schedules are based on the funding actuarial liabilities.

- Table V-1: Analysis of Financial Experience
- Table V-2: Schedule of Funded Liabilities by Type
- Table V-3: Schedule of Funding Progress

**Table V-1  
Analysis of Financial Experience  
Gain and Loss in Unfunded Actuarial Liability During Years Ended September 30  
Resulting from Differences Between Assumed Experience and Actual Experience**  
*Gain (or Loss) for Year ending September 30,*

<b>Type of Activity</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Investment Experience	\$ (87,586)	\$ 17,899,526	\$ (2,743,842)	\$ 553,258	\$(3,004,069)	\$ (9,504,274)
Liability Experience	<u>8,391,763</u>	<u>7,265,891</u>	<u>6,114,189</u>	<u>3,695,678</u>	<u>4,322,571</u>	<u>13,001,556</u>
Gain (or Loss) During Year from Combined Experience	\$ 8,304,177	\$ 25,165,417	\$ 3,370,347	\$ 4,248,936	\$ 1,318,502	\$ 3,497,282
Non-Recurring Gain (or Loss) Items	<u>0</u>	<u>0</u>	<u>20,389,054</u>	<u>0</u>	<u>0</u>	<u>0</u>
Composite Gain (or Loss) During Year	\$ 8,304,177	\$ 25,165,417	\$ 23,759,401	\$ 4,248,936	\$ 1,318,502	\$ 3,497,282



**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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**SECTION V - ACCOUNTING STATEMENT INFORMATION**

**Table V-2  
Schedule of Funded Liabilities by Type<sup>1</sup>  
Aggregate Actuarial Liabilities for**

Actuarial Valuation Date October 1	Active Member Contributions (1)	Retirees & Beneficiaries (2)	Active Member	Actuarial Value of Reported Assets	Portion of Actuarial Liabilities Covered by Reported Assets		
			Employer Financed Contributions (3)		(1)	(2)	(3)
2018	\$ 0	\$ 563,779,679	\$ 432,763,603	\$ 831,005,302	100%	100%	62%
2017	0	540,747,179	449,883,176	818,839,562	100%	100%	62%
2016	0	517,161,890	456,981,189	797,664,391	100%	100%	61%
2015	0	501,123,197	453,997,444	770,006,025	100%	100%	59%
2014	0	494,664,459	417,314,687	737,967,928	100%	100%	58%
2013	0	475,937,321	413,511,258	685,397,323	100%	100%	51%
2012	0	460,581,077	406,310,985	653,001,852	100%	100%	47%
2011	0	441,520,555	400,242,766	661,932,240	100%	100%	55%
2010	0	419,717,802	400,951,838	671,608,995	100%	100%	63%

<sup>1</sup> We will build to the required 10 years of disclosure information.

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
OCTOBER 1, 2018 ACTUARIAL VALUATION REPORT**

**SECTION V - ACCOUNTING STATEMENT INFORMATION**

**Table V-3  
Schedule of Funding Progress**

<b>Actuarial Valuation Date October 1</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Liability (b)</b>	<b>Unfunded Actuarial Liability (b) - (a)</b>	<b>Funded Ratio (a) / (b)</b>	<b>Covered Payroll (c)</b>	<b>Percentage of Covered Payroll [(b) - (a)] / (c)</b>
2018	\$ 831,005,302	\$ 996,543,282	\$ 165,537,980	83.39%	\$ 228,447,481	72.46%
2017	818,839,562	990,630,355	171,790,793	82.66%	227,253,901	75.59%
2016	797,664,391	974,143,079	176,478,688	81.88%	226,907,701	77.78%
2015	770,006,025	955,120,641	185,114,616	80.62%	228,422,585	81.04%
2014	737,967,928	911,979,146	174,011,218	80.92%	227,039,143	76.64%
2013	685,397,323	889,448,579	204,051,256	77.06%	224,623,445	90.84%
2012	653,001,852	866,890,445	213,888,593	75.33%	224,822,252	95.14%
2011	661,932,240	841,763,321	179,831,081	78.64%	223,060,719	80.62%
2010	671,608,995	820,669,641	149,060,646	81.84%	232,451,661	64.13%
2009	667,667,205	794,686,379	127,019,174	84.02%	240,409,390	52.83%
2008	674,016,719	765,842,026	91,825,307	88.01%	238,701,628	38.47%
2007	646,569,478	732,576,024	86,006,546	88.26%	231,029,237	37.23%

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
OCTOBER 1, 2018 ACTUARIAL VALUATION REPORT**

