

The City of Roanoke Pension Plan

Actuarial Valuation as of June 30, 2015

Produced by Cheiron

November 2015

TABLE OF CONTENTS

<i>Section</i>	<i>Page</i>
Letter of Transmittal	i
Foreword	ii
Section I – Board Summary	1
Section II – Assets	12
Section III – Liabilities	18
Section IV – Contributions	22
Section V – Financial Statement Information.....	24
 <i>Appendices</i>	
Appendix A – Membership Information.....	28
Appendix B – Actuarial Assumptions and Methods.....	32
Appendix C – Summary of Plan Provisions	39

November 16, 2015

Board of Trustees
City of Roanoke Pension Plan
215 Church Avenue, SW Room 465
Roanoke, Virginia 24011

Re: *The City of Roanoke Pension Plan - Actuarial Valuation as of June 30, 2015*

Dear Members of the Board:

At your request, we have conducted an annual actuarial valuation of the City of Roanoke Pension Plan as of June 30, 2015. The results of the valuation are contained in this report. The purpose of the valuation is discussed in the Foreword.

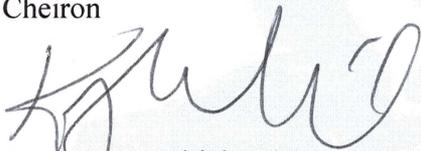
The actuarial assumptions were approved by the Board concurrent with the June 30, 2011 valuation. The assumptions are the same as those used last year except the trend for the Retiree Supplements was updated to more accurately reflect the current marketplace. In future valuations, the effectiveness of these assumptions will be revisited through the use of periodic experience studies. The next experience study is slated to be performed concurrent with the June 30, 2016 valuation.

The purpose of this report is to present the annual actuarial valuation of the City of Roanoke Pension Plan. This report also provides information regarding employer contribution levels.

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 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 City of Roanoke, the Board of Trustees of the City of Roanoke Pension Plan and its auditors for the purpose described 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 such other users.

Sincerely,
Cheiron



Kevin J. Woodrich, FSA, EA, MAAA
Principal Consulting Actuary



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

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

FOREWORD

Cheiron has performed the actuarial valuation of the City of Roanoke Pension Plan as of June 30, 2015. The purpose of this report is to:

- 1) **Measure and disclose**, as of the valuation date, the financial condition of the Plan;
- 2) **Indicate trends** in the financial progress of the Plan;
- 3) **Determine the contribution rate** to be paid by the City for fiscal year 2017; and
- 4) **Provide specific information** and documentation as may be required for financial statements. All other disclosure information required under Governmental Accounting Standards Board (GASB) Statements No. 67 and 68 were sent under separate cover.

An actuarial valuation establishes and analyzes Plan assets and liabilities on a consistent basis, and traces the progress of both from one year to the next. It includes measurement of the Plan's investment performance, as well as an analysis of actuarial liability gains and losses.

Section I presents a summary containing our findings and discloses important trends experienced by the Plan in recent years.

Section II contains details on various asset measures, together with pertinent performance measurements.

Section III shows similar information on Plan liabilities, measured for actuarial, accounting, and government reporting purposes.

Section IV develops the employer contribution rate to be paid by the City effective July 1, 2016.

Section V includes certain required disclosures for financial statements.

The appendices to this report contain a summary of the Plan's membership at the valuation date, a summary of the major provisions of the Plan, and the actuarial methods and assumptions used in the valuation.

In preparing our report, we relied without audit, on information (some oral and some written) supplied by the Plan's staff. This information includes, but is not limited to, the 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 Standard of Practice #23 *Data Quality*.

The actuarial assumptions reflect our understanding of the likely future experience of the Plan. We have relied upon the experience analysis performed by the prior actuary in recommending the assumptions that were adopted by the Board and used concurrently with the June 30, 2011 actuarial valuation, with exception to incorporating an explicit assumption for administrative expenses and updating the medical trend assumption for the Retiree Supplements to better reflect the marketplace. We will not be able to independently express an opinion on the other assumptions until we have performed an actuarial experience study. The results of this report are dependent upon future experience conforming to these assumptions. 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.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I
BOARD SUMMARY**

General Comments

In this section, we will first discuss the trends of the Plan over the past decade and then show projections of the contribution rate and funding status. Please remember that these projections make certain assumptions about future investment returns, future salary increases, future inflation, and future behavior of Plan participants. We cannot know what will actually happen, but these projections should provide the Board with a better understanding of the sensitivity of the Plan's funding to future market performances.

Section 22.3-27 of the City Code states that each year the Board must certify to the City Manager the amount of appropriation required for the ensuing year to meet the normal and accrued liability contributions payable by the City. The results of this valuation determine the contribution rate for the fiscal year beginning July 1, 2016.

The City's contribution rate is based on the normal cost determined under the funding method and the amount necessary to pay off the unfunded actuarial liability over a closed 30-year period beginning July 1, 2013, whereby the amortization payments are a level percent of pay and increase by 3% per year. However, for the increase in the unfunded liability due to the codified COLA on July 1, 2013, the amortization amount is being phased in over a five-year period. The City would pay 40% of such amount in fiscal year ending June 30, 2015, 60% of such amount in fiscal year ending June 30, 2016, 80% of such amount in fiscal year ending June 30, 2017, 90% of such amount in fiscal year ending June 30, 2018 and the full amount necessary to pay off the remaining balance over 26 years thereafter. Under this funding policy, the City's contribution rate was determined to be 15.81%. This is a decrease from the City's contribution rate of 20.64% of annual payroll determined in last year's valuation. The 4.83% decline in the City's contribution rate is primarily attributable to the requirement that all active participants, with the exception of those hired after June 30, 2014 that elect the Hybrid Plan, contribute 5% of their pay. These rates have been adjusted to the middle of the year to reflect the contribution rate being paid throughout the year. Finally, the contribution rate includes 0.50% of payroll to cover assumed administrative expenses.

Forecasts show that should all assumptions be realized, including the 7.75% assumed annual investment return, the Plan's funded status would increase from 70% to 80% over the next 15 years under the funding policy described above.

Recent Experience

The following summarizes changes that affected the Unfunded Actuarial Liability since the prior actuarial valuation:

- Investment experience: The financial markets performed below expectation during the fiscal year ending June 30, 2015. The actual return on a Market Value basis was approximately 3.7%. However, the Plan experienced a gain on the Actuarial Value of Assets due to the recognition of past investment gains. On an actuarial value basis, the assets returned 13.6%

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I
BOARD SUMMARY**

compared with an assumed rate of return of 7.75%. The gain recognized for funding purposes was \$19.6 million.

- **Liability experience:** On the liability side, the Plan's experience resulted in an actuarial gain of \$2.0 million (roughly 0.4% of the liabilities). This gain includes favorable participant behavior, a lower retiree medical supplement amount than previously anticipated, and awarding a COLA of 1.06% to eligible retirees effective July 1, 2015 compared to an assumed 1.833%.
- **All employees are now required to contribute 5% of their earnable compensation with exception to those hired after June 30, 2014, who elect to participate in the Hybrid Plan.** Prior to this change, only those employees hired on or after June 30, 2014, who elected to participate in the Defined Benefit II (traditional plan), were required to make this contribution. Those members who were first required to contribute 5% effective July 1, 2015 were also awarded a one-time 6% pay increase to offset this obligation. This resulted in an increase in liabilities of \$10.2 million (roughly 2.0% of the liabilities).
- **Assumption Change:** The medical trend assumption for the Retiree Supplement was updated to better reflect the current marketplace. This change increased the liabilities by \$1.5 million (roughly 0.3% of the liabilities).
- **Funded ratio:** The combination of liability and investment experience above produced an increase in the Plan's funding ratio (Actuarial Value of Assets over Actuarial Liability) from 67.8% at June 30, 2014 to 70.4% at June 30, 2015. The increase was mitigated by the increase in Actuarial Liability attributable to the changes to underlying assumptions and additional liability due to awarding a one-time 6% pay increase for those first required to contribute 5% of pay effective July 1, 2015. However, as pointed out above, the change to require employee contributions for most employees resulted in a net decrease to the City's contribution rate.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

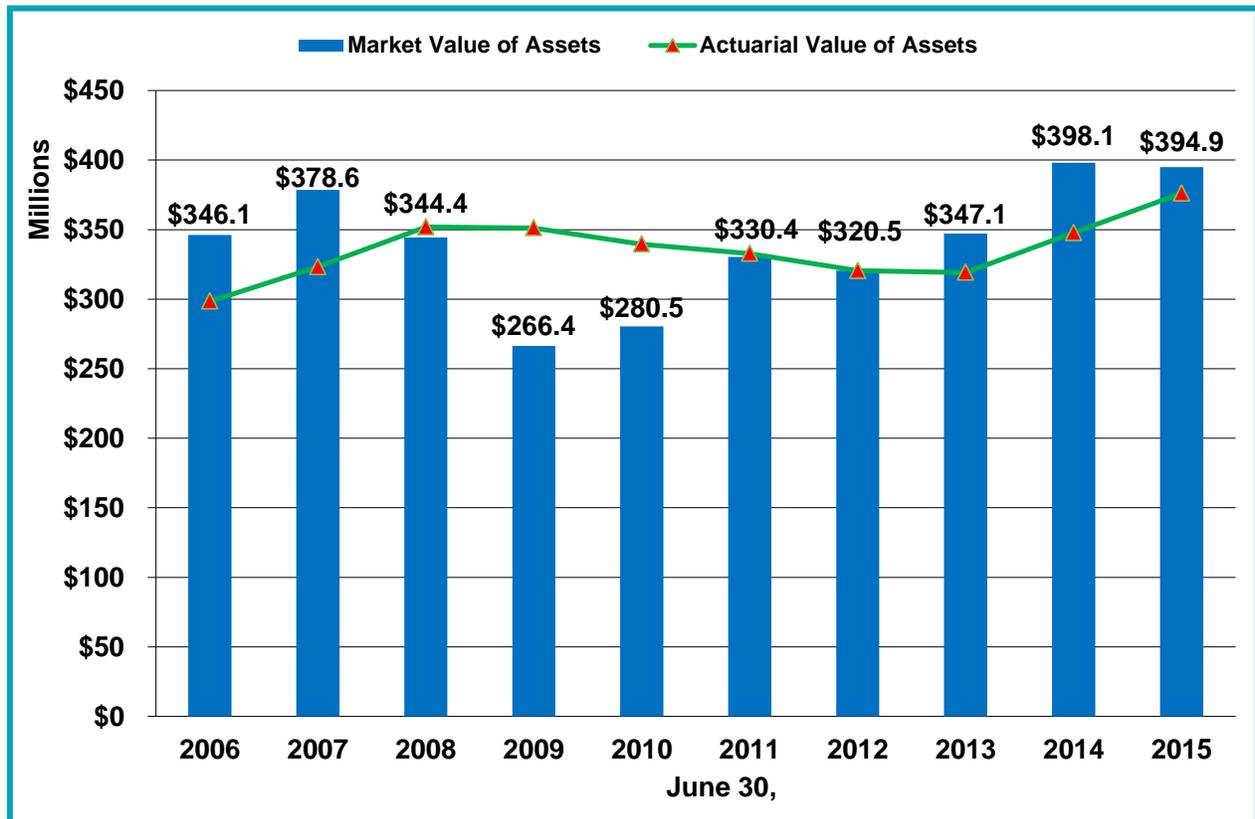
**SECTION I
BOARD SUMMARY**

Trends

It is important to take a step back from the latest results and view them in the context of the Plan's recent history. Here we present a series of graphs that display key factors in the valuations over the last ten years. After the historical review, we present a few projection graphs showing the possible condition of the Plan over the next 15 years under various market return scenarios.

