



**Cavanaugh Macdonald**  
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## **Wichita Employees' Retirement System**

**Actuarial Valuation as of December 31, 2012**





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# Cavanaugh Macdonald

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April 1, 2013

The Board of Trustees  
Wichita Employees' Retirement System  
City Hall, 12<sup>th</sup> Floor  
455 N. Main Street  
Wichita, KS 67202

Dear Members of the Board:

In accordance with your request, we have completed an actuarial valuation of the Wichita Employees' Retirement System as of December 31, 2012. The major findings of the valuation are contained in this report, including the contribution rate for fiscal year 2014. The plan provisions, actuarial assumptions, and actuarial methods are the same as the prior valuation.

This is the first valuation prepared by Cavanaugh Macdonald Consulting, LLC (CMC). As part of our transition work, we replicated the December 31, 2011 actuarial valuation. While results were well within acceptable limits, the CMC calculated normal cost rate was slightly lower than the prior actuary's (13.0% vs. 13.2%). The actuarial liability, calculated by CMC, was slightly lower (\$554.9 million vs. \$555.2 million) than that shown in the December 31, 2011 actuarial valuation report. These differences are neither unusual nor significant. It is very common for differences in valuation results to occur due to the use of different pension valuation software.

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

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

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Actuarial computations presented in this report are for purposes of determining the actuarial contribution rates for funding the System. Actuarial computations presented in this report under GASB Statements No. 25, 27, and 50 are for purposes of fulfilling financial accounting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals, and of GASB Statements No. 25, 27, and 50. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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

This is to certify that the independent consulting actuaries are members of the American Academy of Actuaries and have experience in performing valuations for public retirement plans, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System. The Board of Trustees has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C.

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

Sincerely,

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

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

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

Brent A. Banister, PhD, FSA, EA, FCA, MAAA  
Chief Pension Actuary



## SECTION I: EXECUTIVE SUMMARY

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This report presents the results of the December 31, 2012 actuarial valuation of the Wichita Employees' Retirement System. The primary purposes of performing a valuation are to:

- estimate the liabilities for the benefits provided by the System,
- determine the employer contribution rates required to fund the System on an actuarial basis,
- disclose certain asset and liability measures as of the valuation date,
- monitor any deviation between actual plan experience and experience projected by the actuarial assumptions, so that recommendations for assumption changes can be made when appropriate,
- analyze and report on any significant trends in contributions, assets and liabilities over the past several years.

There have been no changes in the benefit provisions, actuarial assumptions, or actuarial methods from the last valuation.

This is the first valuation prepared by Cavanaugh Macdonald Consulting, LLC (CMC). As part of our transition work, we replicated the December 31, 2011 actuarial valuation. While results were well within acceptable limits, the CMC calculated normal cost rate was slightly lower than the prior actuary's (13.0% vs. 13.2%). The actuarial liability, calculated by CMC, was slightly lower (\$554.9 million vs. \$555.2 million) than that shown in the December 31, 2011 actuarial valuation report. These differences are neither unusual nor significant. It is very common for differences in valuation results to occur due to the use of different pension valuation software.

The System had an unfunded actuarial liability of \$41.9 million in the December 31, 2011 valuation, which has increased in the December 31, 2012 valuation to an unfunded actuarial liability of \$51.5 million. A detailed analysis of the change in the unfunded actuarial liability from December 31, 2011 to December 31, 2012 is shown in page 3. The actuarial valuation results provide a "snapshot" view of the System's financial condition on December 31, 2012. The valuation results reflect net unfavorable experience for the past plan year as demonstrated by an unfunded actuarial liability that was higher than expected based on the actuarial assumptions used in the December 31, 2011 actuarial valuation. Unfavorable experience on the actuarial value of assets resulted in an actuarial loss of \$8.5 million and experience on liabilities resulted in a loss of \$0.1 million. The total experience was an actuarial loss of \$8.6 million.

The System uses an asset smoothing method in the valuation process. As a result, the System's funded status and the actuarial contribution rate are based on the actuarial (smoothed) value of assets – not the market value. Due to deferred investment losses the return on the actuarial value of assets in 2012 was 6.1%, despite a return on a market value basis of 13.3%. Because the investment return on the actuarial value of assets is less than the actuarially assumed rate of return of 7.75%, it is considered to be an actuarial loss on investments. Under the asset smoothing method used in the valuation process, a portion of this investment loss is deferred to future years. Due to the high return on the market value of assets, the deferred (unrecognized) investment loss decreased from \$54 million in the December 31, 2011 valuation to \$26 million in the December 31, 2012 valuation. Actual returns over the next few years will determine when and how the \$26 million of deferred investment loss is recognized. For example, a return of 13.5% on the market value of assets in 2013 would be necessary to attain a return of 7.75% on the actuarial value of assets and eliminate the deferred losses.

In the following pages the change in the assets, liabilities, and contributions of the System over the last year are discussed in more detail.



## SECTION I: EXECUTIVE SUMMARY

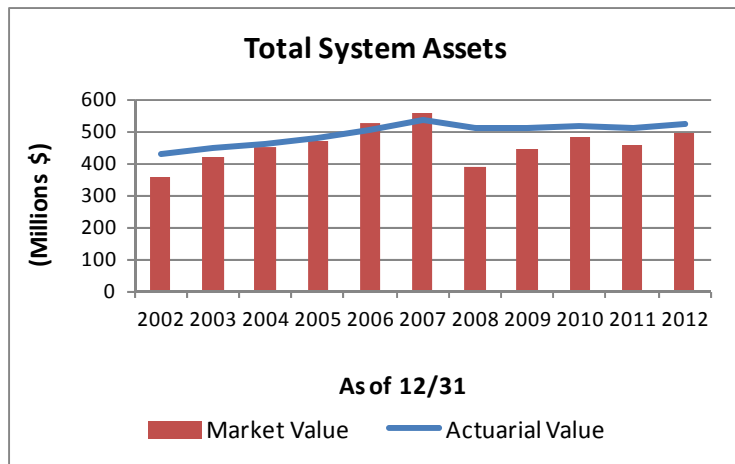
### ASSETS

As of December 31, 2012, the System had total assets of \$494.7 million when measured on a market value basis. This was an increase of \$35.9 million from the December 31, 2011 figure of \$458.8 million. The market value of assets is not used directly in the calculation of the City's contribution rate. An asset valuation method, which smoothes the effect of market fluctuations, is used to determine the value of assets used in the valuation, called the "actuarial value of assets". The actuarial value of assets is equal to the expected value (calculated using the actuarial assumed rate of 7.75%) plus 25% of the difference between the market and expected value. See Table 3 on page 12 for a detailed development of the actuarial value of assets. The rate of return on the actuarial value of assets was 6.1%. Due to a higher than expected return on the market value of assets in 2012, the actuarial value of assets is only 5% higher than the actual market value, as compared to 12% in last year's valuation.

The components of the change in the market and actuarial value of assets for the System (in millions) are set forth below:

	Market Value (\$M)	Actuarial Value (\$M)
Assets, December 31, 2011	\$458.8	\$513.3
- City and Member Contributions	10.9	10.9
- Benefit Payments, Refunds and Transfers	(34.2)	(34.2)
- Investment Income (net of expenses)	59.2	30.3
Assets, December 31, 2012	\$494.7	\$520.3

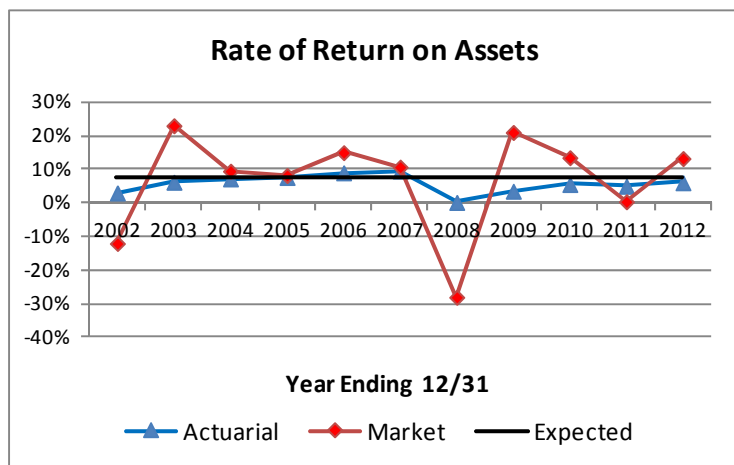
The unrecognized investment losses represent about 5% of the market value of assets. Unless offset by future investment gains or other favorable experience, the recognition of the \$26 million loss is expected to have an impact on the future funded ratio and actuarial contribution requirement. If the deferred losses were recognized immediately in the actuarial value of assets, the funded percentage would decrease from 91% to 87% and the actuarially determined contribution rate for the City would increase from 13.2% to 15.7%.



*The actuarial value of assets has both been greater than and less than the market value of assets during this period, which is expected when using a smoothing method.*



**SECTION I: EXECUTIVE SUMMARY**



*The rate of return on the actuarial value of assets has been less volatile than the market value return, which is the main reason for using an asset smoothing method.*

**LIABILITIES**

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

The Actuarial Liability and Unfunded Actuarial Liability for the System as of December 31, 2012 are:

Actuarial Liability	\$571,805,455
Actuarial Value of Assets	<u>520,320,051</u>
Unfunded Actuarial Liability/(Surplus)	\$ 51,485,404

Between December 31, 2011 and December 31, 2012, the change in the unfunded actuarial liability for the System was as follows (in millions):

Change in Unfunded Actuarial Liability		(\$M)
UAL, December 31, 2011		\$41.9
+ Normal cost for year		9.0
+ Assumed investment return for year		3.6
- Actual contributions (member + city)		10.9
- Assumed investment return on contributions		0.4
= Expected Unfunded Actuarial Liability, December 31, 2012		43.2
+ Change in Actuary		(0.3)
+ Change from assumption changes		0.0
= Expected UAL after changes		42.9
Actual UAL, December 31, 2012		51.5
Experience gain/(loss)		\$(8.6)
(Expected UAL - Actual UAL)		

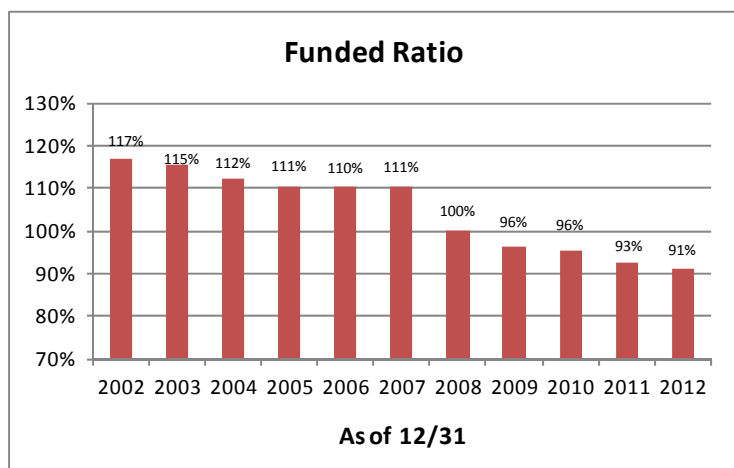


## SECTION I: EXECUTIVE SUMMARY

The experience loss for the 2012 plan year of \$8.6 million reflects the combined impact of an actuarial loss of about \$8.5 million on System assets (actuarial value), and an actuarial loss of about \$0.1 million on System liabilities.