**APPENDIX A - MEMBERSHIP INFORMATION**

<b>Employees Retirement System of the City of St. Louis</b>			
<b>Table of Plan Coverage</b>			
	<b>October 1, 2017</b>	<b>October 1, 2018</b>	<b>% change</b>
<b>Active Members in Valuation</b>			
Count	5,279	5,202	-1.5%
Average Age	48.5	48.6	0.1%
Average Service	12.2	12.0	-1.3%
Total Payroll	\$ 227,253,901	\$ 228,447,481	0.5%
Average Anticipated Payroll	\$ 43,049	\$ 43,915	2.0%
Total Active Vested Members	3,587	3,572	-0.4%
<b>DROP Members in Valuation (included in Active Members)</b>			
Count	406	391	-3.7%
Average Age	61.5	61.7	0.4%
Average Service	24.9	24.7	-0.8%
Total DROP Account Balances	\$ 15,653,296	\$ 15,670,204	0.1%
Average DROP Account Balances	\$ 38,555	\$ 40,077	3.9%
<b>Vested Terminated Members</b>	2,499	2,512	0.5%
<b>Pensioners</b>			
Number in Pay Status			
Retirees	3,868	3,978	2.8%
Disabled Retirees	192	187	-2.6%
Total	4,060	4,165	2.6%
Average Age	72.9	72.9	0.0%
Average Monthly Benefit	\$ 1,000	1,030	3.0%
<b>Beneficiaries in Pay Status</b>			
Number in Pay Status	510	513	0.6%
Number with Deferred Benefits	2	0	-100.0%

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
OCTOBER 1, 2018 ACTUARIAL VALUATION REPORT**

**APPENDIX A - MEMBERSHIP INFORMATION**

<b>Employees Retirement System of the City of St. Louis</b>					
<b>Inactive Participants by Type and Monthly Benefit Amount</b>					
<b>Monthly Amount</b>	<b>Total</b>	<b>Retirees</b>	<b>Terminated Vested</b>	<b>Disability</b>	<b>Beneficiaries</b>
<b>Total</b>	7,190	3,978	2,512	187	513
<b>Under \$500</b>	3,888	1,651	1,975	63	199
<b>\$500-1,000</b>	1,502	840	444	83	135
<b>\$1,000-1,500</b>	730	556	65	30	79
<b>\$1,500-2,000</b>	497	407	22	9	59
<b>\$2,000-2,500</b>	218	199	2	1	16
<b>\$2,500-3,000</b>	127	111	4	1	11
<b>\$3,000-3,500</b>	67	61	0	0	6
<b>\$3,500-4,000</b>	43	41	0	0	2
<b>\$4,000-4,500</b>	38	37	0	0	1
<b>\$4,500-5,000</b>	30	28	0	0	2
<b>\$5,000 &amp; over</b>	50	47	0	0	3

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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**APPENDIX A - MEMBERSHIP INFORMATION**

**Employees Retirement System of the City of St. Louis  
Status Reconciliation**

	<u>Active</u>	<u>Leave of Absence</u>	<u>DROP</u>	<u>Disabled</u>	<u>Retired</u>	<u>Beneficiary</u>	<u>Terminated Vested</u>	<u>Deferred Beneficiary</u>	<u>Total</u>
<b>Participant Count as of October 1, 2017</b>	<b>4,860</b>	<b>13</b>	<b>406</b>	<b>192</b>	<b>3,868</b>	<b>510</b>	<b>2,499</b>	<b>2</b>	<b>12,350</b>
New hires	577	0	0	0	0	0	0	0	577
Leave of Absence	(9)	9	0	0	0	0	0	0	0
Rehires	25	(5)	1	0	(2)	0	(8)	0	11
Enter DROP	(95)	0	95	0	0	0	0	0	0
Return from DROP	51	0	(51)	0	0	0	0	0	0
Term Vested	(130)	(3)	0	0	0	0	133	0	0
Retired	(129)	(2)	(57)	0	280	0	(92)	0	0
Disabled	(9)	0	0	9	0	0	0	0	0
Deceased (with Beneficiary)	(10)	0	0	(5)	(20)	36	(1)	0	0
Deceased (without Beneficiary)	(2)	0	(3)	(8)	(149)	(21)	(8)	0	(191)
Transfer Out	0	0	0	0	0	0	0	0	0
Term Not Vested	(330)	0	0	0	0	0	0	0	(330)
Benefits Expired	0	0	0	0	0	(12)	0	0	(12)
Status Correction	0	0	0	(1)	1	0	(11)	(2)	(13)
Net Change	(61)	(1)	(15)	(5)	110	3	13	(2)	42
<b>Participant Count as of October 1, 2018</b>	<b>4,799</b>	<b>12</b>	<b>391</b>	<b>187</b>	<b>3,978</b>	<b>513</b>	<b>2,512</b>	<b>0</b>	<b>12,392</b>