Growth in Assets

The Market Value of Assets (MVA) experienced a return of 3.7% this year. Due to the asset smoothing method in place, the Actuarial Value of Assets (AVA) increased as prior investment gains outweighed the market value loss experienced this year. As a result, the return on the AVA was 13.6%. The AVA is approximately \$18.7 million less than the MVA. This amount represents the net investment gain due to the favorable returns in the prior years that are yet to be recognized when calculating the AVA.

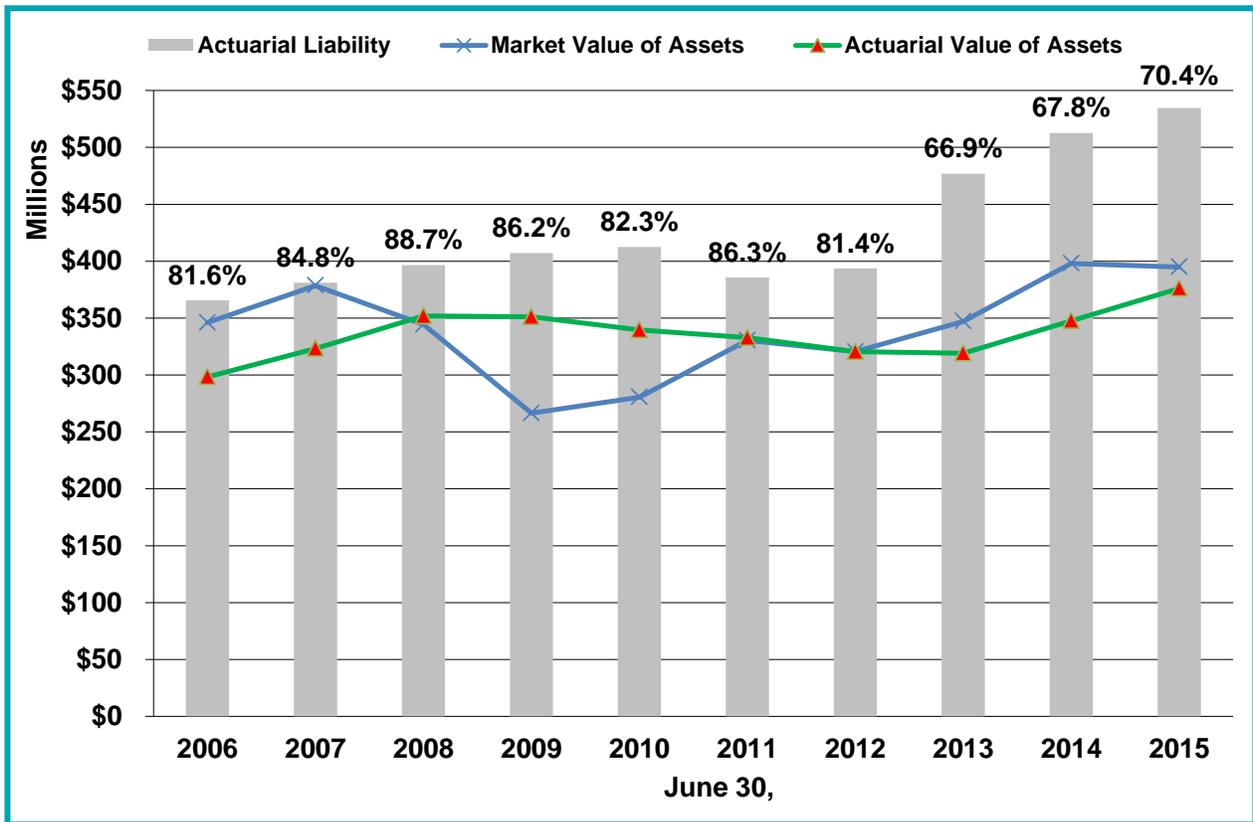


**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I
BOARD SUMMARY**

Assets and Liabilities

The top of the grey bar represents the targeted liability amount, referred to as the Actuarial Liability, for funding purposes. We compare the Actuarial Value of Assets to this measure of liability in developing the funded ratio. These are the percentages shown in the graph labels. The increase in the Actuarial Liability, and consequently decrease in funded ratio, in 2013 was primarily due to the codified COLA adopted by the City earlier that year. As previously mentioned, the funded ratio increased this most recent year due to favorable investment (on an actuarial basis) and liability experience. These gains were partially offset by the additional liability due to the one-time pay increases granted upon implementation of employee contributions (\$10.2 million) and the revised medical trend assumption (\$1.5 million).

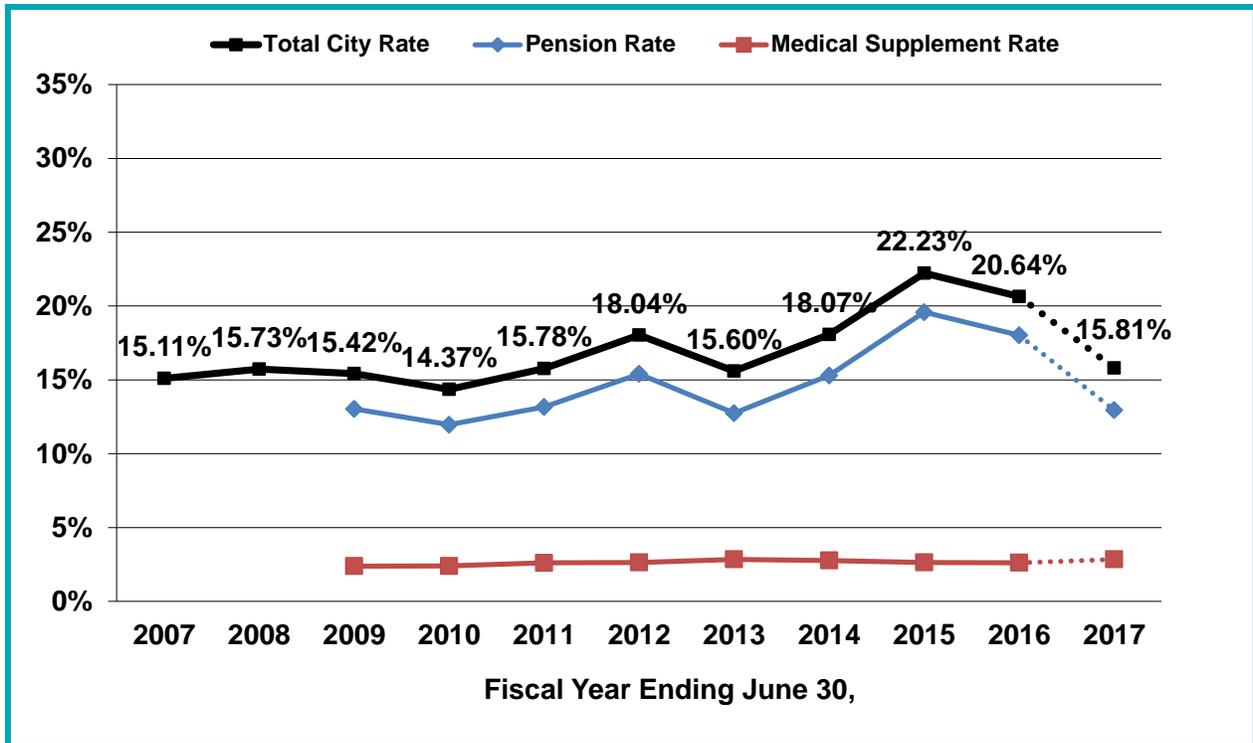


CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015

SECTION I
BOARD SUMMARY

Contribution Rates

The black line shows the City's contribution as a percent of payroll. The City's contribution rate is set by the actuarial process. Please note there is a lag in the rate. Specifically, the June 30, 2015 valuation determines the annual required contribution for the period July 1, 2016 to June 30, 2017. The 15.81% rate shown for fiscal year ending June 30, 2017 reflects the results of this June 30, 2015 valuation. The contribution rate decreased from last year as a result of the implementation of 5.0% employee contributions. However, we understand that the City is currently contributing 15.64% this year in recognition of this 5% employee contribution requirement for the current year. Lastly, the blue line represents the portion of the City's contribution rate attributable to pension and the portion for the medical supplement is shown by the red line.

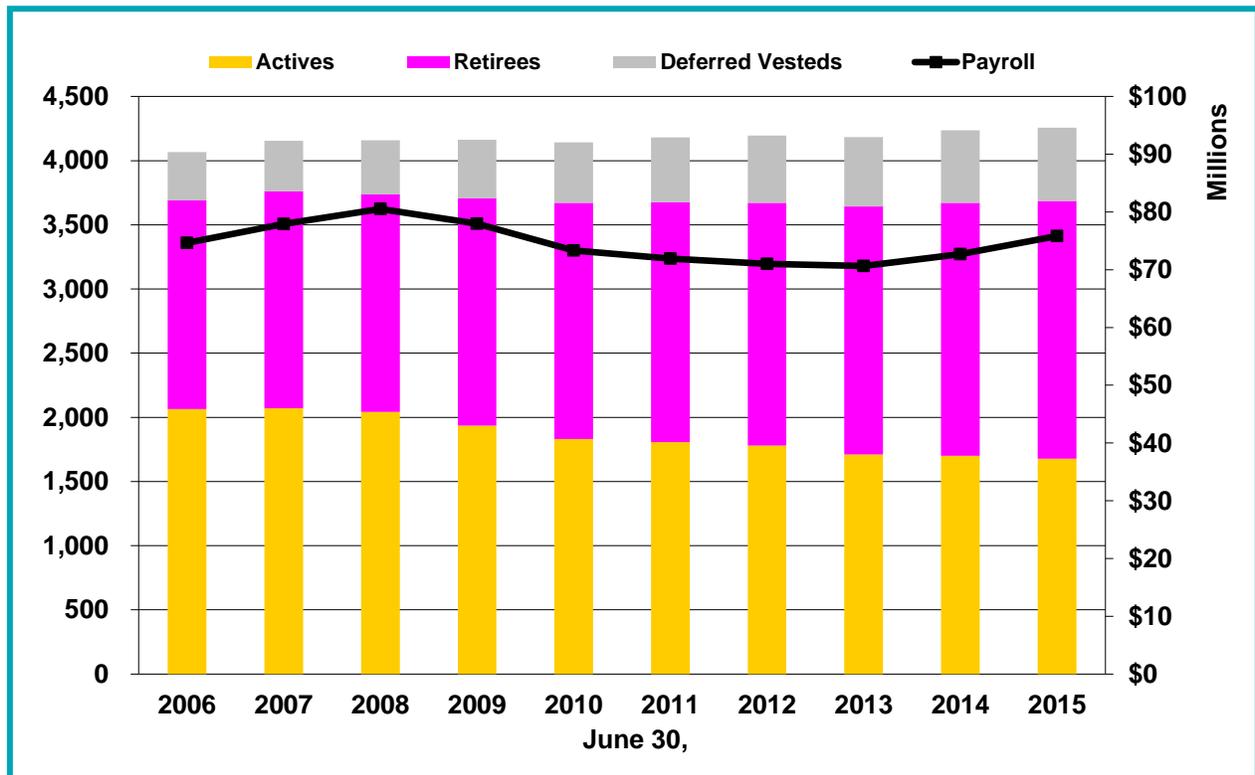


**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I
BOARD SUMMARY**

Participant Trends

This graph shows the number of actives, retirees and deferred vested members in the Plan as of each valuation date. The black line shows the total covered payroll of the Plan over the past ten years. Despite a slight decrease in the number of actives, the growth in total payroll this year was primarily due to a one-time 6% pay increase for those actives first required to contribute 5% of pay effective July 1, 2015. The average pay increased by 5.8%, suggesting that the average pay would have been flat had it not been for the one-time increase.