Analysis of the unfunded actuarial liability strictly as a dollar amount can be misleading. Another way to evaluate the unfunded actuarial liability and the progress made in its funding is to track the funded status, the ratio of the actuarial value of assets to the actuarial liability. This information for recent years is shown below (in millions). Historical information is shown in the graph following the chart.

	12/31/2008	12/31/2009	12/31/2010	12/31/2011	12/31/2012
Actuarial Liability (\$M)	\$512.4	\$529.3	\$540.4	\$555.2	\$571.8
Actuarial Value of Assets (\$M)	\$512.9	\$509.5	\$516.3	\$513.3	\$520.3
Funded Ratio (Actuarial Value)	100.1%	96.3%	95.5%	92.5%	91.0%
Funded Ratio (Market Value)	75.3%	84.0%	88.9%	82.6%	86.5%



*The funded ratio has declined over the last decade due to various reasons including benefit improvements, assumption changes and most significantly, investment experience. There are still deferred investment losses that will be recognized in future years, absent investment returns above the 7.75% assumption. Without these gains, the funded ratio will continue to decline toward the market value percentage shown above.*

As mentioned earlier in this report, due to the asset smoothing method there is currently about a \$26 million difference between the actuarial value and the market value of assets. To the extent there is not favorable investment experience to offset the deferred losses, the \$26 million deferred loss will be recognized in future years and the System's funded status will decline. The System's funded status will continue to be heavily dependent on investment experience.

### CONTRIBUTION RATES

Generally, contributions to the System consist of:

- A "normal cost" for the portion of projected liabilities allocated to service of members during the year following the valuation date, by the actuarial cost method, and
- An "unfunded actuarial liability or (surplus) contribution" for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets.



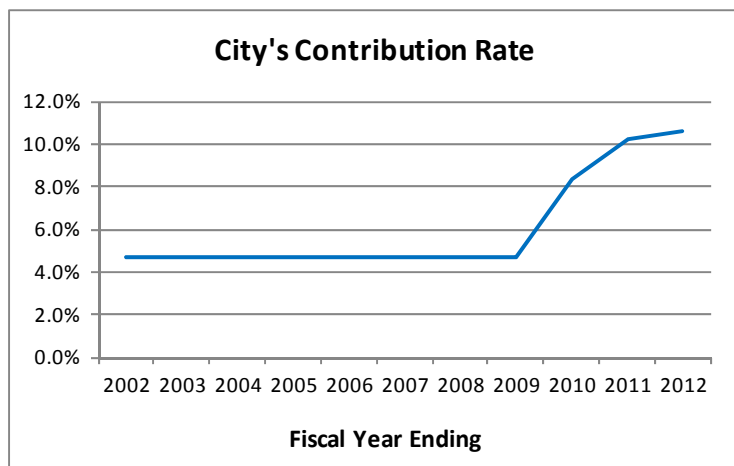


## SECTION I: EXECUTIVE SUMMARY

Contribution rates are computed with the objective of developing costs that are level as a percentage of covered payroll. The contribution rate for fiscal year 2014 is based on the December 31, 2012 actuarial valuation results.

As of December 31, 2012, the actuarial liability exceeds the actuarial value of assets so an unfunded actuarial liability (UAL) exists. When amortized over a rolling 20-year period, the resulting contribution is 5.0% of pay. The City's contribution rate is the sum of employer normal cost rate and the UAL amortization contribution. This valuation indicates the City's contribution should be 13.2% of pay (8.2% employer normal cost rate plus 5.0% UAL contribution).

A summary of the City's historical contribution rate for the System is shown below:



*The City's contribution rate will be 12.6% and 13.2% for the Fiscal Year Ending 12/31/2013 and 12/31/2014, respectively.*

### COMMENTS

The System does not use the actual market value of assets in developing the actuarial contribution rates, but utilizes an asset valuation method to smooth out the peaks and valleys in investment returns from year to year. Under the asset valuation method, the actuarial value of assets is determined as 75% of the expected value (using the actuarial assumed rate of return) and 25% of the actual market value. The net return on the market value of assets for 2012 was 13.3% which helped to offset some of the deferred investment losses that would otherwise have been recognized in the current valuation. However, even with the strong return on market value of assets in 2012, the return on the actuarial value of assets was 6.1%. As a result, the System experienced an actuarial loss on assets of \$8.5 million. This loss and the actuarial loss on liabilities of \$0.1 million combined for a total actuarial loss of \$8.6 million.

The deferred investment loss (actuarial value less market value of assets) has decreased to \$26 million from \$54 million in last year's valuation. Absent investment gains in future years, the deferred investment loss of \$26 million will eventually be reflected in the actuarial value of assets in future years. While the use of an asset smoothing method is a common procedure for public retirement systems, it is important to identify the potential impact of the deferred investment experience. This is accomplished by comparing the key valuation results from the December 31, 2012 actuarial valuation using both the actuarial and market value of assets (see table on next page).



	Using Actuarial Value of Assets	Using Market Value of Assets
Actuarial Liability	\$571,805,455	\$571,805,455
Asset Value	\$520,320,051	\$494,708,674
Unfunded Actuarial Liability	\$ 51,485,404	\$ 77,096,781
Funded Ratio	91.0%	86.5%
Normal Cost Rate	12.9%	12.9%
UAL Contribution Rate	<u>5.0%</u>	<u>7.5%</u>
Total Contribution Rate	17.9%	20.4%
Employee Contribution Rate	<u>(4.7%)</u>	<u>(4.7%)</u>
Employer Contribution Rate	13.2%	15.7%

The experience loss on the actuarial value of assets resulted in the City’s contribution rate rising to 13.2% which was expected based on last year’s valuation results. The actuarial contribution rate to be paid by the City has been, and will continue to be, heavily impacted by investment returns from year to year. Despite the use of an asset smoothing method, actual returns that are significantly different from the 7.75% assumption tend to create volatility in the City’s contribution rate.



## SUMMARY OF PRINCIPAL RESULTS

1. PARTICIPANT DATA	12/31/2012 <u>Valuation</u>	12/31/2011 <u>Valuation</u>	% <u>Change</u>
Number of:			
Active Members			
Plan 1	2	2	0.0%
Plan 2	928	901	3.0%
Plan 3 (excluding Plan 3b)	527	611	(13.7)%
Total	<u>1,457</u>	<u>1,514</u>	(3.8)%
DROP Members			
Plan 1	24	29	(17.2)%
Plan 2	22	15	46.7%
Total	<u>46</u>	<u>44</u>	4.5%
Retired Members and Beneficiaries	1,302	1,310	(0.6)%
Inactive Members	142	146	(2.7)%
Total Members	2,947	3,014	(2.2)%
Annual Valuation Payroll of Active Members (Including DROP)			
Plan 1	\$ 1,535,362	\$ 1,784,308	(14.0)%
Plan 2	50,114,697	46,221,547	8.4%
Plan 3	21,347,008	23,270,960	(8.3)%
Total	<u>\$ 72,997,067</u>	<u>\$ 71,276,815</u>	2.4%
Annual Retirement Payments for Retired Members and Beneficiaries	\$ 33,472,332	\$ 32,885,454	1.8%
<b>2. ASSETS AND LIABILITIES</b>			
Total Actuarial Liability	\$ 571,805,455	\$ 555,173,723	3.0%
Market Value of Assets	494,708,674	458,827,503	7.8%
Actuarial Value of Assets	520,320,051	513,298,382	1.4%
Unfunded Actuarial Liability (UAL)	\$ 51,485,404	\$ 41,875,341	22.9%
Funded Ratio	91.0%	92.5%	(1.6)%
<b>3. EMPLOYER CONTRIBUTION RATES AS A PERCENT OF PAYROLL</b>			
Normal Cost	12.9%	13.2%	(2.3)%
Member Financed	(4.7)%	(4.7)%	0.0%
Employer Normal Cost	<u>8.2%</u>	<u>8.5%</u>	(3.5)%
Amortization of Unfunded Actuarial Liability or (Surplus)	<u>5.0%</u>	<u>4.1%</u>	22.0%
Employer Contribution Rate	13.2%	12.6%	4.8%



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## SECTION II: SCOPE OF THE REPORT

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This report presents the actuarial valuation of the Wichita Employees' Retirement System as of December 31, 2012. This valuation was prepared at the request of the System's Board of Trustees. The report is based on plan provisions and actuarial assumptions that are unchanged from last year.

Please pay particular attention to our cover letter, where the guidelines employed in the preparation of this report are outlined. We also comment on the sources and reliability of both the data and the actuarial assumptions upon which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief.

A summary of the findings resulting from this valuation is presented in the previous section. Section 3 describes the assets and investment experience of the System. Sections 4 and 5 describe how the obligations of the System are to be met under the actuarial cost method in use. Section 6 includes the information required for the financial reporting standards established by the Governmental Accounting Standards Board (GASB).

This report includes several appendices:

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



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### **SECTION III: ASSETS**

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In many respects, an actuarial valuation can be thought of as an inventory process. The inventory is taken as of the actuarial valuation date, which for this valuation is December 31, 2012. On that date, the assets available for the payment of benefits are appraised. The assets are compared with the liabilities of the System. The actuarial process then leads to a method of determining the contributions needed by members and the employer in the future to balance the System assets and liabilities.

#### **MARKET VALUE OF ASSETS**

The current market value represents the “snapshot” or “cash-out” value of System assets as of the valuation date. In addition, the market value of assets provides a basis for measuring investment performance from time to time. At December 31, 2012, the market value of assets for the System was \$495 million. Table 1 is a comparison, at market values, of System assets as of December 31, 2012, and December 31, 2011, in total and by investment category. Table 2 summarizes the change in the market value of assets from December 31, 2011 to December 31, 2012.

#### **ACTUARIAL VALUE OF ASSETS**

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

To arrive at a suitable value for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens swings in the market value while still indirectly recognizing market values. This methodology, first adopted for the December 31, 2002 valuation, smoothes market experience by recognizing 25% of the difference between expected value (based on the actuarial assumption) and market value. Table 3 shows the development of the actuarial value of assets (AVA) as of December 31, 2012.