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
OCTOBER 1, 2018 ACTUARIAL VALUATION REPORT**

**APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS**

**A. Actuarial Assumptions**

**1. Mortality Rates:**

Healthy: RP-2000 Healthy Mortality with 3 year set-forward with generational projections using Scale AA

Disabled: RP-2000 Disabled Mortality with 3 year set-forward with generational projections using Scale AA

The table below shows the probability of death at sample ages with the mortality table described above projected to the year 2018. A generational table is projected forward each year to account for continuous mortality improvements.

Age	Healthy Mortality (%)		Disabled Mortality (%)	
	Male	Female	Male	Female
20	0.0264	0.0147	1.5981	0.5573
25	0.0328	0.0182	1.8836	0.5780
30	0.0577	0.0329	2.0624	0.6217
35	0.0881	0.0490	2.0624	0.6105
40	0.1124	0.0714	1.9533	0.5676
45	0.1470	0.1073	2.0863	0.7312
50	0.2103	0.1621	2.3695	1.0624
55	0.3733	0.3395	2.7849	1.7057
60	0.7489	0.6988	3.4846	2.3111
65	1.3865	1.2285	4.4154	3.0367
70	2.3149	2.0988	5.5835	4.1820
75	4.0440	3.2534	7.5755	5.4991
80	7.4871	5.5082	10.7104	7.7405
85	13.2704	9.6287	14.2922	10.9891
90	21.7398	16.1461	21.7398	16.1461
95	30.4136	21.6021	30.4136	21.6021
100	37.6204	26.1296	37.6204	26.1296

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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**APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS**

**2. Disability Rates before Retirement:**

Age	Disability (%)	
	Male	Female
20	0.0200	0.0200
25	0.0200	0.0200
30	0.0200	0.0200
35	0.0200	0.0200
40	0.0560	0.0480
45	0.1000	0.0960
50	0.3528	0.2400
55	0.5000	0.3360
60	0.7500	0.3500

**3. Withdrawal Rates before Retirement:**

Creditable Service	Withdrawal (%)	Creditable Service	Withdrawal (%)
0	20.00	11	3.25
1	17.50	12	3.00
2	15.00	13	2.75
3	12.50	14	2.50
4	10.00	15	2.25
5	9.00	16	2.00
6	8.00	17	1.75
7	7.50	18	1.50
8	7.00	19	1.25
9	4.50	20+	1.25
10	3.50		

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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**APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS**

**4. Retirement Rates:**

<b>Age</b>	<b>Retirement Rate (%)</b>	<b>Age</b>	<b>DROP Rate (%)</b>
50 and under	2.00	50 and under	12.50
51	2.00	51	12.50
52	2.00	52	12.50
53	2.00	53	12.50
54	2.00	54	12.50
55	2.00	55	20.00
56	2.00	56	20.00
57	2.00	57	20.00
58	5.00	58	20.00
59	5.00	59	20.00
60	10.00	60	20.00
61	10.00	61	10.00
62	25.00	62	10.00
63	10.00	63	10.00
64	10.00	64	10.00
65	30.00	65	10.00
66	25.00	66	10.00
67	25.00	67	10.00
68	25.00	68	10.00
69	25.00	69	10.00
70	100.00	70	100.00

In addition, in the first year that a participant satisfies the requirements under the “Rule of 85,” the DROP rate is assumed to be 75% if the age in the first year of eligibility is 56 or younger, 60% for ages 57 to 60, 50% for ages 61 to 65, and 15% for ages greater than 65 (100% at age 70).

**5. Retirement Age for Inactive Vested Participants**

For members who terminate employment with 30 or more years of creditable service or are eligible for a Rule of 85 pension, immediate commencement of benefits is assumed. All others are assumed to retire at age 61.

**6. DROP Participants**

Participants in the DROP are assumed to remain in the DROP for 5 years. Interest to the DROP account is assumed to be creditable at 6% per annum for those participants who enter the DROP after January 21, 2003. 50% of those participants electing DROP are expected to return to active employment for two years before retiring.



EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

**7. Unknown Data for Participants**

Same as those exhibited by participants with similar known characteristics. For inactive vested participants with unknown benefit amounts, \$250 per month is assumed.

**8. Rehires**

No explicit assumption or load.