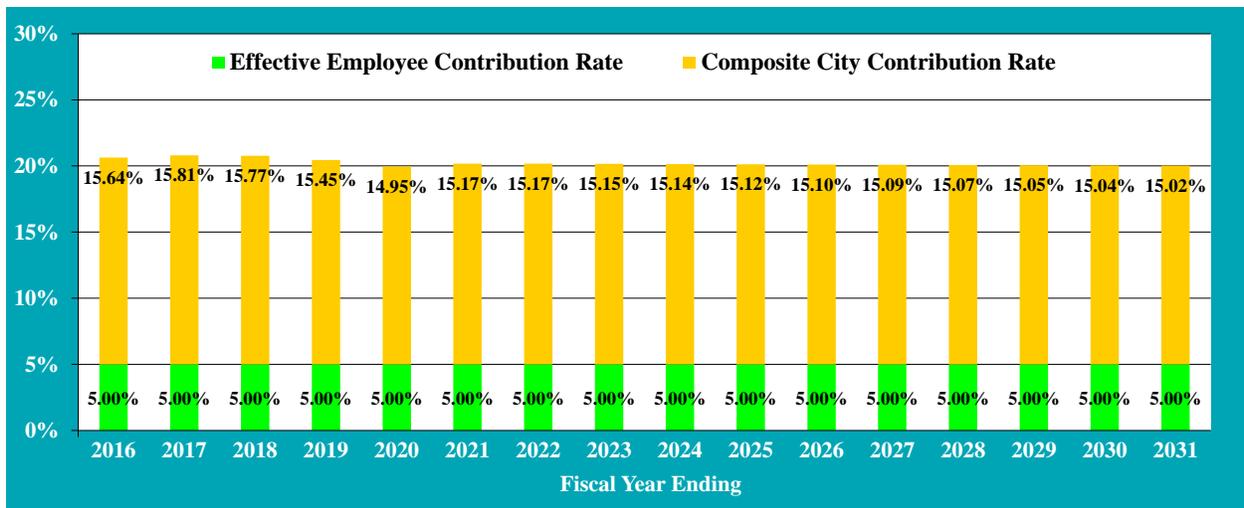
CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015

SECTION I
BOARD SUMMARY

Future Outlook

Baseline Projections

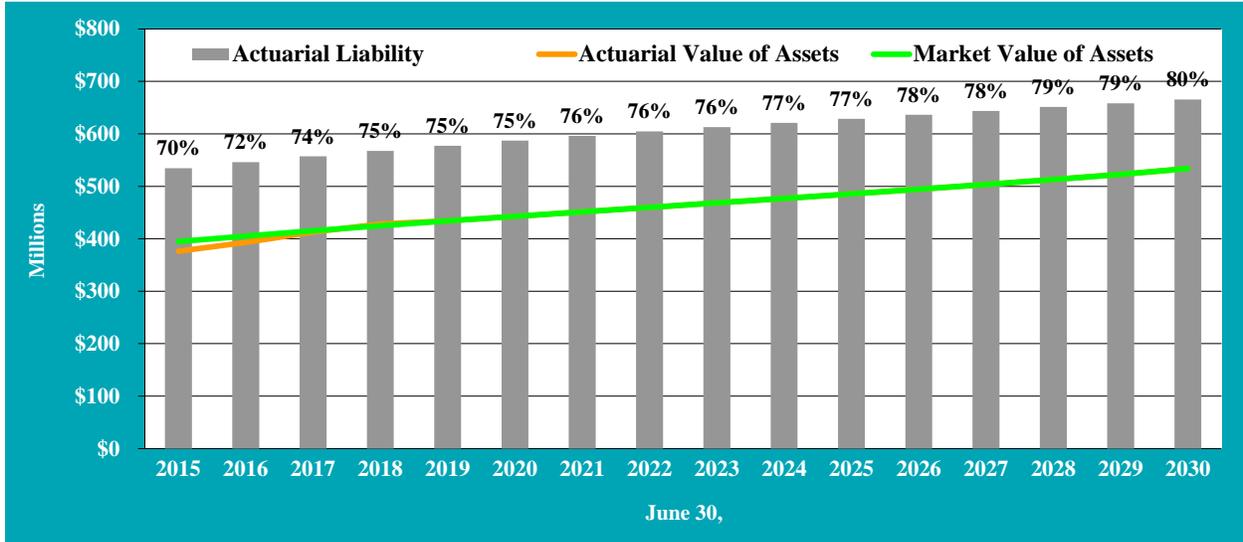
The two graphs below show the expected progress of the Plan over the next 15 years assuming the Plan's assets earn 7.75% of their *market value*. The first graph shows that the City contribution rate is projected to slightly decrease as a percentage of payroll if all actuarial assumptions are met, including the 7.75% interest rate. This projection assumes all new hires will elect to participate in the DB II plan offered by the City. We have also reflected that the City is currently contributing 15.64% this year in lieu of the 20.64% determined in last year's valuation since essentially all active members are now contributing 5% of pay.



CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015

SECTION I
BOARD SUMMARY

The graph below shows the projected funding status over the next 15 years. As you can see, the Plan's funded status is projected to improve gradually and eventually reach 80% by the end of the period shown.

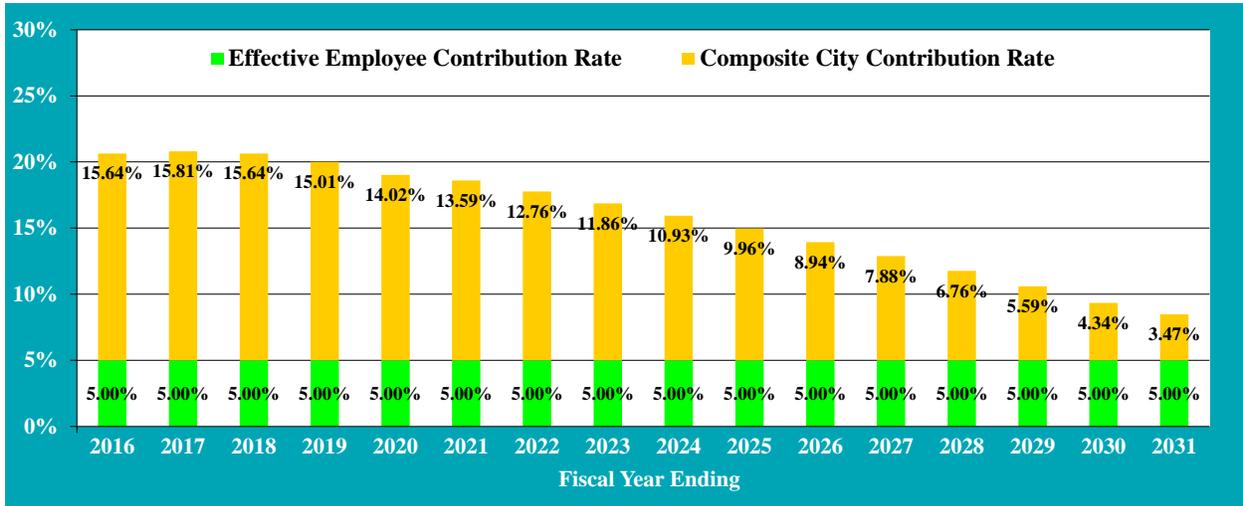


**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

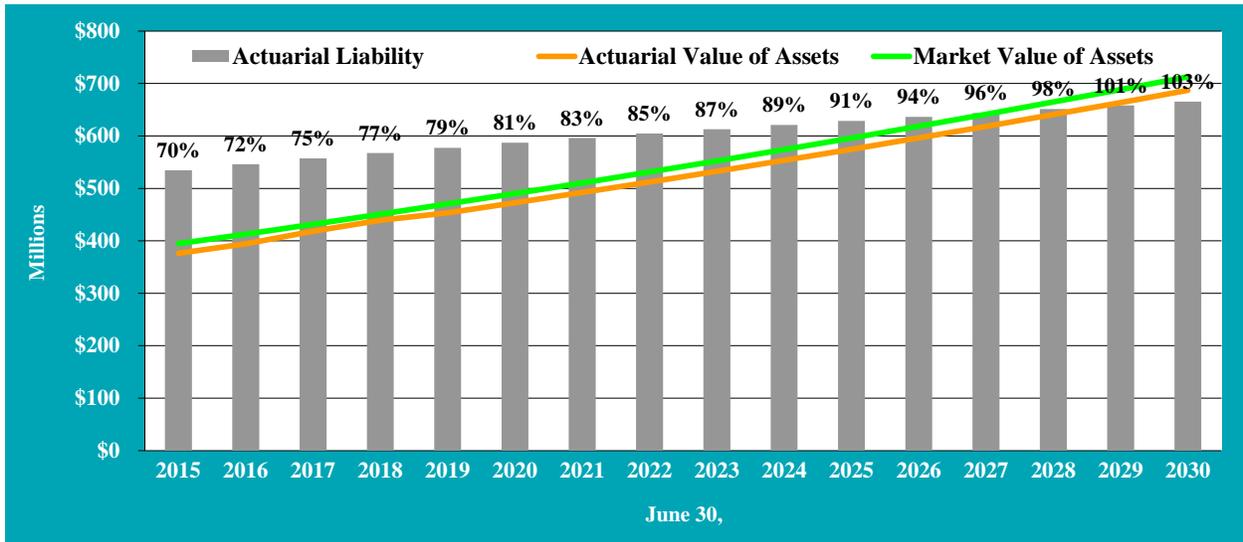
**SECTION I
BOARD SUMMARY**

Projections with Asset Returns of 9.75%

The future funding status of this Plan will be largely driven by the investment earnings. Relatively minor changes in the market returns can have significant effects on the Plan's status. The next two graphs show what the next 15 years would look like with a 9.75% annual return. The same assumption regarding new hire plan elections apply here as well.



As you can see, the City's contribution rate would drop from 15.81% of payroll for the fiscal year ending June 30, 2017 down to 3.47% of payroll by the end of the period shown. As a result of the positive impact of the favorable assumed returns, the Plan would be fully funded by 2029.