**TABLE 1**  
**Analysis of Net Assets at Market Value**

	As of December 31, 2012		As of December 31, 2011	
	<u>Amount</u> <u>(\$ Millions)</u>	<u>% of</u> <u>Total</u>	<u>Amount</u> <u>(\$ Millions)</u>	<u>% of</u> <u>Total</u>
Cash and Equivalents	\$ 0.2	0.0%	\$ 0.2	0.0%
Government Securities	35.2	7.3	30.0	6.7
Corporate Debt	43.4	9.0	45.3	10.2
Mortgage Backed Securities	37.8	7.9	42.0	9.5
Pooled Funds	81.4	17.0	79.3	17.8
Domestic Equity	163.8	34.1	153.8	34.6
International Equity	78.2	16.3	69.4	15.6
Real Estate	16.8	3.5	15.7	3.5
Timber	10.0	2.1	4.7	1.1
Commodities	11.8	2.5	12.0	2.7
Securities Lending Collateral Pool	29.6	6.2	42.9	9.6
Other	0.2	0.0	0.2	0.1
Receivables	11.0	2.3	13.4	3.0
Liabilities	(39.7)	(8.2)	(64.3)	(14.5)
<b>Total Plans 1 and 2</b>	<u>\$ 479.7</u>	<u>100.0%</u>	<u>\$ 444.6</u>	<u>100.0%</u>
<b><u>Plan 3 Assets</u></b>				
Members Electing to Stay in Plan 3	\$ 4.6		\$ 3.8	
Other Plan 3 Members	15.0		14.3	
<b>Total Plan 3 and 3b</b>	<u>19.6</u>		<u>18.1</u>	
<b>Net Assets (Plans 1, 2, and 3)</b>	<u>\$ 499.3</u>		<u>\$ 462.7</u>	





TABLE 2

**Summary of Changes in Net Assets  
During Year Ended December 31, 2012**

(Market Value)

	<u>Plans 1 &amp; 2</u>	<u>Plan 3*</u>	<u>Total</u>
1. Market Value of Assets as of December 31, 2011	\$ 444,594,411	\$ 14,233,092	\$ 458,827,503
2. Contributions:			
a. Members	\$ 2,343,641	\$ 1,031,580	\$ 3,375,221
b. City	6,471,423	1,031,580	7,503,003
c. Transfers	2,025,607	(2,343,909)	(318,302)
d. Total	\$ 10,840,671	\$ (280,749)	\$ 10,559,922
3. Investment Income:			
a. Interest and Dividends	\$ 11,762,769	\$ 373,028	\$ 12,135,797
b. Net Appreciation in Fair Value	48,375,859	1,492,086	49,984,132
c. Commission Recapture	18,686	596	19,282
d. Net Securities Lending Income	205,842	6,572	212,414
e. Total	\$ 60,363,156	\$ 1,872,282	\$ 62,351,625
4. Expenditures:			
a. Refunds of Member Contributions	\$ 341,634	\$ 620,798	\$ 962,432
b. Benefits Paid:			
(1) Pension and Death Benefits	31,604,120	0	31,604,120
(2) BackDROP Payments	1,327,860	0	1,327,860
c. Administrative Expenses	403,793	76,277	596,257
d. Investment Expenses	2,459,772	79,935	2,539,707
e. Total	\$ 36,137,179	\$ 777,010	\$ 37,030,376
5. Net Change [2(c) + 3(e) - 4(e)]	\$ 35,066,648	\$ 814,523	\$ 35,881,171
6. Market Value of Assets as of December 31, 2012 (1) + (5)	\$ 479,661,059	\$ 15,047,615	\$ 494,708,674

\* Excludes assets for Plan 3b members. The December 31, 2012 value of the assets for this group was \$4,590,782.



TABLE 3

**Development of Actuarial Value of Assets  
as of December 31, 2012**

	<u>Plans 1 &amp; 2</u>	<u>Plan 3*</u>	<u>Total</u>
1. Actuarial Value of Assets as of December 31, 2011	\$ 497,517,355	\$ 15,781,027	\$ 513,298,382
2. Actual Contributions/Disbursements			
a. Contributions	\$ 8,815,064	\$ 2,063,160	\$ 10,878,224
b. Transfers	2,025,607	(2,343,909)	(318,302)
c. Benefit Payments and Refunds	(33,273,614)	(620,798)	(33,894,412)
d. Net	\$ (22,432,943)	\$ (901,547)	\$ (23,334,490)
3. Expected Value of Assets as of December 31, 2012 [(1) * 1.0775] + [2(d) * (1.0775) <sup>-5</sup> ]	\$ 512,788,950	\$ 16,068,226	\$ 528,857,177
4. Market Value of Assets as of December 31, 2012	\$ 479,661,059	\$ 15,047,615	\$ 494,708,674
5. Difference Between Actual and Expected Values	\$ (33,127,891)	\$ (1,020,611)	\$ (34,148,503)
6. Actuarial Value of Assets as of December 31, 2012 (3) + [(5) * 0.25]	\$ 504,506,977	\$ 15,813,074	\$ 520,320,051
7. Actuarial Value of Assets Divided by Market Value of Assets	105.2%	105.1%	105.2%
8. Market Value of Assets Less Actuarial Value of Assets	\$ (24,845,918)	\$ (765,459)	\$ (25,611,377)

\* Excludes Plan 3b



## **SECTION IV: SYSTEM LIABILITIES**

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In the previous section, an actuarial valuation was compared with an inventory process, and an analysis was given of the inventory of assets of the System as of the valuation date, December 31, 2012. In this section, the discussion will focus on the commitments of the System, which are referred to as its liabilities.

Table 4 contains an analysis of the actuarial present value of all future benefits (PVFB) for contributing members, inactive members, retirees and their beneficiaries.

The liabilities summarized in Table 4 include the actuarial present value of all future benefits expected to be paid with respect to each member. For an active member, this value includes the measurement of both benefits already earned and future benefits to be earned. For all members, active and retired, the value extends over benefits earnable and payable for the rest of their lives and for the lives of the surviving beneficiaries.

All liabilities reflect the benefit provisions in place as of December 31, 2012.

### **ACTUARIAL LIABILITY**

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

1. That which is attributable to the past and
2. That which is attributable to the future.

Actuarial terminology calls the part attributable to the past the “past service liability” or the “actuarial liability”. The portion allocated to the future is known as the present value of future normal costs, with the specific piece of it allocated to the current year being called the “normal cost”. Table 5 contains the calculation of actuarial liability to the System. The Entry Age Normal actuarial cost method is used to develop the actuarial liability.



TABLE 4

**Present Value of Future Benefits (PVFB)  
as of December 31, 2012**

	<u>Plan 1</u>	<u>Plan 2</u>	<u>Plan 3</u>	<u>Total</u>
1. Active Employees				
a. Retirement Benefit	\$ 683,810	\$ 201,067,029	\$ 36,498,963	\$ 238,249,802
b. Pre-Retirement Death Benefit	0	3,382,649	991,556	4,374,205
c. Withdrawal Benefit	0	11,257,043	5,259,264	16,516,307
d. Disability Benefit	0	5,264,637	1,451,363	6,716,000
e. Total	\$ 683,810	\$ 220,971,358	\$ 44,201,146	\$ 265,856,314
2. DROP Members				
a. DROP Account Balance	\$ 4,588,276	\$ 825,419	\$ 0	\$ 5,413,695
b. Monthly Retirement Benefit	15,303,621	7,740,460	0	23,044,081
c. Total	\$ 19,891,897	\$ 8,565,879	\$ 0	\$ 28,457,776
3. Inactive Vested Members	\$ 283,518	\$ 23,555,519	\$ 0	\$ 23,839,037
4. In Pay Members				
a. Retirees	\$ 213,119,855	\$ 84,343,066	\$ 0	\$ 297,462,921
b. Disabled Members	1,422,920	1,743,521	0	3,166,441
c. Beneficiaries	17,741,692	5,140,205	0	22,881,897
d. Total	\$ 232,284,467	\$ 91,226,792	\$ 0	\$ 323,511,259
5. Total Present Value of Future Benefits 1(e) + 2(c) + (3) + 4(d)	\$ 253,143,692	\$ 344,319,548	\$ 44,201,146	\$ 641,664,386



TABLE 5

**Actuarial Liability  
as of December 31, 2012**

	<u>Plan 1</u>	<u>Plan 2</u>	<u>Plan 3</u>	<u>Total</u>
1. Active Employees				
a. Present Value of Future Benefits	\$ 683,810	\$ 220,971,358	\$ 44,201,146	\$ 265,856,314
b. Present Value of Future Normal Costs	11,697	43,955,773	26,656,919	70,624,390
c. Actuarial Liability 1(a) - 1(b)	\$ <u>672,113</u>	\$ <u>177,015,585</u>	\$ <u>17,544,227</u>	\$ <u>195,231,924</u>
2. DROP Members	\$ 19,891,897	\$ 8,565,879	\$ 0	\$ 28,457,776
3. Inactive Vested Members	\$ 283,518	\$ 23,555,519	\$ 0	\$ 23,839,037
4. In Pay Members				
a. Retirees	\$ 213,119,855	\$ 84,343,066	\$ 0	\$ 297,462,921
b. Disabled Members	1,422,920	1,743,521	0	3,166,441
c. Beneficiaries	17,741,692	5,140,205	0	22,881,897
d. Total	\$ <u>232,284,467</u>	\$ <u>91,226,792</u>	\$ <u>0</u>	\$ <u>323,511,259</u>
5. Reserve for Plan 3 Members	\$ 0	\$ 0	\$ 765,459	\$ 765,459
6. Total Actuarial Liability 1(c) + (2) + (3) + 4(d) + (5)	\$ 253,131,994	\$ 300,363,775	\$ 18,309,685	\$ 571,805,455



TABLE 6

**Present Value of Accrued Benefits  
as of December 31, 2012**

The present value of accrued benefits for the System reflects the benefits earned based on service, earnings, and the System provisions as of the valuation date. It also reflects the on-going nature of the System by using the same actuarial assumptions as are used for funding purposes. Further, because the System provides that the accrued benefits of deferred vested members are indexed until benefits begin, the present value of the accrued benefit liability for active members reflects this provision from the assumed termination of employment to the assumed benefit commencement date.

	<u>Plan 1</u>	<u>Plan 2</u>	<u>Plan 3</u>	<u>Total</u>
1. Active Employees	\$ 683,810	\$ 121,354,401	\$ 7,794,688	\$ 129,832,899
2. DROP Members	\$ 19,891,897	\$ 8,565,879	\$ 0	\$ 28,457,776
3. Inactive Vested Members	\$ 283,518	\$ 23,555,519	\$ 0	\$ 23,839,037
4. In Pay Members				
a. Retirees	\$ 213,119,855	\$ 84,343,066	\$ 0	\$ 297,462,921
b. Disabled Members	1,422,920	1,743,521	0	3,166,441
c. Beneficiaries	17,741,692	5,140,205	0	22,881,897
d. Total	\$ 232,284,467	\$ 91,226,792	\$ 0	\$ 323,511,259
5. Total	\$ 253,143,692	\$ 244,702,591	\$ 7,794,688	\$ 505,640,971
6. Market Value of Assets*	\$ 247,584,863	\$ 239,329,123	\$ 7,794,688	\$ 494,708,674
7. Funded Ratio (6)/(5)	98%	98%	100%	98%

\* Split of assets between Plan 1 and Plan 2 is in proportion to the liabilities for illustrative purposes only.



## **SECTION V: EMPLOYER CONTRIBUTIONS**

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The previous two sections were devoted to a discussion of the assets and liabilities of the System. A comparison of Tables 3 and 4 indicates that current assets fall short of meeting the present value of future benefits (total liability). This is expected in all but a completely closed fund, where no further contributions are anticipated. In an active system, there will almost always be a difference between the actuarial value of assets and total liabilities. This deficiency has to be made up by future contributions and investment returns. An actuarial valuation sets out a schedule of future contributions that will deal with this deficiency in an orderly fashion.

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

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

### **DESCRIPTION OF CONTRIBUTION RATE COMPONENTS**

The Entry Age Normal (EAN) actuarial cost method is used for the valuation. Under this method, the normal cost for each year from entry age to assumed exit age is a constant percentage of the member’s year by year projected compensation. The portion of the present value of future benefits not provided by the present value of future normal costs is the actuarial liability. The unfunded actuarial liability/(surplus) represents the difference between the actuarial liability and the actuarial value of assets as of the valuation date. The unfunded actuarial liability is calculated each year and reflects experience gains/(losses).

In general, contributions are computed in accordance with a level percent-of-payroll funding objective. The contribution rates based on this December 31, 2012 actuarial valuation will be used to determine employer contribution rates to the Wichita Employees’ Retirement System for fiscal year 2014. In this context, the term “contribution rate” means the percentage, which is applied to a particular active member payroll to determine the actual employer contribution amount (i.e., in dollars) for the group.