**9. Sick Leave**

Sick leave may be used to increase either Final Average Compensation, Creditable Service, or both. Starting with the October 1, 2010 valuation, the actual unused credited sick leave hours on file were used in the valuation. Effective in July 2010, the accumulation of unused sick leave hours that can be used for benefit purposes was frozen.

**10. Percent Married**

80% for all participants.

**11. Age of Spouse**

Females (or males) are three years younger (or older) than their spouses.

**12. Net Investment Return**

7.50% per year, net of investment expenses.

**13. Administrative Expenses**

0.30% of payroll.

EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

**14. Salary Increases**

Varies by service, ranging from 3.00% to 4.25%.

Service	Salary Increase (%)
0	4.25
1	4.07
2	3.92
3	3.79
4	3.69
5	3.61
6	3.53
7	3.46
8	3.36
9	3.29
10	3.23
11	3.18
12	3.14
13	3.10
14	3.08
15	3.05
16	3.03
17	3.02
18	3.01
19	3.01
20	3.00

**15. Increases in Social Security Table Wage Base**

3.0% per year.

**16. Cost-of-Living Adjustment**

2.5% per year for 10 years and 0% thereafter.

**17. Increase in Section 415 and Section 401(a)(17) limits**

2.5% per year.

**18. Rationale for actuarial assumptions**

The actuarial assumptions were adopted by the Board of Trustees based upon recommendations made in an actuarial experience study covering the years 2009 through 2014.

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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**APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS**

**19. Changes in actuarial assumptions since last valuation**

The retirement rate assumption was extended to ages below 50 years old for the possibility of a participant reaching the rule of 85 prior to age 50 with purchased service. The change did not affect the actuarial liability.

**EMPLOYEES RETIREMENT SYSTEM OF THE CITY OF ST. LOUIS  
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**APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS**

**B. Actuarial Methods**

**1. Actuarial Value of Assets**

The market value of assets less unrecognized returns in each of the last five years, but no earlier than October 1, 2005. Initial unrecognized return is equal to the difference between the actual market return and expected market return, and is recognized over a five-year period. The actuarial value is further adjusted, if necessary, to be within 20% of the market value. The actuarial asset value was initialized at the market value as of October 1, 2005.

**2. Actuarial Cost Method**

The cost method for valuation of liabilities used for this valuation is the Entry Age Normal (EAN) method. This method is used to determine the normal cost rate at which an average level percent of pay is required to fund the retirement benefits for all Participants between their dates of hire and assumed dates of retirement. The EAN actuarial liability is the difference between the plan's total present value of future benefits and the present value of future normal costs. The unfunded actuarial liability is the difference between the actuarial liability and the actuarial value of assets.

**3. Amortization Method**

The unfunded actuarial liability as of October 1, 2015 is amortized over a fixed 20-year period as a level percentage of payroll. Future gains and losses and changes in actuarial assumptions will be amortized in layers over separate 20 year periods.

To reflect the settlement between the Library, the Board of Trustees and the City of St. Louis, two Unfunded Accrued Liability Amortization rates are calculated. The Library, Zoo, Art Museum, Tower Grove Park, Taxicab Commission and Mental Health Board, collectively called the "Lawsuit Beneficiary Employers", have a reduced UAL Amortization rate to reflect the payments received due to the settlement as of the valuation date. First, the UAL amortization payment is determined for the combined plan (base payment). Second, the value of settlement payments made by the City are set up as gain bases and the Lawsuit Beneficiary Employers have a reduction in the contribution rate determined from the payment on these gain bases and their projected payroll. The City's UAL amortization payment is determined only on the base payment. The Lawsuit Beneficiary Employers' UAL amortization payment is the base payment minus the amortization of the gain bases that result from settlement payments.

**4. Changes in Actuarial Methods since last valuation**

None

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APPENDIX C - SUMMARY OF PLAN PROVISIONS

**1. Plan Year**

October 1 through September 30.

**2. Final Average Compensation**

One-half the sum of:

(a) The total compensation earned during the last two highest consecutive years of Creditable Service prior to termination (subject to the Section 401(a)(17) limit); and

(b) The balance of sick leave pay as of the date of retirement less sick leave hours paid upon termination and less sick leave hours considered as Creditable Service. Said balance cannot exceed 25% of a member's total sick leave pay as of the date of retirement. The amount of credited sick leave was frozen on July 17, 2010.

**3. Benefit Compensation Base**

Amount of annual compensation with respect to which old age and survivor's insurance benefits would be provided to the member under the Social Security Act in effect on the date the Benefit Compensation Base is determined calculated when the member terminates employment.