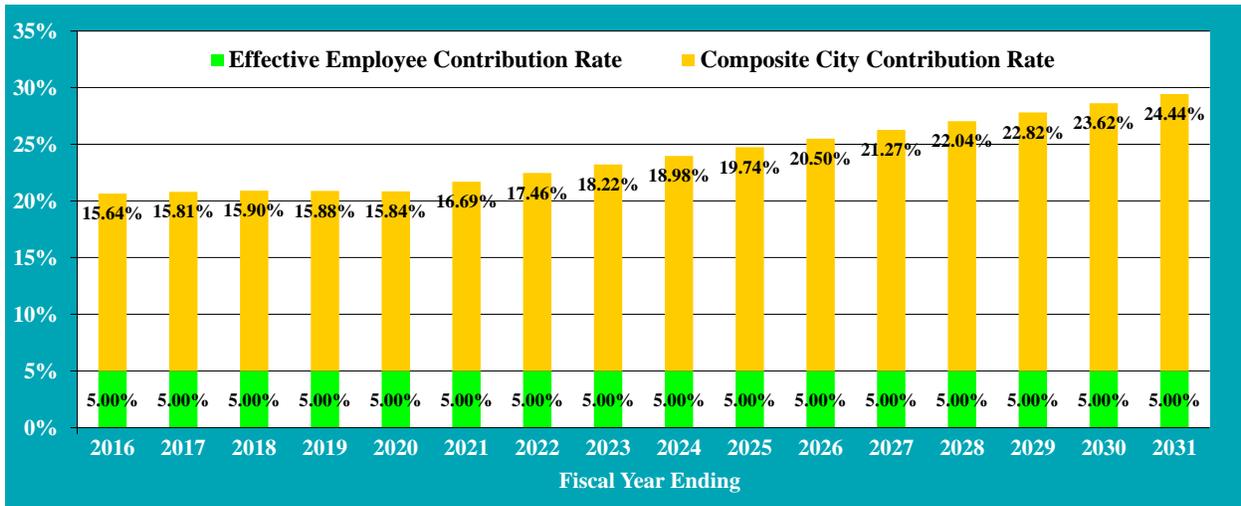
**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I
BOARD SUMMARY**

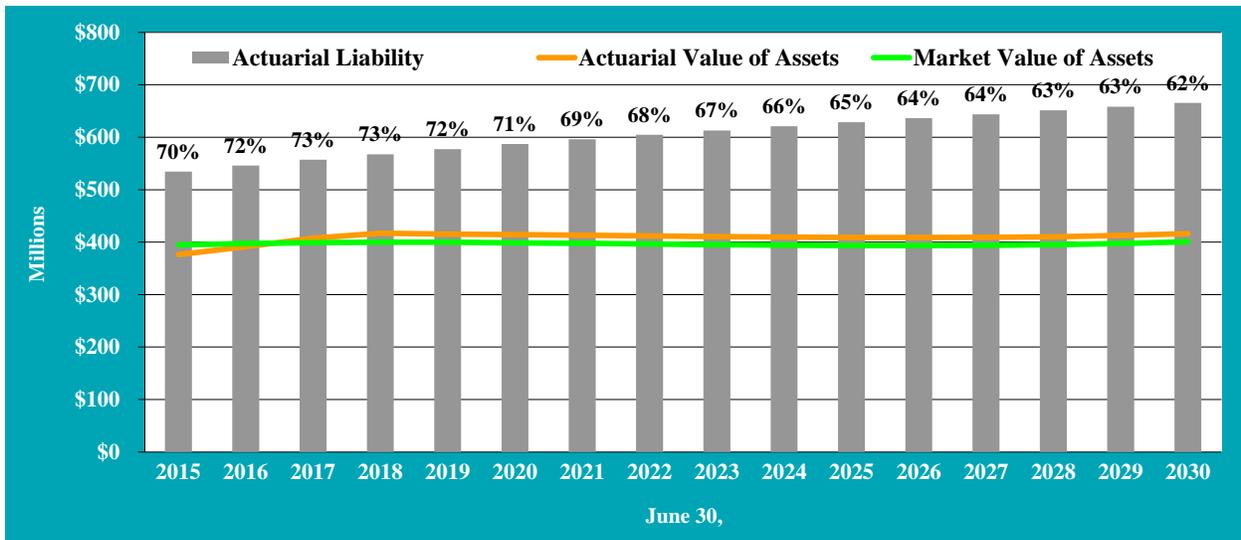
Projections with Asset Returns of 5.75%

The next two graphs show what the next 15 years would look like with a 5.75% annual return. The same assumption regarding new hire plan elections apply here as well.

The City's contribution rate would remain relatively flat in the early years due to the continued recognition of stored investment gains when calculating the Actuarial Value of Assets, but would ultimately increase to 24.44% by the end of the period.



The Plan's funded level would decrease to 62% funded over the long-term. There would still be no danger of benefit commitments going unmet as the Fund would have over \$400 million at the end of the period shown.



**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I
BOARD SUMMARY**

**Table I-1
Summary of Principal Plan Results**

Valuation as of:	June 30, 2014	June 30, 2015	% Change
<u>Participant Counts</u>			
(a) Actives	1,701	1,677	(1.4%)
(b) Terminated Vesteds	564	572	1.4%
(c) In Pay Status	<u>1,971</u>	<u>2,009</u>	1.9%
(d) Total	4,236	4,258	0.5%
(e) Annual Salaries of Active Members	\$ 72,697,217	\$ 75,849,888	4.3%
(f) Annual Retirement Allowances	\$ 32,073,222	\$ 33,251,148	3.7%
<u>Assets and Liabilities</u>			
(g) Actuarial Liability			
Pension	\$ 488,669,571	\$ 508,096,786	4.0%
Medical Supplement	<u>23,985,642</u>	<u>26,530,609</u>	10.6%
Total	\$ 512,655,213	\$ 534,627,395	4.3%
(h) Actuarial Value of Assets			
Pension	\$ 345,868,090	\$ 374,176,735	8.2%
Medical Supplement	<u>1,794,278</u>	<u>1,971,597</u>	9.9%
Total	\$ 347,662,368	\$ 376,148,332	8.2%
(i) Unfunded Actuarial Liability (g – h)			
Pension	\$ 142,801,481	\$ 133,920,051	(6.2%)
Medical Supplement	<u>22,191,364</u>	<u>24,559,012</u>	10.7%
Total	\$ 164,992,845	\$ 158,479,063	(3.9%)
(j) Funding Ratio on AVA basis (h ÷ g)	67.8%	70.4%	3.7%
(k) Funding Ratio on MVA basis	77.6%	73.9%	(4.9%)
(l) Gross Normal Cost (beginning of year)			
Pension	\$ 5,365,055	\$ 5,521,872	2.9%
Medical Supplement	<u>440,199</u>	<u>510,505</u>	16.0%
Total	\$ 5,805,254	\$ 6,032,377	3.9%
<u>City Contribution as a % of Payroll</u>			
(m) Gross Normal Cost			
Pension	7.38%	7.29%	
Medical Supplement ¹	<u>0.63%</u>	<u>0.70%</u>	
Total Normal Cost %	8.01%	7.99%	
(n) UAL for Codified COLA			
Pension	3.28%	4.43%	
Medical Supplement	<u>N/A</u>	<u>N/A</u>	
Total Codified COLA %	3.28%	4.43%	
(o) Remaining UAL			
Pension	6.86%	5.74%	
Medical Supplement ¹	<u>1.99%</u>	<u>2.15%</u>	
Total Remaining UAL %	8.85%	7.89%	
(p) Administrative Expenses	0.50%	0.50%	
(q) Employee Contributions	N/A	(5.00%)	
(r) Total [m + n + o + p + q]			
Pension	18.02%	12.96%	
Medical Supplement ¹	<u>2.62%</u>	<u>2.85%</u>	
Total %	20.64%	15.81%	

¹ Total Payroll for the Medical Supplement is \$69,872,812 for 2014 and \$72,929,313 for 2015.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION II
ASSETS**

Pension plan assets play a key role in the financial operation of the Plan 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 upon benefit levels, City contributions, and the ultimate security of participants' benefits.

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

- **Disclosure** of Plan assets at June 30, 2014 and June 30, 2015;
- Statement of the **changes** in the Market Values of Assets during the year;
- Development of the **Actuarial Value of Assets**; and
- An assessment of **investment performance**.

Disclosure

The Market Value of Assets represents “snap-shot” or “cash-out” values which provide 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 suitable for development of annual contributions.

The Actuarial Values, or “carrying values,” are market values which have been smoothed based on actuarial methods. They are used for evaluating the Plan’s ongoing liability to meet its obligations.

Current methods employed by this Plan determine the Actuarial Value of Assets by phasing in investment gains and losses over five years. Under this method, the Actuarial Value of Assets is determined as the Market Value of Assets on the valuation date less a decreasing fraction (4/5, 3/5, 2/5, 1/5) of the gain/(loss) in each of the preceding four years. The gain/(loss) for a given year is the difference between the actual investment return (on a market-to-market basis) and the assumed investment return based on the market value of assets at the beginning of the year and actual cash flow.

The Actuarial Value of Assets is then allocated between the Pension portion and Medical Supplement portion of the Plan. The allocation is performed annually based on the City’s actual contribution and benefit payments made on behalf of each type of employee. The investment returns for the year are allocated based on the starting balance and the cash flow of each portion of the Plan.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION II
ASSETS**

**Table II-1
Statement of Assets at Market Value**

	June 30, 2014	June 30, 2015
<u>Assets</u>		
Cash and Short-Term Investments	\$ 1,113,774	\$ 881,705
Receivables		
Employer Contributions	\$ 331,775	\$ 135,613
Employee Contributions	0	211,034
Investment Income	360,417	731,754
Receivable for Security Transactions	632,039	219,856
Total	<u>\$ 1,324,231</u>	<u>\$ 1,298,257</u>
Investments Held by Trustee, at Fair Value		
Cash Equivalents and Collateral	\$ 4,024,822	\$ 4,097,515
United States Government Securities	5,260,769	7,777,195
Municipal and Agency Bonds	4,618,906	16,725,834
Corporate Bonds	12,867,690	18,573,735
Mutual Funds	276,790,450	249,442,801
Common Stock	71,805,545	74,753,635
Real Estate Funds	10,000,100	11,227,627
Other	11,725,076	11,496,878
Total	<u>\$ 397,093,358</u>	<u>\$ 394,095,220</u>
Total Assets	\$ 399,531,363	\$ 396,275,182
<u>Liabilities</u>		
Commissions Payable and Other Liabilities	\$ 304,939	\$ 428,068
Payable for Security Transactions	655,194	0
Payable for Cash Collateral on Loaned Securities	498,325	953,774
Total Liabilities	<u>\$ 1,458,458</u>	<u>\$ 1,381,842</u>
Net Assets Available for Benefits	\$ 398,072,905	\$ 394,893,340

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION II
ASSETS**

**Table II-2
Changes in Market Values**

Market Value of Assets - June 30, 2014	\$ 398,072,905
<u>Additions</u>	
Employer Contributions	\$ 15,130,044
Member Contributions	329,048
Investment Income:	
Net Appreciation (Depreciation) in Fair Value of Investments	\$ 7,893,446
Interest	1,150,721
Dividends	6,549,841
Other	6,147
Total Investment Income	\$ 15,600,155
Investment Expenses	\$ (1,278,303)
Net Income from Investing Activities	400
Total Additions	\$ 29,781,344
<u>Deductions</u>	
Benefits Paid directly to Participants	\$ 32,487,715
Administrative Fees	473,194
Total Deductions	\$ 32,960,909
<u>Total</u>	
Net Increase/(Decrease)	\$ (3,179,565)
Market Value of Assets - June 30, 2015	\$ 394,893,340

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION II
ASSETS**

Actuarial Value of Assets

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 Plan, the Actuarial Value of Assets has been calculated by phasing in investment gains and losses over five years. Under this method, the Actuarial Value of Assets is determined as the Market Value of Assets on the valuation date less a decreasing fraction (4/5, 3/5, 2/5, 1/5) of the gain/(loss) in each of the preceding four years. The gain/(loss) for a given year is the difference between the actual investment return (on a market-to-market basis) and the assumed investment return based on the market value of assets at the beginning of the year and actual cash flow.