As of December 31, 2012, the valuation assets were less than the actuarial liability so an unfunded actuarial liability exists. The City’s funding policy is to amortize the UAL over a rolling 20-year period. The amortization of the UAL results in an employer contribution that is more than the employer normal cost rate.

### **CONTRIBUTION RATE SUMMARY**

In Table 7, the amortization payment related to the unfunded actuarial liability/(surplus), as of December 31, 2012, is developed. Table 8 develops the normal cost rate for the System. The derivation of the total contribution rate for the City is shown in Table 9. Table 10 shows the historical summary of the City’s contribution rates. Table 11 develops the experience gain/(loss) for the year ended December 31, 2012.

The rates shown in this report are based on the actuarial assumptions and cost methods described in Appendix C.



**TABLE 7**

**Derivation of Unfunded Actuarial Liability Contribution Rate**

1. Actuarial Accrued Liability	\$	571,805,455
2. Actuarial Value of Assets	\$	520,320,051
3. Unfunded Actuarial Liability (UAL)	\$	51,485,404
4. Payment (Adjusted to Mid-Year) to Amortize Unfunded Actuarial Liability/(Surplus) Over 20 Years*	\$	3,664,276
5. Total Projected Payroll for the Year	\$	72,997,067
6. Amortization Payment as a Percent of Payroll		5.0%

\* The UAL is amortized as a level percent of payroll over a rolling 20-year period.





**TABLE 8**

**Derivation of Normal Cost Rate**

Normal Cost for Year End December 31, 2012		
Service pensions	\$	6,723,006
Disability pensions		275,875
Survivor Pensions		199,103
Termination Benefits		1,441,875
Total Normal Cost	\$	<u>8,639,859</u>
Expected Payroll in 2013 for Current Actives	\$	66,721,790
Total Normal Cost Rate for Year		12.9%



TABLE 9

**Employer Contribution Rates  
for Fiscal Year Commencing in 2014**

	<b>Contribution Requirement as a % of Payroll</b>
Normal Cost	
Service pensions	10.0%
Disability pensions	0.4%
Survivor pensions	0.3%
Termination pensions	2.2%
Total Normal Cost	12.9%
Unfunded Actuarial Liability	
Retired members and beneficiaries <sup>(1)</sup>	0.0%
Active and former members <sup>(2)</sup>	5.0%
Total UAL Contribution	5.0%
Total Contribution Requirement	
Member Financed Portion <sup>(3)</sup>	4.7%
City Financed Portion	13.2%
Total	17.9%

<sup>(1)</sup> Actuarial accrued liability for retired members and beneficiaries was fully funded as of December 31, 2012.

<sup>(2)</sup> The excess of the actuarial liability over actuarial value of assets is amortized as a level percent of active member payroll over a rolling 20-year period.

<sup>(3)</sup> The weighted average of member contribution rates: 6.4% for Plan 1 and 4.7% for Plans 2 & 3.



TABLE 10

**Historical Summary of City Contribution Rates**

Contribution rates are computed in accordance with a level percent of payroll funding objective. As of December 31, 2012, the actuarial value of assets is less than actuarial liabilities resulting in an unfunded actuarial liability (UAL). The UAL is amortized over a rolling 20-year period.

<b>Valuation Date</b>	<b>Fiscal Year</b>	<b>City Contributions as Percents of Active Member Pensionable Payroll</b>	
		<b>Funding Objective</b>	<b>Amortization (Credit)/Payment</b>
11/30/1992	1994	9.5%	0.0%
11/30/1993	1995	9.5	0.0
11/30/1994	1996	9.4	0.0
12/31/1995	1997	9.0	0.0
12/31/1996	1998	6.9 - 8.4	(1.5)
12/31/1997	1999	4.6 - 8.5	(3.9)
12/31/1998	2000	0.8 - 8.3	(7.5)
12/31/1999	2001	2.5 - 9.8	(7.3)
12/31/2000	2002	0.5 - 9.7	(9.2)
12/31/2001	2003	1.9 - 9.4	(7.5)
12/31/2002	2004	2.7 - 8.8	(6.1)
12/31/2003	2005	3.1 - 8.9	(5.8)
12/31/2004	2006	3.5 - 8.2	(4.7)
12/31/2005	2007	3.9 - 8.2	(4.3)
12/31/2006	2008	4.2 - 8.3	(4.1)
12/31/2007	2009	4.2 - 8.4	(4.2)
12/31/2008	2010	8.4	0.0
12/31/2009	2011	10.2	1.7
12/31/2010	2012	10.6	2.1
12/31/2011	2013	12.6	4.1
12/31/2012	2014	13.2	5.0



TABLE 11

## Derivation of System Experience Gain/(Loss)

	(\$M) Year Ended <u>12/31/2012</u>
(1) UAL* at start of year	\$ 41.9
(2) + Normal cost for year	9.0
(3) + Assumed investment return on (1) & (2)	3.6
(4) - Actual contributions (member + City)	10.9
(5) - Assumed investment return on (4)	0.4
(6) = Expected UAL at end of year	43.2
(7) + Increase (decr.) from change in actuarial software	(0.3)
(8) + Increase (decr.) from assumption changes	0.0
(9) = Expected UAL after changes	42.9
(10) = Actual UAL at year end	51.5
(11) = Experience gain/(loss) (9) - (10)	\$ (8.6)**
(12) = Percent of beginning of year AL	1.5%

\* Unfunded actuarial liability/(surplus)

\*\* Of this amount, \$8.5 million of the experience loss is due to an experience loss on the actuarial value of assets and \$0.1 million represents an experience loss on liabilities.



**SECTION VI: ACCOUNTING INFORMATION**

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

The preceding methods comply with the financial reporting standards established by the Governmental Accounting Standards Board.

The Entry Age Normal actuarial liability was determined as part of an actuarial valuation of the System as of December 31, 2012. Significant actuarial assumptions used in determining the actuarial liability include:

- (a) A rate of return on the investment of present and future assets of 7.75% per year compounded annually,
- (b) Projected salary increases of 4.00% per year compounded annually, (3.50% attributable to inflation, and 0.50% attributable to productivity),
- (c) Additional projected salary increases of 0.25% to 3.20% per year attributable to seniority/merit, and
- (d) The assumption that benefits will increase 3.00% per year of retirement, non-compounded, for Plan 1 members and 2.00% per year of retirement, non-compounded, for Plan 2 members.

Actuarial Liability:

Active members	\$ 195,997,383
DROP members	28,457,776
Retired members and beneficiaries currently receiving benefits	323,511,259
Vested terminated members not yet receiving benefits	<u>23,839,037</u>
Total Actuarial Liability	\$ 571,805,455
Actuarial Value of Assets (market value was \$494,708,674)	\$ 520,320,051
Unfunded Actuarial Liability	\$ 51,485,404

During the year ended December 31, 2012, the System experienced a net increase of \$17 million in the actuarial liability.



TABLE 12

**Required Supplementary Information  
Schedule of Funding Progress**

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Liability (AL) (b)	Unfunded AL (UAL) (b)-(a)	Funded Ratio (a)/(b)	Active Member Covered Payroll (c)	UAL as a Percentage of Active Member Covered Payroll [(b)-(a)]/(c)
11/30/1992	\$182,186	\$204,730	\$22,544	89.0%	\$49,552	45.5%
11/30/1993	200,853	218,603	17,750	91.9	52,093	34.1
11/30/1994	215,385	230,217	14,832	93.6	52,169	28.4
12/31/1995	238,441	242,354	3,913	98.4	54,039	7.2
12/31/1996	266,404	252,968	(13,436)	105.3	53,534	(25.1)
12/31/1997	296,705	263,573	(33,132)	112.6	54,346	(61.0)
12/31/1998	340,417	276,980	(63,437)	122.9	56,093	(113.1)
12/31/1999*	383,338	319,289	(64,049)	120.1	57,562	(111.3)
12/31/2000	414,643	329,390	(85,253)	125.9	61,112	(139.5)
12/31/2001	428,204	353,158	(75,046)	121.2	65,347	(114.8)
12/31/2002	433,366**	370,399	(62,967)	117.0	68,117	(92.4)
12/31/2003	446,794**	387,037	(59,757)	115.4	69,161	(86.4)
12/31/2004*	462,994**	413,159	(49,835)	112.1	72,154	(69.1)
12/31/2005*	479,275**	433,297	(45,978)	110.6	72,367	(63.5)
12/31/2006*	505,756**	459,062	(46,694)	110.2	75,881	(61.5)
12/31/2007*	533,911**	483,387	(50,524)	110.5	78,736	(64.2)
12/31/2008*	512,853**	512,374	(479)	100.1	81,580	(0.6)
12/31/2009*	509,494**	529,271	19,777	96.3	82,704	23.9
12/31/2010*	516,308**	540,436	24,128	95.5	79,636	30.3
12/31/2011*	513,298**	555,174	41,876	92.5	75,444	55.5
12/31/2012	520,320**	571,805	51,485	91.0	70,783	72.7

Rounded dollar amounts are in thousands.

Note: Years prior to 12/31/2012 were provided by prior Actuary.

\* After changes in benefits and/or actuarial assumptions and/or actuarial cost methods.

\*\* Includes all members except Plan 3b.

Analysis of the dollar amounts of actuarial value of assets, actuarial liability, or unfunded actuarial liability in isolation can be misleading. Expressing the actuarial value of assets as a percentage of the actuarial liability provides one indication of the System's funded status on an on-going concern basis. Analysis of this percentage over time indicates whether the System is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the System's funding. The unfunded actuarial liability and annual covered payroll are both affected by inflation. Expressing the unfunded actuarial liability as a percentage of covered payroll approximately adjusts for the effects of inflation and aids analysis of the progress being made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the System's funding.