**4. Normal Retirement**

Age Requirement: 65.

Service Requirement: Five years of Creditable Service.

Amount: The product of:  
(a) 1.30% of Final Average Compensation up to the Benefit Compensation Base, plus 2.05% of Final Average Compensation in excess of the Benefit Compensation Base, and  
(b) Creditable Service.

Minimum \$200 per month for retirees with 12 or more years of creditable service.

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**5. Rule of 85 Retirement**

Age/Service Requirement:	Sum of age and Creditable Service at date of termination equals or exceeds 85.
Amount:	The product of: (a) 1.30% of Final Average Compensation up to the Benefit Compensation Base, plus 2.05% of Final Average Compensation in excess of the Benefit Compensation Base, and (b) Creditable Service.

**6. Early Retirement**

Age/Service Requirement:	Age 60 with five years of Creditable Service; or age 55 with 20 years of Creditable Service; or any age with 30 years of Creditable Service.
Amount:	Normal retirement amount reduced by 1/3% for each month benefit begins before age 65.

**7. Disability**

Age Requirement	None.
Service Requirement	Five years of Creditable Service and an active employee at disablement.
Amount	Normal retirement amount based on Creditable Service and Final Average Compensation at disability, payable immediately.

**8. DROP (Deferred Retirement Option Plan)**

Members who have achieved eligibility for retirement can continue active employment and defer receipt of their retirement allowance for a period not to exceed five years. During the DROP period, the member's retirement allowance will be paid directly into a separate account.

Service during the DROP period shall not be counted as Creditable Service, nor shall it count toward determination of retirement allowance. A member's DROP account shall not be adjusted for any cost-of-living increases during participation in the DROP. No member returning to non-DROP status shall make any withdrawal from his/her DROP account until after termination of employment.

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The account balance is credited with interest annually. In no event does the total account balance exceed the accumulated value of five-years-payments with interest.

The annuity awarded upon full termination and subsequent benefit receipt reflects the unused sick-leave conversion to Creditable Service and/or Final Average compensation. During participation in the DROP, the annual deposit to the account does not reflect any conversion of unused sick leave as each participant continues to accrue sick leave hours. The unused credited sick leave hours was frozen as of July 17, 2010.

**9. Vesting**

Age Requirement:       None.

Service Requirement:   Five years of Creditable Service.

Amount:                 Normal or early service retirement amount.

**10. Spouse Pre-Retirement Death Benefit**

Age Requirement:       None.

Service Requirement:   Five years of Creditable and an active employee.

Amount:                 If married, 100% of the benefit the employee would have received had he or she retired the day before he or she died and elected the joint and 100% survivor option. If the employee died prior to eligibility for early service retirement, the spouse's benefit is deferred to the employee's earliest retirement date.

Death benefits may also be payable to members who have terminated employment. The costs of those benefits are paid for by the reduction of the accrued benefit payable to the inactive vested participant.

**11. Post-Retirement Death Benefit**

If married, the employee and spouse may elect to have pension benefits paid in the form of a 100% joint and survivor annuity. A member may also elect a ten year certain and life equivalent form of benefit. If any one of these options is elected, the benefit amount otherwise payable is reduced to reflect the coverage. If not elected, benefits are payable for the life of the employee without reduction.

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**12. Cost-of-Living Adjustment (COLA)**

Based on the change in the Consumer Price Index (CPI) for the fiscal year, subject to a maximum increase of 3.125% per year (3.0% for retirements between March 21, 1972 and March 26, 1974; none for retirements prior to March 21, 1972), with a cumulative percentage increase (equal to the sum of the annual percentage increases) limited to 25%. If the increase in CPI is less than 1.0%, no adjustment is made. If the change is a decrease, the cost-of-living adjustment shall be zero unless the decrease is 3.125% or more. Adjustments begin on the second January 1 after payments begin.

**13. Creditable Service**

Number of years and completed months of service during which the member receives compensation after April 1, 1960. Creditable Service for employment prior to April 1, 1960 is granted only if the member was an employee of an employer of the System on April 1, 1960. Unused credited sick leave shall be considered as Creditable Service provided the member does not receive payment for the sick leave. The amount of credited sick leave was frozen on July 17, 2010.

**14. Membership**

Immediate upon employment.

**15. Section 415 limit**

\$225,000, effective January 1, 2019.

**16. Section 401(a)(17) limit**

\$280,000, effective January 1, 2019.

**17. Changes Since Last Valuation**

None





*Classic Values, Innovative Advice*