The tables below show the development of the Actuarial Value of Assets

Table II-3 Market Value Gain or (Loss)	
a. Market Value of Assets - June 30, 2014	\$ 398,072,905
b. Contributions	15,459,092
c. Benefits Paid	(32,487,715)
d. Assumed Administrative Expenses	(363,486)
e. Expected Return at 7.75%	<u>30,176,706</u>
f. Expected Market Value of Assets - June 30, 2015 [(a)+(b)+(c)+(d)+(e)]	\$ 410,857,502
g. Actual Market Value of Assets - June 30, 2015	\$ 394,893,340
h. Market Value Gain or (Loss) [(f) - (e)]	\$ (15,964,162)

Table II-4 Development of June 30, 2015 Actuarial Value of Assets					
a. Market Value of Assets - June 30, 2015					\$ 394,893,340
b. Deferred Gains or (Losses)					
FY Ending	Market Value	Percent	Percent	Amount	
<u>June 30,</u>	<u>Gain or (Loss)</u>	<u>Recognized</u>	<u>Deferred</u>	<u>Deferred</u>	
2015	\$ (15,964,162)	20%	80%	\$ (12,771,330)	
2014	43,543,633	40%	60%	26,126,180	
2013	22,314,802	60%	40%	8,925,921	
2012	(17,678,815)	80%	20%	(3,535,763)	
2011	46,291,379	100%	0%	0	
				Total Deferred:	\$ 18,745,008
c. Actuarial Value of Assets - June 30, 2015 [(a) - (b)]					\$ 376,148,332
d. Actuarial Value of Assets as a % of Market Value of Assets [(c) ÷ (a)]					95%

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION II
ASSETS**

**Table II-5
Allocation of Actuarial Value of Assets
As of June 30, 2015**

	Pension	Medical Supplement	Total
1. Actuarial Value of Assets - June 30, 2014	\$ 345,868,090	\$ 1,794,278	\$ 347,662,368
2. Estimated Split of Actual Contributions	13,623,194	1,835,898	15,459,092
3. Benefit Payments (allocated on the basis of FY 2014 expected payments)	(30,590,440)	(1,897,275)	(32,487,715)
4. Assumed Administrative Expenses	(363,486)	0	(363,486)
5. Investment Earnings (based on 13.6% return)	<u>45,639,377</u>	<u>238,696</u>	<u>45,878,073</u>
6. Actuarial Value of Assets - June 30, 2015	<u>\$ 374,176,735</u>	<u>\$ 1,971,597</u>	<u>\$ 376,148,332</u>

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2014**

**SECTION II
ASSETS**

Investment Performance

The Market Value of Assets (MVA) returned 3.68% during fiscal year 2015, which is less than the expected 7.75% return by 4.07%.

A return of 13.57% on the Actuarial Value of Assets (AVA) is primarily the result of the asset smoothing method being utilized for the calculation of the Actuarial Value of Assets. Since only a portion of the gain or loss from the performance of the Plan is recognized in a given year, in periods of very good performance, the AVA can lag significantly behind the MVA. In a period of negative returns, the AVA does not decline as rapidly as the MVA.

Table II-6 City of Roanoke Pension Plan Annual Rates of Return		
Year Ending June 30,	Market Value	Actuarial Value
2004	12.86%	-0.03%
2005	8.39%	1.25%
2006	9.02%	5.11%
2007	17.20%	12.63%
2008	-5.79%	13.00%
2009	-18.84%	3.99%
2010	11.98%	1.52%
2011	24.78%	3.23%
2012	2.26%	1.49%
2013	14.93%	5.96%
2014	20.64%	15.25%
2015	3.68%	13.57%

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION III
LIABILITIES**

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

- **Disclosure** of Plan liabilities at June 30, 2014 and June 30, 2015;
- **Development** of Actuarial Liability; 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 Benefits:** Used for analyzing the financial outlook of the Plan, this represents the amount of money needed today to fully pay off all future benefits and expenses of the Plan of current participants, assuming active participants continue to accrue benefits.
- **Actuarial Liability:** Used for funding calculations, this liability is calculated by taking the Present Value of Benefits above and subtracting the present value of future Employer Normal Costs under an acceptable actuarial funding method. This method is referred to as the **Entry Age Normal (EAN)** funding method. The funding method was changed concurrent with the June 30, 2014 valuation performed last year to be consistent with the required method for disclosures under GASB Statements No. 67 and 68. Prior to June 30, 2014, the Projected Unit Credit funding method was used.
- **Present Value of Accrued Benefits:** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fully pay off the current accrued obligations of the Plan, assuming no future accruals of benefits. These liabilities are used to assess whether the Plan can meet its current benefit commitments.

None of the liabilities disclosed in this report are appropriate for use in settling liabilities of the Plan.

The following table 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 ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION III
LIABILITIES**

**Table III-1
Liabilities/Net (Surplus)/Unfunded**

	June 30, 2014	June 30, 2015
Present Value of Benefits		
Active Participants	\$ 227,109,329	\$ 238,310,863
Terminated Vested Members	9,977,492	10,207,868
Retired Members	<u>315,627,955</u>	<u>327,724,651</u>
Present Value of Benefits (PVB)	\$ 552,714,776	\$ 576,243,382
Employer Normal Cost ¹	\$ 5,805,254	\$ 2,265,700
Present Value of Future Normal Costs	40,059,563	41,615,987
Actuarial Liability		
Active Participant Benefits	\$ 187,049,766	\$ 196,694,876
Terminated Vested Members	9,977,492	10,207,868
Retired Members	<u>315,627,955</u>	<u>327,724,651</u>
Actuarial Liability (AL)	\$ 512,655,213	\$ 534,627,395
Actuarial Value of Assets (AVA)	<u>347,662,368</u>	<u>376,148,332</u>
Net (Surplus)/Unfunded (AL – AVA)	\$ 164,992,845	\$ 158,479,063
Present Value of Accrued Benefits		
Present Value of Accrued Benefit (PVAB)	\$ 461,653,748	\$ 478,781,088
Market Value of Assets (MVA)	<u>398,072,905</u>	<u>394,893,340</u>
Net (Surplus)/Unfunded (PVAB – AVA)	\$ 63,580,843	\$ 83,887,748

¹ Net of employee contributions, when applicable

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION III
LIABILITIES**

**Table III-2
Actuarial Liability Breakdown**

	Pension	Supplement	Total
Active Members Attributable to:			
Withdrawal	\$ 1,777,523	\$ 0	\$ 1,777,523
Early Retirement	7,009,803	173,883	7,183,686
Normal Retirement	165,575,919	15,690,991	181,266,910
Death	1,707,851	0	1,707,851
Disability	4,301,961	456,945	4,758,906
Total Active Actuarial Liability	\$ 180,373,057	\$ 16,321,819	\$ 196,694,876
Terminated Vested Members	\$ 10,207,868	\$ 0	\$ 10,207,868
Retirees	289,949,314	9,735,271	299,684,585
Disabled Members	11,880,374	372,628	12,253,002
Beneficiaries	15,686,173	100,891	15,787,064
Total Actuarial Liability	\$ 508,096,786	\$ 26,530,609	\$ 534,627,395

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION III
LIABILITIES**

Changes in Liabilities

Each of the liabilities disclosed in the prior tables 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
- Plan 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 Plan. Below we present key changes in liabilities since the last valuation.

**Table III-3
Liabilities/Net (Surplus)/Unfunded**

	Present Value of Benefits	Actuarial Liability
Liabilities as of 6/30/2014	\$ 552,714,776	\$ 512,655,213
Liabilities as of 6/30/2015	576,243,382	534,627,395
Liability Increase/(Decrease)	23,528,606	21,972,182
Change Due to:		
Assumption Change	\$ 1,912,336	\$ 1,539,630
Liability increase due to Salary Increase to offset Employee Contribution	12,242,097	10,150,490
Actuarial (Gain)/Loss	NC	(1,957,264)
Benefits Accumulated and Other Sources	9,374,173	12,239,326

NC = Not Calculated

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**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 Plan. Typically, the actuarial process will use a funding scheme that will result in a pattern of contributions that are both stable and predictable.

For this Plan, the funding scheme employed is the **Entry Age Normal Cost Method**. Under this method, there are two components to the total contribution: the **Normal Cost rate** and the **Unfunded Actuarial Liability rate** (UAL rate). The Normal Cost rate is the value of benefits each active participant is assumed to accrue during the upcoming year including all future increases in those benefits due to rising pay until assumed termination of employment. The normal cost rate also includes the required 5% employee contribution to the defined contribution plan for Hybrid Plan members hired after June 30, 2014. An additional amount is also included to cover the administrative expenses expected to be incurred by the Plan.

The second part is an amortization payment to pay off the Unfunded Actuarial Liability (UAL). The Unfunded Actuarial Liability is the difference between the Actuarial Liability of the Plan at the valuation date and the assets the Plan should hold as determined by the actuarial cost method. The UAL as of June 30, 2013 is being amortized over a closed 30-year period. However, for the increase in the unfunded liability due to the codified COLA, the amortization amount would be phased in over a five-year period. The City would pay 40% of such amount in fiscal year ending June 30, 2015, 60% of such amount in fiscal year ending June 30, 2016, 80% of such amount in fiscal year ending June 30, 2017, 90% of such amount in fiscal year ending June 30, 2018 and the full amount necessary to pay off the remaining balance over 26 years thereafter. Amortization payments are a level percent of pay and increase by 3% per year.

The assumed administrative expense rate is 0.50% of payroll. This rate, when applied to payroll, is intended to provide an allowance above the cost of funding the benefits to pay for the expense of operating this System.

Actuarially Determined Rate

The table below presents and compares the actuarially determined contributions for the Plan for this valuation and the prior one.