TABLE 13

**Required Supplementary Information  
Schedule of Employer Contributions**

<b>Fiscal Year</b>	<b>Actuarial Valuation Date</b>	<b>Annual Required Contribution</b>	<b>Percent Contributed</b>
1997	12/31/1995	\$4,459,654	100%
1998	12/31/1996	4,140,163	100
1999	12/31/1997	4,134,826	100
2000	12/31/1998	2,751,084	100
2001	12/31/1999	1,843,213	100
2002	12/31/2000	3,137,912*	100
2003	12/31/2001	3,189,513*	100
2004	12/31/2002	3,266,706*	100
2005	12/31/2003	3,589,063*	100
2006	12/31/2004	3,566,429*	100
2007	12/31/2005	3,700,590*	100
2008	12/31/2006	3,834,270*	100
2009	12/31/2007	3,887,085*	100
2010	12/31/2008	6,689,450*	100
2011	12/31/2009	7,695,317*	100
2012	12/31/2010	7,503,003*	100

\* Reflects contributions to Plans 1, 2, and 3. Excludes contributions for Plan 3b members.  
*Note: Years prior to 2012 were provided by prior Actuary.*

**Notes to Required Supplementary Information  
Summary of Actuarial Methods and Assumptions**

Valuation Date	December 31, 2012
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level percent of payroll, open
Remaining Amortization Period	20 years
Asset Valuation Method	Expected + 25% of (Market – Expected Values)
Actuarial Assumptions:	
Investment Rate of Return*	7.75%
Projected Salary Increases*	4.25% - 7.20%
*Includes Inflation at	3.50%
Cost-of-Living Adjustments	3.00% Non-compounded (Plan 1) 2.00% Non-compounded (Plan 2)



**TABLE 14**  
**Solvency Test**

Valuation Date	Aggregate Actuarial Liability For				Portion of Actuarial Liabilities Covered by Reported Assets		
	(1)	(2)	(3)	Reported Valuation Assets	(1)	(2)	(3)
	Active Member Contributions	Retirants and Beneficiaries*	Active Members (Employer Financed Portion)				
12/31/1995	\$28,549,082	\$123,759,638	\$90,046,029	\$238,441,351	100.0%	100.0%	95.7%
12/31/1996	28,996,944	133,093,326	90,877,809	266,403,759	100.0	100.0	114.8
12/31/1997	29,881,922	141,922,445	91,768,436	296,704,769	100.0	100.0	136.1
12/31/1998	29,694,389	156,764,183	90,521,375	340,417,265	100.0	100.0	170.1
12/31/1999	32,017,194	169,602,958	117,669,351	383,337,991	100.0	100.0	154.4
12/31/2000	34,189,528	177,095,907	118,104,491	414,642,694	100.0	100.0	172.2
12/31/2001	33,516,616	179,374,487	140,266,410	428,204,828	100.0	100.0	153.5
12/31/2002	38,291,472	192,615,216	139,492,410	433,365,890	100.0	100.0	145.1
12/31/2003	39,847,119	205,799,341	141,390,445	446,794,052	100.0	100.0	142.3
12/31/2004	41,852,724	218,518,676	152,632,267	462,994,047	100.0	100.0	132.8
12/31/2005	43,397,403	228,408,201	161,491,272	479,274,508	100.0	100.0	128.5
12/31/2006	45,475,389	237,860,848	175,725,905	505,755,995	100.0	100.0	126.6
12/31/2007	46,189,489	256,374,002	180,823,537	533,911,465	100.0	100.0	127.9
12/31/2008	46,541,280	272,176,420	193,655,822	512,853,345	100.0	100.0	100.2
12/31/2009	49,152,328	279,396,973	200,722,170	509,493,888	100.0	100.0	90.1
12/31/2010	50,473,365	293,227,477	196,734,871	516,307,845	100.0	100.0	87.7
12/31/2011	45,440,569	349,202,490	160,530,664	513,298,382	100.0	100.0	73.9
12/31/2012	49,519,050	347,350,296	174,936,109	520,320,051	100.0	100.0	70.6

\* Includes vested termination members.

During the twelve months ended December 31, 2012, the Wichita Employees' Retirement System generated a net actuarial loss of \$8.6 million. The amount is 1.5% of the actuarial liability at the beginning of the year.

*Note: Years prior to 12/31/2012 were provided by prior Actuary.*





**MEMBER DATA RECONCILIATION**

December 31, 2011 to December 31, 2012

The number of members included in the valuation, as summarized in the table below, is in accordance with the data submitted by the System for members of the valuation date.

	Active Participants			DROP Participants		Retirees And Beneficiaries		Terminated Vested		Total
	Plan 1	Plan 2	Plan 3	Plan 1	Plan 2	Plan 1	Plan 2	Plan 1	Plan 2	
Members as of 12/31/2011	2	901	611	29	15	836	474	1	145	3,014
New Members	0	0	+71	0	0	+17	+9	0	0	+97
Transfers	0	+67	-80	0	0	0	0	0	0	-13
Terminations										
Refunded	0	-13	-75	0	0	0	0	0	-4	-92
Deferred Vested	0	-9	0	0	0	0	0	0	+9	0
Retirements										
Service	0	-7	0	-5	-3	+5	+19	0	-9	0
Disability	0	0	0	0	0	0	0	0	0	0
DROP	0	-10	0	0	+10	0	0	0	0	0
Deaths										
Cashed Out	0	0	0	0	0	0	0	0	0	0
With Beneficiary	0	-2	0	0	0	-17	-4	0	-1	-24
Without Beneficiary	0	-1	0	0	0	-32	-5	0	0	-38
Data Adjustments	0	+2	0	0	0	0	0	0	+1	+3
<b>Members as of 12/31/2012</b>	<b>2</b>	<b>928</b>	<b>527</b>	<b>24</b>	<b>22</b>	<b>809</b>	<b>493</b>	<b>1</b>	<b>141</b>	<b>2,947</b>

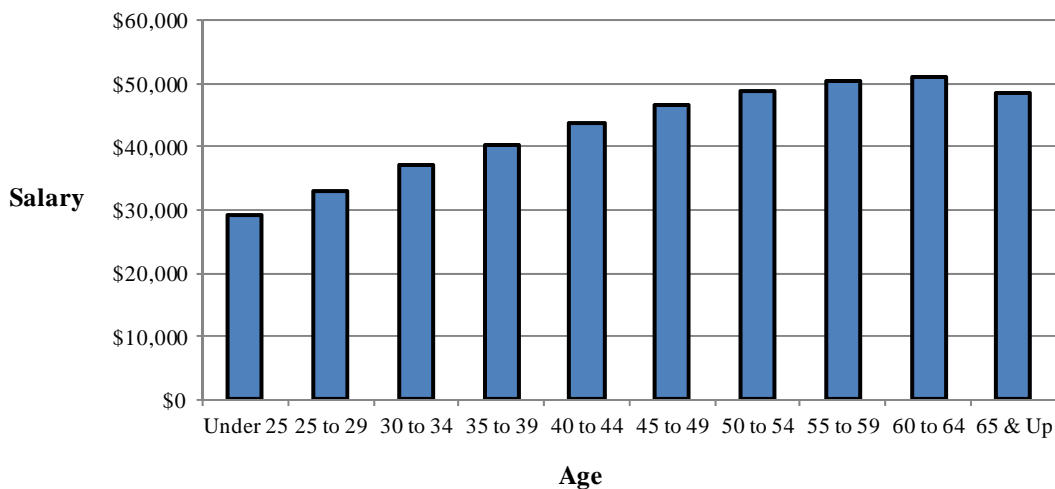


**SUMMARY OF ACTIVE MEMBERS**  
 (Excluding DROP Members)  
 as of December 31, 2012

All Plans

Age	Number			Valuation Salaries		
	Male	Female	Total	Male	Female	Total
Under 25	12	3	15	\$ 356,537	\$ 80,414	\$ 436,951
25 to 29	49	26	75	1,651,218	816,544	2,467,762
30 to 34	83	39	122	3,130,083	1,406,383	4,536,466
35 to 39	77	61	138	2,920,227	2,652,623	5,572,850
40 to 44	88	69	157	3,934,412	2,927,275	6,861,687
45 to 49	140	79	219	6,498,236	3,669,365	10,167,601
50 to 54	167	97	264	8,286,267	4,583,371	12,869,638
55 to 59	180	111	291	9,030,925	5,651,372	14,682,297
60 to 64	89	60	149	4,732,368	2,883,327	7,615,695
65 & Up	17	10	27	910,398	396,953	1,307,351
<b>Total</b>	<b>902</b>	<b>555</b>	<b>1,457</b>	<b>\$41,450,671</b>	<b>\$25,067,627</b>	<b>\$66,518,298</b>

**Average Salary by Age**





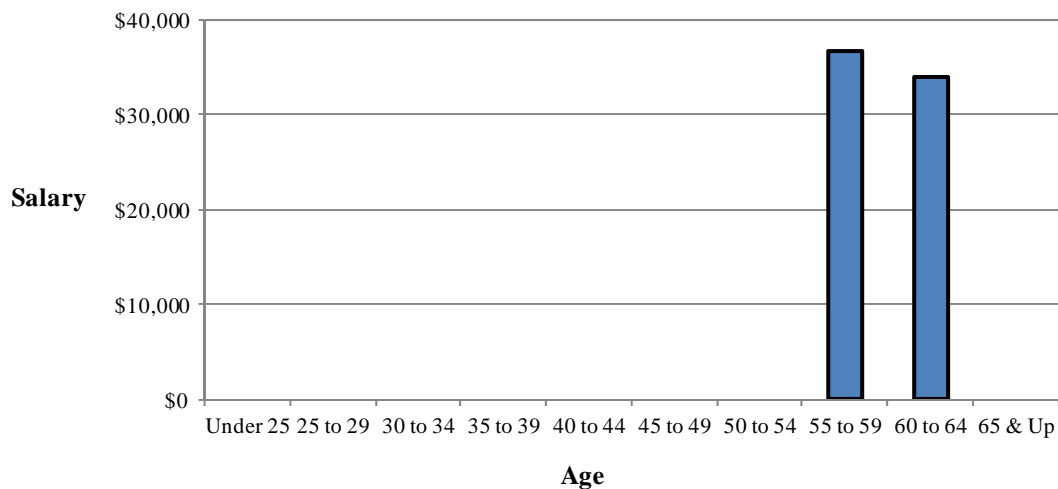
**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

**SUMMARY OF ACTIVE MEMBERS  
(Excluding DROP Members)  
as of December 31, 2012**

Plan 1

Age	Number			Valuation Salaries		
	Male	Female	Total	Male	Female	Total
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0
55 to 59	1	0	1	36,780	0	36,780
60 to 64	1	0	1	34,063	0	34,063
65 & Up	0	0	0	0	0	0
<b>Total</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>\$70,843</b>	<b>\$ 0</b>	<b>\$70,843</b>

**Average Salary by Age**





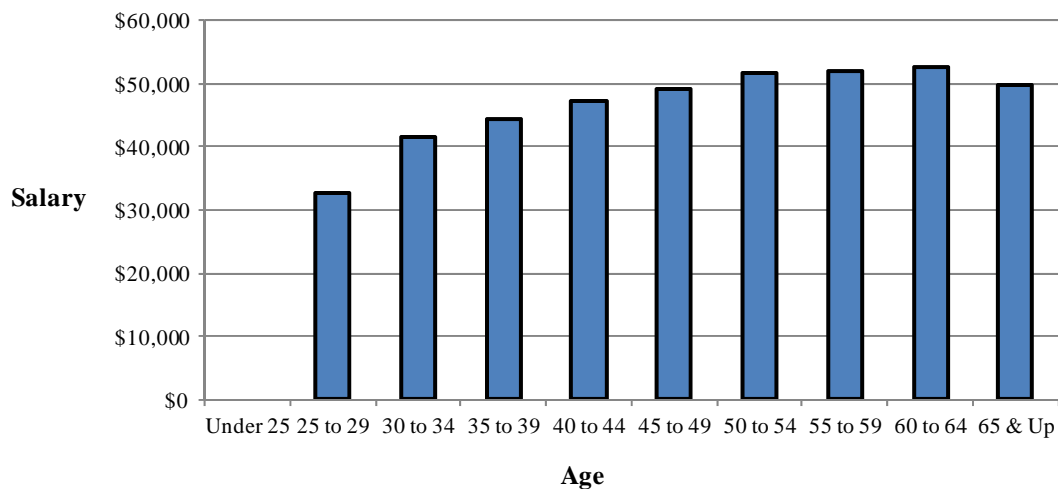
**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

**SUMMARY OF ACTIVE MEMBERS  
(Excluding DROP Members)  
as of December 31, 2012**

Plan 2

Age	Number			Valuation Salaries		
	Male	Female	Total	Male	Female	Total
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25 to 29	4	0	4	131,264	0	131,264
30 to 34	24	7	31	982,751	308,997	1,291,748
35 to 39	33	25	58	1,360,561	1,208,967	2,569,528
40 to 44	52	40	92	2,512,074	1,835,915	4,347,989
45 to 49	108	57	165	5,307,157	2,811,181	8,118,338
50 to 54	131	67	198	6,769,367	3,483,088	10,252,455
55 to 59	146	97	243	7,470,980	5,121,619	12,592,599
60 to 64	74	47	121	4,106,251	2,247,741	6,353,992
65 & Up	10	6	16	564,432	233,726	798,158
<b>Total</b>	<b>582</b>	<b>346</b>	<b>928</b>	<b>\$29,204,837</b>	<b>\$17,251,234</b>	<b>\$46,456,071</b>

**Average Salary by Age**





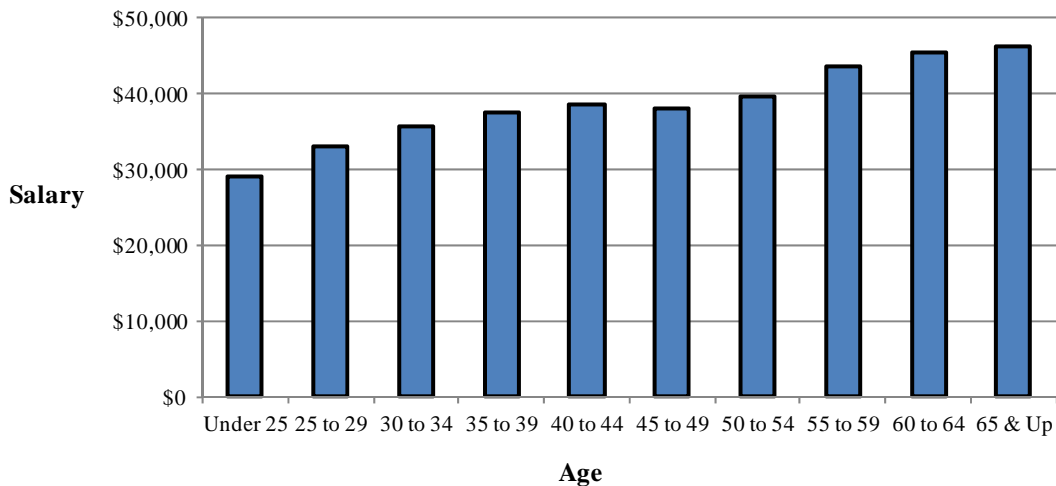
**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

**SUMMARY OF ACTIVE MEMBERS**  
as of December 31, 2012

Plan 3

Age	Number			Valuation Salaries		
	Male	Female	Total	Male	Female	Total
Under 25	12	3	15	\$ 356,537	\$ 80,414	\$ 436,951
25 to 29	45	26	71	1,519,954	816,544	2,336,498
30 to 34	59	32	91	2,147,332	1,097,386	3,244,718
35 to 39	44	36	80	1,559,666	1,443,656	3,003,322
40 to 44	36	29	65	1,422,338	1,091,360	2,513,698
45 to 49	32	22	54	1,191,079	858,184	2,049,263
50 to 54	36	30	66	1,516,900	1,100,283	2,617,183
55 to 59	33	14	47	1,523,165	529,753	2,052,918
60 to 64	14	13	27	592,054	635,586	1,227,640
65 & Up	7	4	11	345,966	163,227	509,193
<b>Total</b>	<b>318</b>	<b>209</b>	<b>527</b>	<b>\$12,174,991</b>	<b>\$7,816,393</b>	<b>\$19,991,384</b>

**Average Salary by Age**





**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

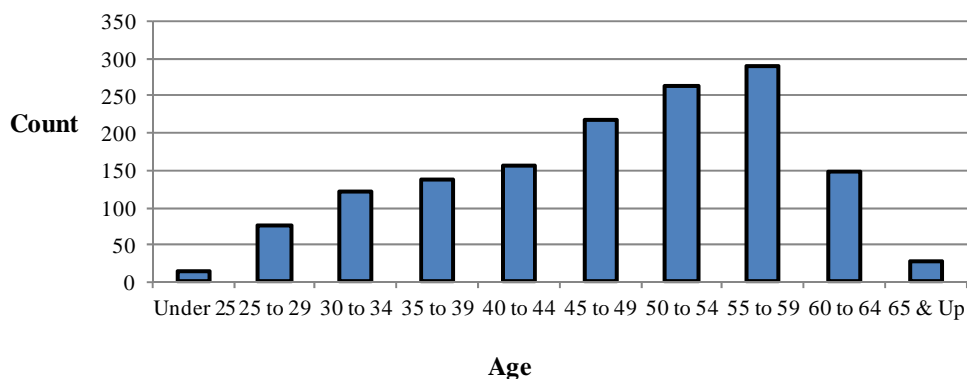
**DISTRIBUTION OF ACTIVE MEMBERS  
(Excluding DROP Members)  
as of December 31, 2012**

All Plans

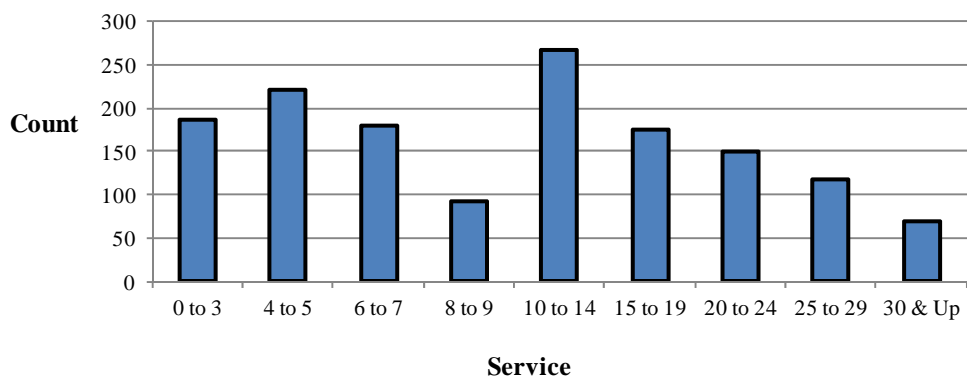
**Years of Service**

Age	0 to 3	4 to 5	6 to 7	8 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	14	1	0	0	0	0	0	0	0	15
25 to 29	33	29	11	2	0	0	0	0	0	75
30 to 34	36	39	25	8	14	0	0	0	0	122
35 to 39	25	34	26	15	28	10	0	0	0	138
40 to 44	27	25	22	9	42	24	8	0	0	157
45 to 49	14	31	19	15	46	31	43	19	1	219
50 to 54	21	22	30	19	45	39	39	34	15	264
55 to 59	11	26	19	15	51	48	42	42	37	291
60 to 64	6	8	20	8	33	20	18	21	15	149
65 & Up	0	6	7	2	7	2	1	1	1	27
<b>Total</b>	<b>187</b>	<b>221</b>	<b>179</b>	<b>93</b>	<b>266</b>	<b>174</b>	<b>151</b>	<b>117</b>	<b>69</b>	<b>1,457</b>

**Age Distribution**



**Service Distribution**





**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

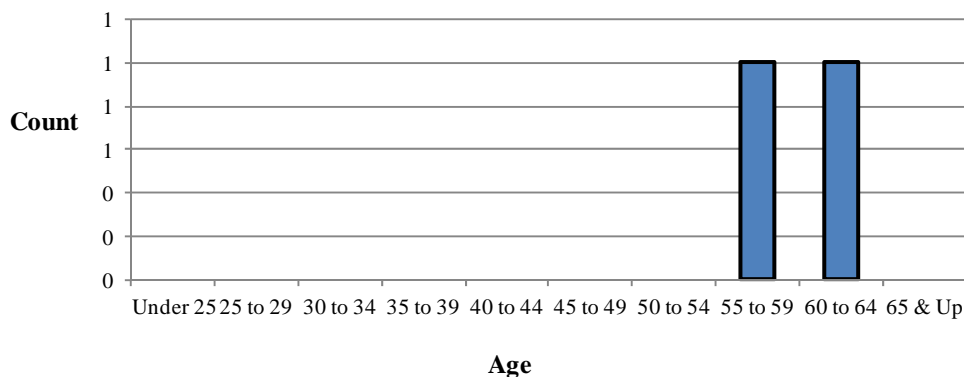
**DISTRIBUTION OF ACTIVE MEMBERS  
(Excluding DROP Members)  
as of December 31, 2012**

Plan 1

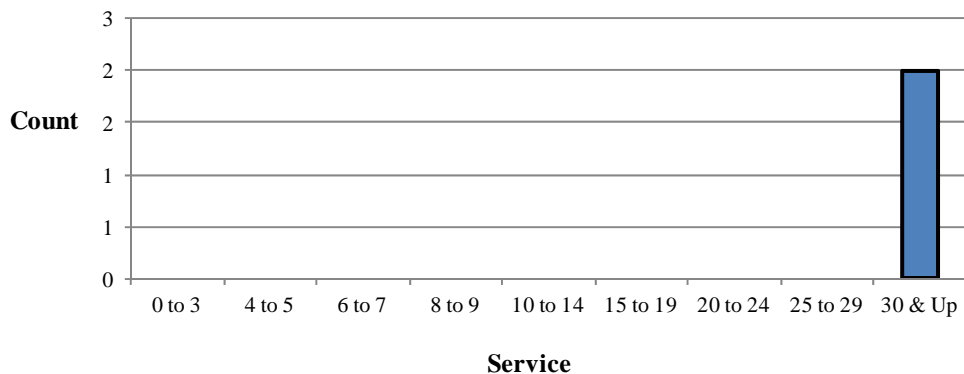
**Years of Service**

Age	0 to 3	4 to 5	6 to 7	8 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0	0	0	0	0
55 to 59	0	0	0	0	0	0	0	0	1	1
60 to 64	0	0	0	0	0	0	0	0	1	1
65 & Up	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>

**Age Distribution**



**Service Distribution**





**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

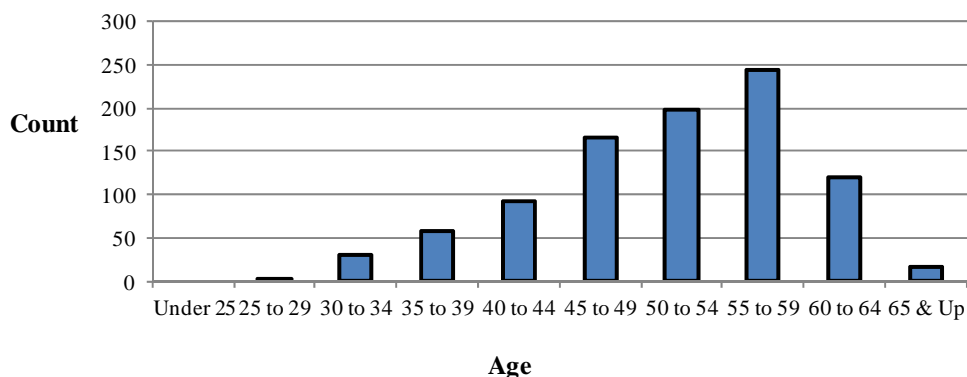
**DISTRIBUTION OF ACTIVE MEMBERS  
(Excluding DROP Members)  
as of December 31, 2012**