Table IV-1 Actuarially Determined Rate		
	June 30, 2014	June 30, 2015
Normal Cost Rate	8.01%	7.99%
Codified COLA	3.28%	4.43%
UAL Rate	8.85%	7.89%
Administrative Expenses	0.50%	0.50%
Employee Contributions	N/A	(5.00%)
Total City Rate	20.64%	15.81%

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION IV
CONTRIBUTIONS**

**Table IV-2
Development of Actuarially Determined Contribution Rate**

	June 30, 2014	June 30, 2015
1. Actuarial Liability		
a. Active Employees	\$ 187,049,766	\$ 196,694,876
b. Vested Terminated Members	9,977,492	10,207,868
c. Retired Members	<u>315,627,955</u>	<u>327,724,651</u>
d. Total Present Value	\$ 512,655,213	\$ 534,627,395
2. Actuarial Value of Assets	<u>\$ 347,662,368</u>	<u>\$ 376,148,332</u>
3. Unfunded Actuarial Liability (UAL) (1) – (2)	\$ 164,992,845	\$ 158,479,063
4. Amortization UAL for Codified COLA		
a. Remaining UAL attributable to codified COLA	\$ 63,297,071	65,729,693
b. Amortization Payment (adjusted to mid-year)	3,973,280	4,197,769
c. Phase-In Percentage	60%	80%
d. Phase-in Amortization Payment	2,383,968	3,358,216
e. Active Member Payroll	72,697,217	75,849,888
f. Total Codified COLA %	3.28%	4.43%
5. UAL Amortization – Medical Supplement		
a. UAL – Medical Supplement	\$ 22,191,364	24,559,012
b. Amortization Payment (adjusted to mid-year)	1,392,995	1,568,440
c. Active Member Payroll (excludes School employees)	69,872,812	72,929,313
d. Total Medical Supplement %	1.99%	2.15%
6. UAL Amortization – Pension		
a. Remaining UAL for Pension	\$ 79,504,410	68,190,358
b. Amortization Payment (adjusted to mid-year)	4,990,645	4,354,918
c. Active Member Payroll	72,697,217	75,849,888
d. Total Pension %	6.86%	5.74%
7. UAL Amortization – Total (5) + (6)	8.85%	7.89%
8. Administrative Expenses	0.50%	0.50%
9. Employer Contribution Results		
a. Normal Cost Rate	8.01%	7.99%
b. Amortization of Codified COLA	3.28%	4.43%
c. Amortization of UAL	8.85%	7.89%
d. Administrative Expenses	0.50%	0.50%
e. Employee Contributions	<u>N/A</u>	<u>(5.00%)</u>
f. Total Employer Contribution Rate	20.64%	15.81%

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION V
FINANCIAL STATEMENT INFORMATION**

The present value of accrued benefits is determined assuming that the Plan is on-going and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 7.75% per annum. These liabilities provide a quasi “snap shot” view of how the plan’s assets compare to its liabilities if contributions stopped and accrued benefit claims had to be satisfied. However, due to potential legal requirements and the possibility that alternative interest rates would have to be used to determine the liabilities, these values may not be a good indication of the amount of money it would take to buy the benefits for all members if the System were to terminate. The comparison of the present value of accrued (accumulated) benefits with the market value of the assets as of the valuation date must be provided. Table V-1 shows the accrued benefit liabilities as of June 30, 2015.

Table V-2 then reconciles the accrued benefit liabilities determined as of the prior valuation, June 30, 2014, to the liabilities as of June 30, 2015.

Table V-3 is the Solvency Test which shows the portion of Accrued Liability covered by Assets. This table can be used with the City’s CAFR.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION V
FINANCIAL STATEMENT INFORMATION**

**Table V-1
Accrued Benefit Liabilities as of June 30, 2015**

A. Accrued Benefit Liabilities		
1. Present Value of Benefits Accrued and Vested to Date (PVVB)		
a. Members Currently Receiving Payments	\$	327,724,651
b. Terminated Vested Members		10,207,868
c. Active Members		<u>106,575,044</u>
d. Total PVVB	\$	444,507,563
2. Present Value of Non-Vested Accrued Benefits for Active Members		<u>34,273,525</u>
3. Total Present Value of Accrued Benefits	\$	478,781,088
4. Assets at Market Value		<u>394,893,340</u>
5. Unfunded Present Value of Accrued Benefits, Not Less Than Zero (3) – (4)	\$	83,887,748
6. Ratio of Assets to Accrued Benefits (4) / (3)		82.5%

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION V
FINANCIAL STATEMENT INFORMATION**

Table V-2 Statement of Changes in Present Value of Accrued Benefits		
Actuarial Present Value of Accrued Benefits as of June 30, 2014	\$	461,653,748
Increase/(Decrease) During Years Attributable to:		
Passage of Time	\$	34,519,267
Benefit Paid - FY 2014-15		(32,487,715)
Assumption Change		548,975
Liability increase due to Salary Increase to offset Employee Contribution		7,439,788
Benefits Accrued, Other Gains/Losses		<u>7,107,025</u>
Net Increase/(Decrease)	\$	<u>17,127,340</u>
Actuarial Present Value of Accrued Benefits as of June 30, 2015	\$	478,781,088

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION V
FINANCIAL STATEMENT INFORMATION**

Table V-3 Solvency Test					Portion of Actuarial Liabilities Covered by Valuation Assets		
<u>Aggregate Actuarial Liabilities for</u>							
(C)							
Active							
Members							
(Employer							
Financed							
Portion)							
Valuation Date	(A) Active Member Contributions	(B) Retirees, Vested Terms, Beneficiaries	(C) Active Members (Employer Financed Portion)	Valuation Assets	(A)	(B)	(C)
6/30/2008 ¹	\$ 0	\$ 249,799,036	\$ 146,670,586	\$ 351,815,425	100.0%	100.0%	69.6%
6/30/2009 ¹	0	257,729,297	149,440,789	351,150,038	100.0	100.0	62.5
6/30/2010 ¹	0	272,889,716	139,661,258	339,501,962	100.0	100.0	47.7
6/30/2011 ¹	0	262,320,726	123,307,640	332,786,061	100.0	100.0	57.1
6/30/2012 ¹	0	269,598,459	123,960,018	320,455,993	100.0	100.0	41.0
6/30/2013	0	318,206,515	158,825,398	319,181,632	100.0	100.0	0.6
6/30/2014	0	325,605,447	187,049,766	347,662,368	100.0	100.0	11.8
6/30/2015	111,246	337,932,519	196,583,630	376,148,332	100.0	100.0	19.4

¹ As calculated by prior actuary.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX A
MEMBERSHIP INFORMATION**

Summary of Membership Data as of June 30, 2015

Table A-1 Active Members				
Group	Count	Average Age	Average Service	Average Salary
ESRS General	1,047	48.2	12.2	\$ 43,605
ERS General	29	59.6	35.8	53,242
ESRS Police & Fire	464	38.7	12.5	50,346
ERS Police & Fire	1	56.0	34.8	65,009
DB II General	99	37.2	0.6	36,076
DB II Police & Fire	34	25.9	0.4	37,527
Hybrid General	<u>3</u>	30.5	0.8	39,284
Total Plan	1,677	44.7	11.8	45,230

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX A
MEMBERSHIP INFORMATION**

Table A-2 Inactive Members			
	Count	Annual Benefit	Average Annual Benefit
Retirees			
ESRS General	983	\$ 16,050,472	\$ 16,328
ERS General	286	3,209,701	11,223
ESRS Police & Fire	354	10,566,165	29,848
ERS Police & Fire	<u>20</u>	<u>160,265</u>	8,013
Total	1,643	\$ 29,986,603	18,251
Beneficiaries			
ESRS General	91	\$ 756,444	\$ 8,313
ERS General	101	417,002	4,129
ESRS Police & Fire	46	539,961	11,738
ERS Police & Fire	<u>26</u>	<u>203,644</u>	7,832
Total	264	1,917,051	7,262
Disableds			
ESRS General	60	\$ 616,679	\$ 10,278
ERS General	23	245,177	10,660
ESRS Police & Fire	16	416,489	26,031
ERS Police & Fire	<u>3</u>	<u>69,148</u>	23,049
Total	102	\$ 1,347,493	13,211
Terminated Vesteds			
ESRS General	434	\$ 2,741,221	\$ 6,316
ERS General	1	1,675	1,675
ESRS Police & Fire	137	934,397	6,820
ERS Police & Fire	<u>0</u>	<u>0</u>	0
Total	572	3,677,293	6,429

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX A
MEMBERSHIP INFORMATION**

**Table A-3
Distribution of Active Participants**

COUNTS BY AGE/SERVICE												
Age	Service											Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up		
Under 25	35	35	0	0	0	0	0	0	0	0	0	70
25 to 29	31	121	39	0	0	0	0	0	0	0	0	191
30 to 34	19	68	74	22	0	0	0	0	0	0	0	183
35 to 39	11	37	49	60	21	0	0	0	0	0	0	178
40 to 44	6	35	42	52	52	15	0	0	0	0	0	202
45 to 49	6	22	31	38	49	45	20	0	0	0	0	211
50 to 54	13	28	23	47	30	30	43	17	0	0	0	231
55 to 59	11	28	33	40	36	20	20	23	16	1	0	228
60 to 64	0	15	20	29	21	21	13	7	9	5	0	140
65 to 69	0	3	6	6	5	3	2	4	4	2	0	35
70 & up	0	0	1	3	2	0	1	0	1	0	0	8
Total	132	392	318	297	216	134	99	51	30	8	0	1,677

TOTAL SALARY BY AGE/SERVICE												
Age	Service											Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up		
Under 25	1,281,944	1,299,654	0	0	0	0	0	0	0	0	0	2,581,597
25 to 29	1,094,220	4,891,420	1,599,895	0	0	0	0	0	0	0	0	7,585,535
30 to 34	661,161	2,708,579	3,213,067	1,019,017	0	0	0	0	0	0	0	7,601,824
35 to 39	388,728	1,414,250	2,153,940	2,801,157	954,365	0	0	0	0	0	0	7,712,439
40 to 44	222,174	1,354,744	1,689,905	2,510,199	2,710,341	868,679	0	0	0	0	0	9,356,042
45 to 49	189,510	876,721	1,329,744	1,633,922	2,421,872	2,568,597	1,028,179	0	0	0	0	10,048,545
50 to 54	488,110	1,127,195	1,043,463	2,122,518	1,428,089	1,395,629	2,355,581	1,028,397	0	0	0	10,988,981
55 to 59	647,021	1,008,643	1,395,371	1,933,438	1,491,262	823,179	1,110,939	1,641,853	951,727	56,658	0	11,060,092
60 to 64	0	861,059	807,679	1,043,738	1,002,077	1,042,313	639,248	511,279	616,787	367,040	0	6,891,221
65 to 69	0	199,704	194,982	253,038	249,710	195,918	67,632	330,904	148,732	99,968	0	1,740,586
70 & up	0	0	25,933	57,576	77,398	0	48,330	0	73,789	0	0	283,026
Total	4,972,868	15,741,968	13,453,978	13,374,603	10,335,113	6,894,315	5,249,909	3,512,433	1,791,035	523,665	0	75,849,888

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX A
MEMBERSHIP INFORMATION**

Table A-4 Data Reconciliation						
	Actives	Terminated Vesteds	Retirees	Beneficiaries	Disableds	Total
Count as of June 30, 2014	1,701	564	1,633	234	104	4,236
New Entrants	131	0	0	0	0	131
Terminations/Retirements						
- Vested	(96)	35	61	0	0	0
- Non-Vested	(64)	0	0	0	0	(64)
Disablements	0	(1)	0	0	1	0
Vesteds that Retired	0	(21)	21	0	0	0
Return to Active Status	5	(5)	0	0	0	0
Deaths ¹	NC	(6)	(69)	16	(6)	(65)
Miscellaneous Changes	<u>0</u>	<u>6</u>	<u>(3)</u>	<u>14</u>	<u>3</u>	<u>20</u>
Count as of June 30, 2015	1,677	572	1,643	264	102	4,258

NC = Not Calculated. Any participants who died during the Plan year are included in the non-vested terminations.

¹ For beneficiaries, this includes 31 new beneficiaries added due to the participant's death as well as 15 beneficiary deaths.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

Actuarial Assumptions

Interest Rate

7.75% per annum, compounded annually (adopted as of June 30, 1996). This investment return is net of investment expenses.

Salary Increase

Representative values of the assumed annual salary increases are shown below. The rates include the following components: 2.75% for inflation, 0.50% for national productivity and 0.25% for merit or seniority increases (adopted June 30, 2011).

Age	Annual Rate of Salary Increase
20	5.00 %
25	4.50
30	4.00
35	3.50
40	3.50
45	3.25
50	3.00
55	2.75
60	2.50
64	2.50

Mortality

Pre-Retirement: 125% of RP-2000 Combined Healthy Mortality for males and females with generation mortality projection using Scale AA*

Healthy Annuitants: 125% of RP-2000 Combined Healthy Mortality for males and females with generation mortality projection using Scale AA

Disableds: 70% of PBGC Disabled Mortality Table 5A for males and 90% of PBGC Disabled Mortality Table 6A for females

** For General, no deaths are assumed to be occupational. For Public Safety, occupational deaths vary based on gender and age at the time of death. Representative rates are as follows:*

Age	<u>% Occupational</u>	
	Males	Females
20	22.19 %	28.57 %
30	33.30	50.00
40	31.94	46.93
50	19.43	24.12
60	2.45	2.51

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

Withdrawal

Service	General	Public Safety
0	20.00 %	11.00%
1	18.00	10.00
2	16.00	9.00
3	14.00	8.00
4	12.00	7.50
5	11.00	7.00
10	6.00	4.50
15	3.50	2.50
20	1.50	1.25
25	0.25	0.00

Disability

Age	General		Public Safety	
	Non-Occupational	Occupational	Non-Occupational	Occupational
20	0.04%	0.00%	0.02%	0.02%
25	0.04	0.00	0.02	0.03
30	0.05	0.00	0.03	0.03
35	0.08	0.00	0.04	0.05
40	0.12	0.01	0.07	0.07
45	0.18	0.01	0.12	0.13
50	0.27	0.01	0.21	0.22
51	0.28	0.01	0.22	0.24
55	0.37	0.02	0.30	0.32
58	0.48	0.02	0.36	0.38
60	0.60	0.03	0.00	0.45
61	0.67	0.03	0.00	0.52
62	0.75	0.04	0.00	0.56
63	0.82	0.04	0.00	0.60
64	0.90	0.04	0.00	0.63

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

Retirement

General:

Age	ESRS Early Retirement	ERS Early Retirement	ESRS Normal Retirement	ERS Normal Retirement
45	0.00%	2.00%	0.00%	7.00%
50	0.00	2.00	50.00	10.00
51	0.00	2.00	16.00	11.00
52	0.00	2.00	16.00	11.00
53	0.00	2.00	16.00	12.00
54	0.00	2.00	16.00	13.00
55	5.00	2.00	20.00	15.00
56	5.00	3.00	20.00	15.00
57	5.00	4.00	20.00	15.00
58	5.00	5.00	16.00	15.00
59	10.00	6.00	16.00	15.00
60	10.00		16.00	25.00
61	10.00		16.00	15.00
62	10.00		28.00	25.00
63	10.00		28.00	15.00
64	10.00		28.00	15.00
65			28.00	75.00
66			20.00	25.00
67			20.00	25.00
68			20.00	25.00
69			20.00	25.00
70			100.00	100.00

Former vested participants are assumed to elect to commence benefits when first eligible to receive an unreduced benefit.

NOTE: Rates apply to each member based on eligibility requirements as defined in the Summary of Benefit and Contribution Provisions.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

Public Safety:

Age	ESRS Early and Normal Retirement	ERS Early Retirement	ERS Normal Retirement
45	20.00%	0.48 %	10.00 %
50	20.00	0.12	10.00
51	20.00	0.10	20.00
52	20.00	0.09	20.00
53	20.00	0.07	20.00
54	20.00	0.04	20.00
55	20.00	0.03	20.00
56	20.00	0.02	30.00
57	20.00	0.01	30.00
58	20.00	0.01	30.00
59	20.00	0.01	30.00
60	20.00		20.00
61	20.00		20.00
62	20.00		20.00
63	20.00		20.00
64	20.00		20.00
65	100.00		100.00

Former vested participants are assumed to elect to commence benefits when first eligible to receive an unreduced benefit.

NOTE: Rates apply to each member based on eligibility requirements as defined in the Summary of Benefit and Contribution Provisions.

Future Administrative Expenses

Administrative expenses are assumed to be 0.5% of payroll distributed uniformly throughout the year.

Loading or Contingency Reserves

None

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

Marital Status

70% of non-retired members are assumed to be married, with males three-years older than females.

Annual Rate of Payroll Growth

For purposes of amortizing the Unfunded Actuarial Liability as a level percent of payroll, a 3.00% annual rate of pay growth is assumed.

Post-retirement Cost of Living Supplement

For those participants that are eligible, 1.833% per annum (2/3 of the assumed 2.75% inflation rate).

Elected Form of Payment

Married ERS participants currently not in payment status are assumed to receive their benefit as a 50% Joint & Survivor. Non-married ERS participants and ESRS participants not in payments status are assumed to elect a Single Life Annuity.

Trend for Retiree Supplement

The following annual trend rates were applied to the Medical Supplement to project costs into the future.

Beginning July 1,	Trend
2015	9.250%
2016	9.016
2017	8.781
2018	8.547
2019	8.313
2020	8.078
2021	7.844
2022	7.609
2023	7.375
2024	7.141
2025	6.906
2026	6.672
2027	6.438
2028	6.203
2029	5.969
2030	5.734
2031+	5.500

CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

Changes in Assumptions

The Retiree Supplement trend was updated to more accurately reflect the current marketplace.

Rationale for Actuarial Assumptions

All actuarial assumptions other than the Retiree Supplement Trend, are based upon an actuarial experience study performed by the prior actuary covering the period July 1, 2006 through June 30, 2011. The Retiree Supplement Trend was selected to be the same as the health care trend used for the City of Roanoke Post-Retirement Health Plan, which was updated for the 2015 actuarial valuation to reflect the current health care market place.

Actuarial Methods

Actuarial Cost Method: Entry-Age Normal Cost Method. Under this method, the employer contribution has three components: the normal cost, the payment toward the unfunded actuarial liability (UAL), and the allowance for expenses. Each component is expressed as a percentage of payroll.

The employer normal cost rate is the percentage of pay which, along with member contributions, would be sufficient to fund the Plan benefits if it were paid from each member's entry into the System until termination or retirement. The Actuarial Liability is determined as the portion of the value of the projected benefit at retirement including future pay increases that will not be paid by future employer normal costs or member contributions.

The Unfunded Actuarial Liability (UAL) as of June 30, 2013 is being amortized over a closed 30-year period (28 years remaining as of June 30, 2015). However, for the increase in the unfunded liability due to the codified COLA on June 30, 2013, the amortization amount is phased in over a five-year period. The City will pay 40% of such amount in fiscal year ending June 30, 2015, 60% of such amount in fiscal year ending June 30, 2016, 80% of such amount in fiscal year ending June 30, 2017, 90% of such amount in fiscal year ending June 30, 2018 and the full amount necessary to pay off the remaining balance over 26 years thereafter. All rates are developed using a level-percent of pay amortization method with a 3% per annum increase in payments.

Asset Valuation Method: The Actuarial Value of Assets (AVA) is determined using an adjusted market value. Under this method, a preliminary AVA is determined as the market value of assets on the valuation date less a decreasing fraction (4/5, 3/5, 2/5, 1/5) of the gain/(loss) in each of the preceding four years. The gain/(loss) for a given year is the difference between the actual investment return (on a market-to-market basis) and the assumed investment return based on the market value of assets at the beginning of the year and actual cash flow.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

Changes in Actuarial Methods

None

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX C
SUMMARY OF PLAN PROVISIONS**

Effective Date of Plan

- July 1, 1946 for Employees' Retirement Plan (ERS)
- July 1, 1984 for Employees' Supplemental Retirement Plan (ESRS)
- July 1, 2014 for Employees' Supplemental Retirement System (ESRS) Hybrid Plan

Date of Last Restatement

June 30, 2014

A summary of the benefit and contribution provisions of the two systems are as follows. The City made significant plan changes for employees hired after June 30, 2014. These changes have been reflected below.

Eligible Participants

The City of Roanoke Pension Plan is a cost sharing, multiple employer, defined benefit plan comprised of two retirement Plans:

- Employees' Supplemental Retirement Plan (ESRS)
- Employees' Retirement Plan (ERS)

Employees hired or rehired between July 1, 1984 and June 30, 2014 are members of the ESRS. Employees hired or rehired on or after July 1, 2014 are subject to revised benefit provisions under ESRS. Such employees may elect to participate in the newly-established Hybrid plan, which provides both defined benefit and defined contribution pension benefits. Some Hybrid plan provisions differ from the traditional and revised ESRS plan. These variances, where applicable, are indicated in the sections below.

Upon entering the Plan, members are classified according to their occupational group either as General Employees, Firefighters or Police Officers.

Employees' Supplemental Retirement Plan (ESRS)

For employees hired before July 1, 2014:

Normal Retirement Allowance

- **Eligibility** Age 65 with 5 years of creditable service, or (i) age 50 with age plus service equal to 80 for general employees, or (ii) age 45 with age plus service equal to 70 for firefighters and police officers.
- **Amount** 2.1% of average final compensation for each year of creditable service up to 30 years. "Average Final Compensation" means the average annual earnable compensation (excluding overtime) during the 36 consecutive

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX C
SUMMARY OF PLAN PROVISIONS**

months of creditable service yielding the highest such average prior to retirement.

A member of ERS on June 30, 1984 who transferred to ESRS and retires with 42 or more years of service can elect to have the benefit paid under ERS.

Early Service Retirement Allowance

- **Eligibility** Age 55 with 5 years of creditable service.
- **Amount** Accrued service retirement allowance deferred to normal retirement age. A member may elect to receive an immediate benefit equal to the accrued service retirement allowance reduced by $\frac{1}{2}$ of 1% for each month commencement date precedes the date a member first actually attains the earlier of (1) age 65, or (2) age 55 and 30 years of creditable service for each of the first 60 months, and $\frac{1}{4}$ of 1% for each month in excess of 60.

Vested Allowance

- **Eligibility** 5 years of creditable service.
- **Amount** Accrued service retirement allowance deferred to age 65 (age 55 if the participant had at least 30 years of service at the time of termination). A member may elect to receive a benefit commencing on or after early service retirement age, reduced in the same manner as for an early service retirement allowance.

Non-Occupational Disability Retirement Allowance

- **Eligibility** 5 years of creditable service and total and permanent disability not due to an accident in the performance of duty.
- **Amount** Accrued service retirement allowance.

Occupational Disability Retirement Allowance

- **Eligibility** Total and permanent disability as a result of an accident in the performance of duty, regardless of the length of service.
- **Amount** $66 \frac{2}{3}$ % of average final compensation.

CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX C
SUMMARY OF PLAN PROVISIONS

Non-Occupational Death Benefit to Spouse

- **Eligibility** Death in active service after the completion of 10 years of creditable service. Member must have been married to spouse at least one year prior to death.
- **Amount** 50% of the accrued service retirement allowance. If spouse is more than 5- years younger than the member, the benefit is reduced by 1/6 of 1% for each month in excess of 5 years.

Occupational Death Benefit to Spouse

- **Eligibility** Death in active service resulting from an accident in the performance of duty.
- **Amount** 50% of average final compensation is payable to spouse until death. If there is no spouse or if spouse dies or remarries, benefit is payable to children under age 18.

Normal and Optional Forms of Benefits

- **Lump Sum Payments** Monthly benefit allowances of \$50 or less are to be paid in an actuarially determined lump sum distribution. Member consent is required for lump sums in excess of \$5,000.
- **Normal Form** Life Annuity

Optional Forms Available to Members Covered Under ESRS

A member can elect to convert his retirement allowance into an optional spousal allowance of equivalent actuarial value. The spouse must be married to the member at retirement and one year prior to death of the member and must sign the election form designated by the Board. The options are as follows:

Option 1 – Joint and 100% survivorship annuity

Option 2 – Joint and 75% survivorship annuity

Option 3 – Joint and 50% survivorship annuity

If an optional allowance is selected and the spouse dies before the member, the member's pension will be increased by the amount by which the allowance was reduced due to the election of the spousal allowance.

CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX C
SUMMARY OF PLAN PROVISIONS

For employees hired on or after July 1, 2014:

Normal Retirement Allowance

- **Eligibility** Age 65 with 5 years of creditable service, or (i) age 55 with age plus service equal to 85 for general employees, or (ii) age 50 with age plus service equal to 75 for firefighters and police officers

- **Amount** Non-Hybrid Employees: 2.0% of average final compensation for each year of creditable service up to a maximum of 63%.

Hybrid Employees: 1.0% of average final compensation for each year of creditable service up to a maximum of 63%.

“Average Final Compensation” means the average annual earnable compensation (excluding overtime) during the 60 consecutive months of creditable service yielding the highest such average prior to retirement.

Early Service Retirement Allowance

- **Eligibility** Age 55 with 15 years of service for general employees, or age 50 with 15 years of service for firefighters and police officers.

- **Amount** Accrued service retirement allowance deferred to normal retirement age. A member may elect to receive an immediate benefit equal to the accrued service retirement allowance reduced by $\frac{1}{2}$ of 1% for each month commencement date precedes the normal retirement date for each of the first 60 months, and $\frac{1}{4}$ of 1% for each month in excess of 60.

Vested Allowance

- **Eligibility** 5 years of creditable service.

- **Amount** Accrued service retirement allowance deferred to normal retirement age. A member may elect to receive a benefit commencing on or after early service retirement age, reduced in the same manner as for an early service retirement allowance.

CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX C
SUMMARY OF PLAN PROVISIONS

Non-Occupational Disability Retirement Allowance

- **Eligibility** 5 years of creditable service and total and permanent disability not due to an accident in the performance of duty.
- **Amount** Non-Hybrid Employees: Accrued service retirement allowance.

Hybrid Employees: Accrued service retirement allowance using 2.0% multiplier instead of 1.0%.

Occupational Disability Retirement Allowance

- **Eligibility** Total and permanent disability as a result of an accident in the performance of duty, regardless of the length of service.
- **Amount** 66 2/3 % of average final compensation.

Non-Occupational Death Benefit to Spouse

- **Eligibility** Death in active service after the completion of 10 years of creditable service. Member must have been married to spouse at least one year prior to death.
- **Amount** Non-Hybrid Employees: 50% of the accrued service retirement allowance. If spouse is more than 5 years younger than the member, the benefit is reduced by 1/6 of 1% for each month in excess of 5 years.

Hybrid Employees: 50% of the accrued service retirement allowance using 2.0% multiplier instead of 1.0%. If spouse is more than 5-years younger than the member, the benefit is reduced by 1/6 of 1% for each month in excess of 5 years.

Occupational Death Benefit to Spouse

- **Eligibility** Death in active service resulting from an accident in the performance of duty.
- **Amount** 50% of average final compensation is payable to spouse until death or remarriage. If there is no spouse or if spouse dies or remarries, benefit is payable to children under age 18.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX C
SUMMARY OF PLAN PROVISIONS**

Normal and Optional Forms of Benefits

- **Lump Sum Payments** Monthly benefit allowances of \$50 or less are to be paid in an actuarially determined lump sum distribution. Member consent is required for lump sums in excess of \$5,000.
- **Normal Form** Life Annuity
- **Optional Forms Available to Members Covered Under ESRS**

A member can elect to convert his retirement allowance into an optional spousal allowance of equivalent actuarial value. The spouse must be married to the member at retirement and one year prior to death of the member and must sign the election form designated by the Board. The options are as follows:

Option 1 – Joint and 100% survivorship annuity

Option 2 – Joint and 75% survivorship annuity

Option 3 – Joint and 50% survivorship annuity

If an optional allowance is selected and the spouse dies before the member, the member's pension will be increased by the amount by which the allowance was reduced due to the election of the spousal allowance.

Employees' Retirement Plan (ERS)

Normal Retirement Allowance

- **Eligibility** Age 60 or 30 years of creditable service.
- **Amount** 1/70 (1.429%) of average final compensation for each year of creditable service up to 30 years. "Average Final Compensation" means the highest annual earnable compensation, excluding overtime, during any 12 consecutive months of creditable service.

Early Service Retirement Allowance

- **Eligibility** 20 years of creditable service.
- **Amount** Accrued service retirement allowance deferred to normal retirement age. A member may elect to receive an immediate benefit equal to the accrued service retirement allowance reduced by 5/9 of 1% for each month

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX C
SUMMARY OF PLAN PROVISIONS**

commencement date precedes the normal retirement date for each of the first 60 months, and 5/18 of 1% for each month in excess of 60.

Vested Allowance

- **Eligibility** 10 years of creditable service.
- **Amount:** Accrued service retirement allowance deferred to normal retirement age. A member may elect to receive a benefit commencing prior to minimum service retirement age, but after the date the member would have otherwise completed 20 years of creditable service, reduced in the same manner as for an early service retirement allowance.

Non-Occupational Disability Retirement Allowance

- **Eligibility** 5 years of creditable service and total and permanent disability not due to an accident in the performance of duty.
- **Amount** Accrued service retirement allowance. Minimum allowance is equal to 25% of average final compensation, but not greater than the allowance the member would have received at the minimum service retirement age.

Occupational Disability Retirement Allowance

- **Eligibility** Total and permanent disability as a result of an accident in the performance of duty, regardless of the length of service.
- **Amount** 66 2/3 % of average final compensation.

Non-Occupational Death Benefits

- **Eligibility** Death in active service not due to an accident in the performance of duty.
- **Amount** If member had completed one or more years of creditable service, a lump sum benefit equal to 50% of earnable compensation during year immediately preceding member's death is payable to person nominated by member or to the member's estate.

Occupational Death Benefit to Spouse

- **Eligibility** Death in active service resulting from an accident in the performance of duty.
- **Amount** 50% of average final compensation is payable to spouse until death. If there is no spouse or if spouse dies or remarries, benefit is payable to

CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX C
SUMMARY OF PLAN PROVISIONS

children under age 18, or dependent parents if there are no children under age 18. If there is no spouse, children under age 18, or dependent parents, member's death will be treated as a non-occupational death.

Spouse's Death Benefit

- **Eligibility** Death which occurs (i) in active service after age 60 or 20 years of creditable service, or (ii) in the case of a member who retired on or after July 1, 1973, or (iii) in the case of a former member who is in receipt of a vested allowance. Member must have been married to spouse at retirement and at least one year prior to death. Retired or former members who have elected an optional form of retirement allowance are not eligible.
- **Amount** 50% of amount to which member was entitled or would have been entitled at time of death. If spouse is more than 5 years younger than the member, the benefit is reduced by 1/6 of 1% for each such month in excess of 5 years.

Normal and Optional Forms of Benefits

- **Lump Sum Payments** Monthly benefit allowances of \$50 or less are to be paid in an actuarially determined lump sum distribution. Member consent is required for lump sums in excess of \$5,000.
- **Normal Form** Life Annuity

Optional Forms Available to Members Covered Under ERS

A member can elect to convert his retirement allowance into an optional spousal allowance of equivalent actuarial value. The optional forms available are as follows:

Option 1 – Joint and 100% survivorship annuity

Option 2 – Joint and 50% survivorship annuity

Option 3 – Benefit of equivalent actuarial value subject to approval by the Board

If an optional allowance is selected and the spouse dies before the member, the member's pension will be increased by the amount by which the allowance was reduced due to the election of the spousal allowance.

CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX C
SUMMARY OF PLAN PROVISIONS

Miscellaneous

- **Offset on Account of Worker's Compensation**

All benefits paid under the provisions of the Virginia Worker's Compensation Act or any similar law to any member or beneficiary, or to the dependents of any member or beneficiary on account of any disability or death reduce any benefits provided from City contributions to the Plan.

- **Firefighters and Police Officers Coverage**

Any firefighter or police officer in active service as of July 1, 1973, who would otherwise be entitled upon retirement to a pension, may elect in writing to the Board to become a member of this system at any time prior to retirement. All benefits payable on or after July 1, 1973 to persons not members of this Plan are to be paid from the funds of this Plan.

- **Minimum Retirement Allowance for All Members**

All members are entitled to receive a pension, which is not less than the amount they would have received on June 30, 1978 if they retired on that date.

- **Benefit Calculation Rule Applicable to Council Members and Council-Appointed Officers**

For Council members and Council-appointed officers who were members of the Plan between June 30, 1992 and September 14, 1992, retirement allowances under the regular plan formula, but not minimum retirement allowances, are calculated on a basis which treats total actual membership service through September 14, 1992 as being multiplied by a factor of two.

- **Retiree Medical Supplement**

Any covered City employee hired before July 1, 2013 who retires with at least 20 years of service will receive a monthly supplement equal to the greater of (a) \$159; or, (b) an amount equal to seventy-five (75) percent of the amount the City contributes monthly toward the cost of a single, active employee's health insurance. The supplement amount commences at retirement and is payable to the earlier of death or attainment of age 65. This supplement is not adjusted for cost of living increases (COLAs). Any participant that opted out of this benefit in favor of the 401(h) shall not be eligible for this benefit.

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX C
SUMMARY OF PLAN PROVISIONS**

- **Post-Retirement Cost of Living Supplement**

A post-retirement cost of living supplement shall be paid to the recipient of a retirement allowance which began before June 30, 2014, or to the recipient of a retirement allowance which begins after June 30, 2014, but only if the member completed at least fifteen (15) years of creditable service prior to such retirement and has been receiving a retirement allowance for at least one (1) year. The amount of the cost of living supplement shall be determined annually as a percentage of the allowance in the amount of two-thirds (2/3) of the increase in the United States Average Consumer Price Index for all items, all urban consumers (CPI-U). Notwithstanding, the percentage increase for any one (1) year shall not exceed the lesser of four (4) percent or the pay raise awarded generally to active employees. City Council may revise the formula and/or eliminate the cost of living supplement at any time applicable to future supplements.

- **Portability**

The City has entered reciprocal portability agreements with the Virginia Retirement System and the City of Newport News to allow the transfer of assets between systems. The assets transferred are to be used to provide creditable service for a member of more than one system who authorizes the transfer in order to consolidate creditable service under one retirement system.

- **Purchase of Service**

Members of ESRS who have creditable service with another retirement system with which the City has a portability agreement or members of ESRS who have service with the City in a grant funded position prior to becoming a member of ESRS, may elect to purchase creditable service under ESRS by making pre-tax contributions through payroll deduction to facilitate the purchase.

Contributions

- **By Members** Effective July 1, 2015, all non-Hybrid employees are required to contribute 5.0% of their earnable compensation.
- **By City** Annual contributions actuarially computed to be required to cover the cost of benefits and administrative expenses.

Changes in Plan Provisions

Effective July 1, 2015, all non-Hybrid employees are required to contribute 5.0% of their earnable compensation.

Employees hired or rehired on or after July 1, 2014 are subject to revised benefit provisions under ESRS. Such employees may elect to participate in the newly-established Hybrid plan, which provides both defined benefit and defined contribution pension benefits. Some Hybrid

**CITY OF ROANOKE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX C
SUMMARY OF PLAN PROVISIONS**

plan provisions differ from the traditional and revised ESRS plan. These variances, where applicable, are indicated in the sections above.