Plan 2

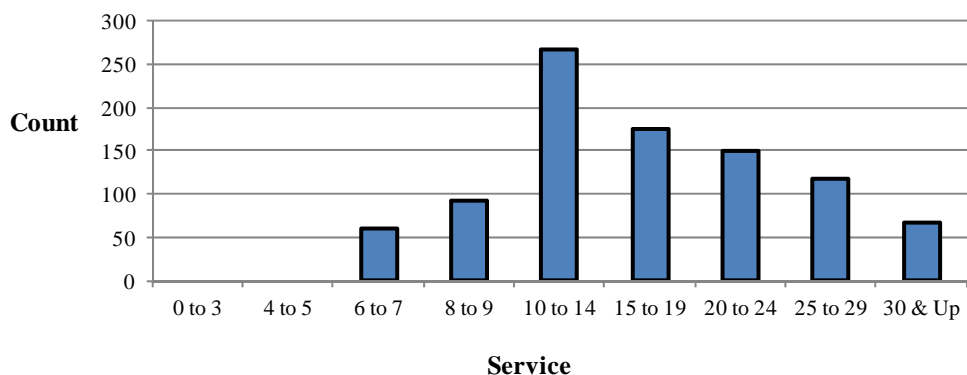
**Years of Service**

Age	0 to 3	4 to 5	6 to 7	8 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	2	2	0	0	0	0	0	4
30 to 34	0	0	9	8	14	0	0	0	0	31
35 to 39	0	0	5	15	28	10	0	0	0	58
40 to 44	0	0	9	9	42	24	8	0	0	92
45 to 49	0	0	10	15	46	31	43	19	1	165
50 to 54	0	0	7	19	45	39	39	34	15	198
55 to 59	0	0	9	15	51	48	42	42	36	243
60 to 64	0	0	7	8	33	20	18	21	14	121
65 & Up	0	0	2	2	7	2	1	1	1	16
<b>Total</b>	<b>0</b>	<b>0</b>	<b>60</b>	<b>93</b>	<b>266</b>	<b>174</b>	<b>151</b>	<b>117</b>	<b>67</b>	<b>928</b>

**Age Distribution**



**Service Distribution**







**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

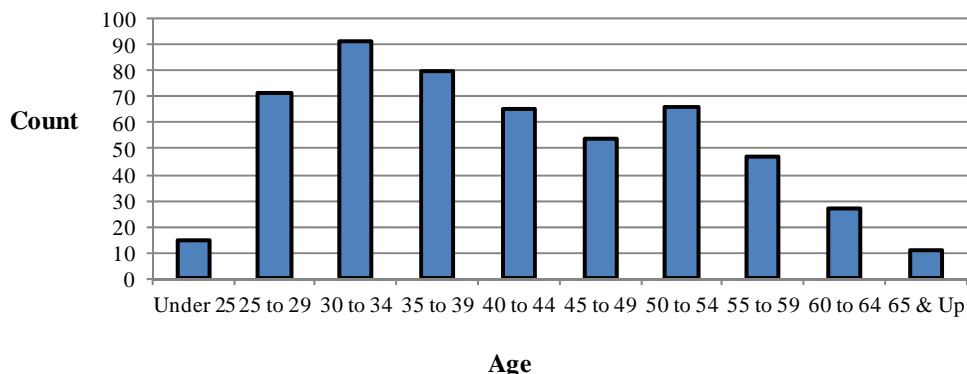
**DISTRIBUTION OF ACTIVE MEMBERS**  
as of December 31, 2012

Plan 3

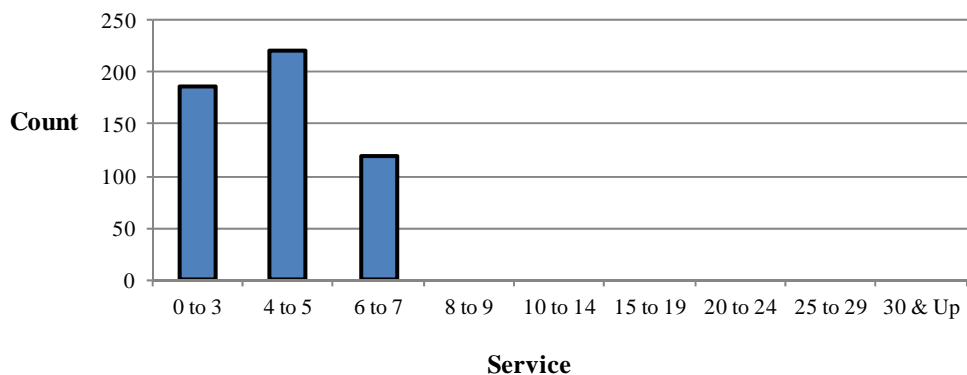
**Years of Service**

Age	0 to 3	4 to 5	6 to 7	8 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & Up	Total
Under 25	14	1	0	0	0	0	0	0	0	15
25 to 29	33	29	9	0	0	0	0	0	0	71
30 to 34	36	39	16	0	0	0	0	0	0	91
35 to 39	25	34	21	0	0	0	0	0	0	80
40 to 44	27	25	13	0	0	0	0	0	0	65
45 to 49	14	31	9	0	0	0	0	0	0	54
50 to 54	21	22	23	0	0	0	0	0	0	66
55 to 59	11	26	10	0	0	0	0	0	0	47
60 to 64	6	8	13	0	0	0	0	0	0	27
65 & Up	0	6	5	0	0	0	0	0	0	11
<b>Total</b>	<b>187</b>	<b>221</b>	<b>119</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>527</b>

**Age Distribution**



**Service Distribution**





**DISTRIBUTION OF DROP MEMBERS**  
as of December 31, 2012

Plan 1

Age	Service					Total
	Under 20	20 to 24	25 to 29	30 to 34	35 & Up	
Under 50	0	0	0	0	0	0
50-54	0	0	0	7	0	7
55-59	0	0	1	8	0	9
60-64	0	0	0	6	0	6
65 & Up	0	0	0	2	0	2
Total	0	0	1	23	0	24

Age	DROP Duration Elected (months)					Total
	1 to 12	13 to 24	25 to 36	37 to 48	49 to 60	
Under 50	0	0	0	0	0	0
50-54	0	0	1	0	6	7
55-59	0	0	0	0	9	9
60-64	0	0	0	0	6	6
65 & Up	0	0	0	0	2	2
Total	0	0	1	0	23	24

Age	Monthly Benefits	Current Balance
Under 50	\$ 0	\$ 0
50-54	26,194	1,267,545
55-59	30,000	1,310,533
60-64	21,688	1,257,454
65 & Up	12,851	752,744
Total	\$ 90,733	\$ 4,588,276

Covered Payroll \$1,401,926



**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

**DISTRIBUTION OF DROP MEMBERS**  
as of December 31, 2012

Plan 2

Age	Service					Total
	Under 20	20 to 24	25 to 29	30 to 34	35 & Up	
Under 50	0	0	0	0	0	0
50-54	0	0	0	0	0	0
55-59	0	0	0	0	0	0
60-64	6	3	4	2	3	18
65 & Up	4	0	0	0	0	4
Total	10	3	4	2	3	22

Age	DROP Duration Elected (months)					Total
	1 to 12	13 to 24	25 to 36	37 to 48	49 to 60	
Under 50	0	0	0	0	0	0
50-54	0	0	0	0	0	0
55-59	0	0	0	0	0	0
60-64	0	1	6	4	7	18
65 & Up	0	2	1	1	0	4
Total	0	3	7	5	7	22

Age	Monthly Benefits	Current Balance
Under 50	\$ 0	\$ 0
50-54	0	0
55-59	0	0
60-64	48,641	728,378
65 & Up	5,768	97,041
Total	\$ 54,409	\$ 825,419

Covered Payroll \$1,273,068



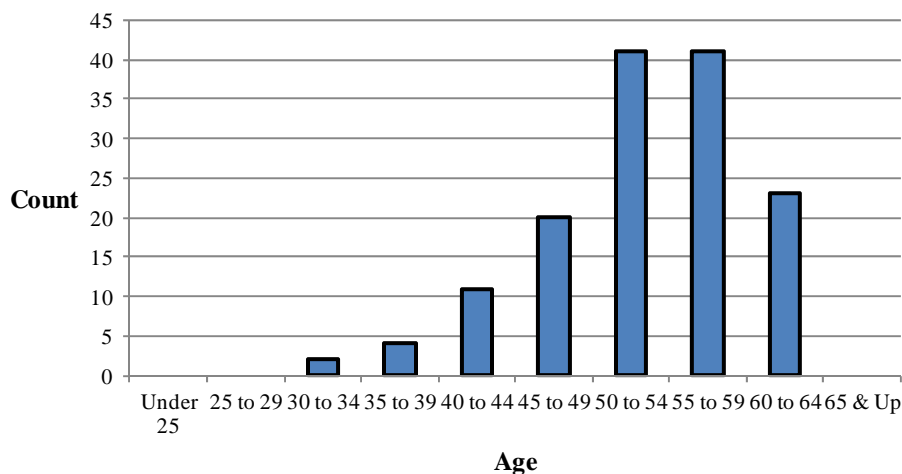
**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

**SUMMARY OF DEFERRED VESTED MEMBERS**  
as of December 31, 2012

All Plans

Age	Number			Current Monthly Benefit at Retirement		
	Male	Female	Total	Male	Female	Total
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0
30 to 34	2	0	2	934	0	934
35 to 39	4	0	4	3,611	0	3,611
40 to 44	7	4	11	6,623	4,116	10,739
45 to 49	7	13	20	8,813	22,151	30,964
50 to 54	20	21	41	33,352	32,492	65,844
55 to 59	18	23	41	31,381	35,363	66,744
60 to 64	13	10	23	24,671	15,434	40,105
65 & Up	0	0	0	0	0	0
<b>Total</b>	<b>71</b>	<b>71</b>	<b>142</b>	<b>\$ 109,385</b>	<b>\$ 109,556</b>	<b>\$ 218,941</b>

**Age Distribution**





**SUMMARY OF DEFERRED VESTED MEMBERS**  
as of December 31, 2012

Plan 1

Age	Number			Current Monthly Benefit at Retirement		
	Male	Female	Total	Male	Female	Total
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0
55 to 59	1	0	1	2,038	0	2,038
60 to 64	0	0	0	0	0	0
65 & Up	0	0	0	0	0	0
Total	1	0	1	\$ 2,038	\$ 0	\$ 2,038

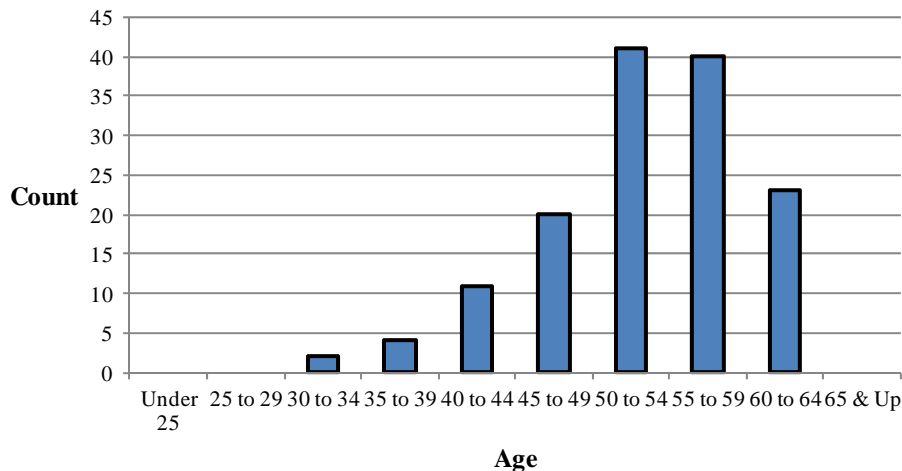


**SUMMARY OF DEFERRED VESTED MEMBERS**  
as of December 31, 2012

Plan 2

Age	Number			Current Monthly Benefit at Retirement		
	Male	Female	Total	Male	Female	Total
Under 25	0	0	0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0
30 to 34	2	0	2	934	0	934
35 to 39	4	0	4	3,611	0	3,611
40 to 44	7	4	11	6,623	4,116	10,739
45 to 49	7	13	20	8,813	22,151	30,964
50 to 54	20	21	41	33,352	32,492	65,844
55 to 59	17	23	40	29,343	35,363	64,706
60 to 64	13	10	23	24,671	15,434	40,105
65 & Up	0	0	0	0	0	0
<b>Total</b>	<b>70</b>	<b>71</b>	<b>141</b>	<b>\$ 107,347</b>	<b>\$ 109,556</b>	<b>\$ 216,903</b>

Age Distribution





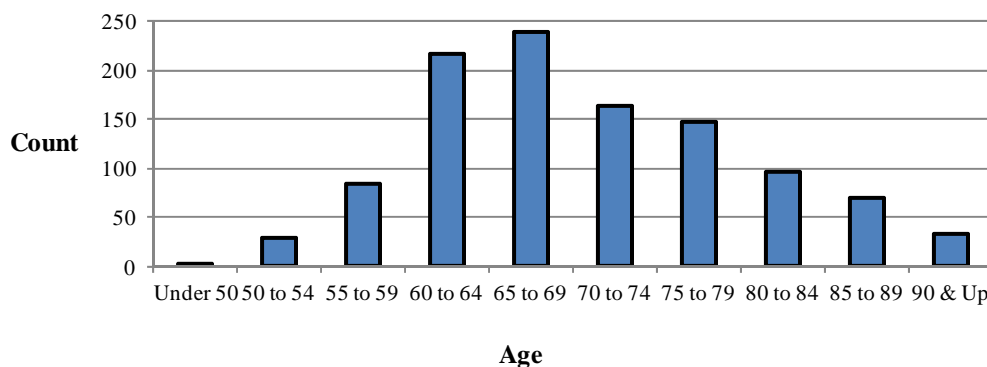
**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

**SUMMARY OF RETIRED MEMBERS\***  
as of December 31, 2012

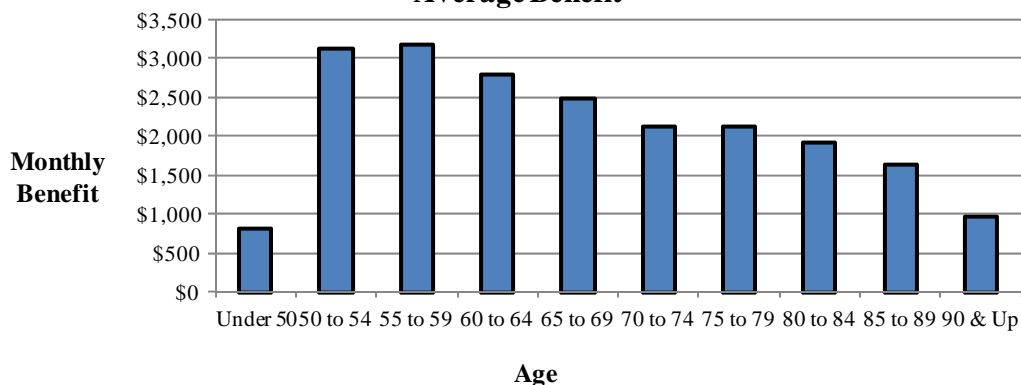
All Plans

Age	Number			Monthly Benefit		
	Male	Female	Total	Male	Female	Total
Under 50	0	1	1	\$ 0	\$ 818	\$ 818
50 to 54	20	9	29	66,982	23,983	90,965
55 to 59	51	33	84	172,440	95,039	267,479
60 to 64	152	64	216	441,595	162,276	603,871
65 to 69	137	101	238	397,192	196,371	593,563
70 to 74	100	64	164	243,633	105,955	349,588
75 to 79	82	65	147	193,386	117,075	310,461
80 to 84	55	42	97	121,374	64,732	186,106
85 to 89	34	35	69	73,430	39,984	113,414
90 & Up	6	28	34	9,818	23,038	32,856
<b>Total</b>	<b>637</b>	<b>442</b>	<b>1,079</b>	<b>\$ 1,719,850</b>	<b>\$ 829,271</b>	<b>\$ 2,549,121</b>

**Age Distribution**



**Average Benefit**



\*Includes DROP members



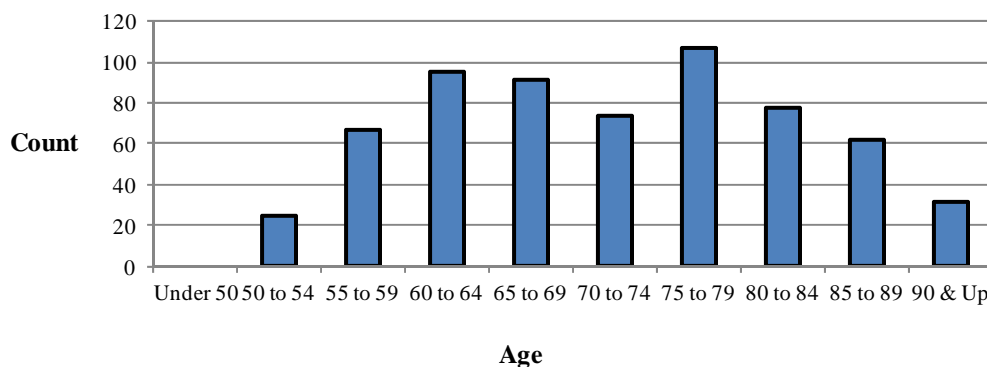
**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

**SUMMARY OF RETIRED MEMBERS\***  
as of December 31, 2012

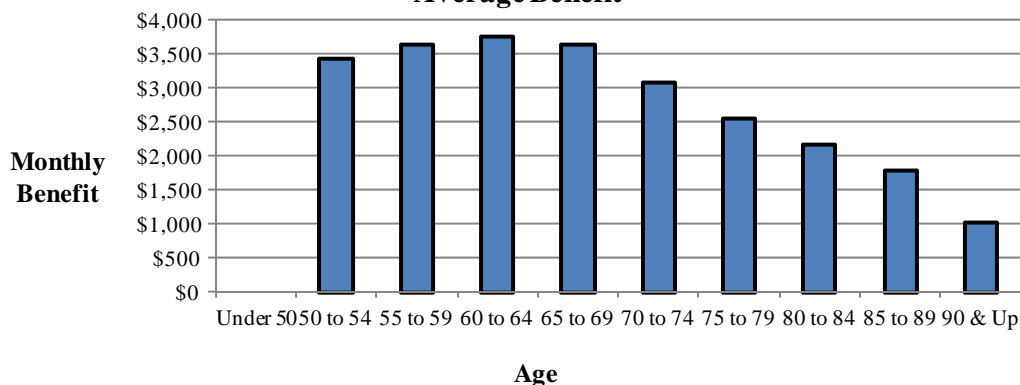
Plan 1

Age	Number			Monthly Benefit		
	Male	Female	Total	Male	Female	Total
Under 50	0	0	0	\$ 0	\$ 0	\$ 0
50 to 54	17	8	25	63,226	22,445	85,671
55 to 59	41	26	67	157,789	86,224	244,013
60 to 64	72	23	95	285,329	70,918	356,247
65 to 69	60	31	91	243,530	87,279	330,809
70 to 74	52	22	74	176,700	51,608	228,308
75 to 79	63	44	107	176,058	96,460	272,518
80 to 84	43	35	78	110,420	59,351	169,771
85 to 89	31	31	62	71,816	38,467	110,283
90 & Up	6	26	32	9,818	22,503	32,321
<b>Total</b>	<b>385</b>	<b>246</b>	<b>631</b>	<b>\$ 1,294,686</b>	<b>\$ 535,255</b>	<b>\$ 1,829,941</b>

**Age Distribution**



**Average Benefit**



\*Includes DROP members





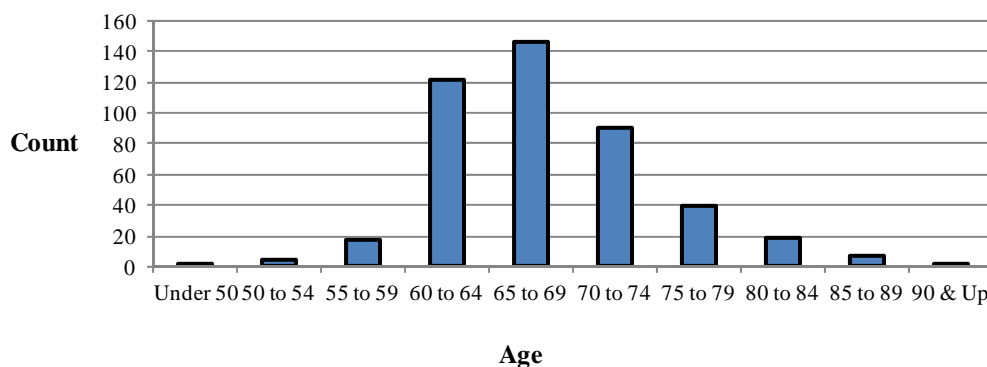
**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

**SUMMARY OF RETIRED MEMBERS\***  
as of December 31, 2012

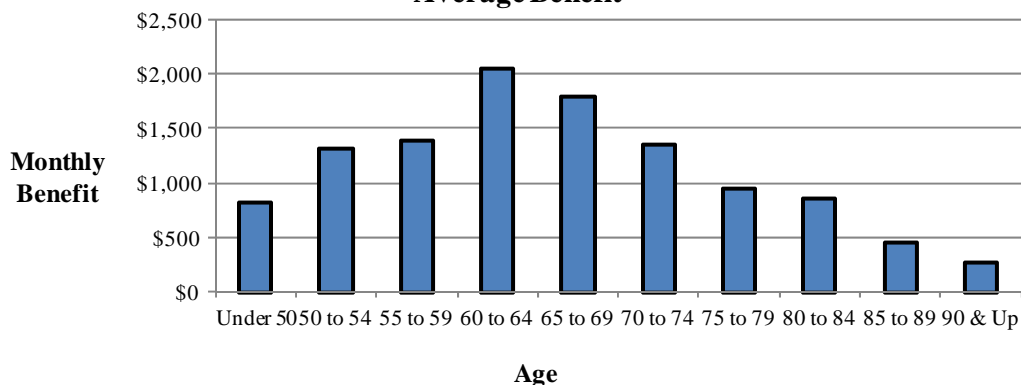
Plan 2

Age	Number			Monthly Benefit		
	Male	Female	Total	Male	Female	Total
Under 50	0	1	1	\$ 0	\$ 818	\$ 818
50 to 54	3	1	4	3,756	1,538	5,294
55 to 59	10	7	17	14,651	8,815	23,466
60 to 64	80	41	121	156,266	91,358	247,624
65 to 69	77	70	147	153,662	109,092	262,754
70 to 74	48	42	90	66,933	54,347	121,280
75 to 79	19	21	40	17,328	20,615	37,943
80 to 84	12	7	19	10,954	5,381	16,335
85 to 89	3	4	7	1,614	1,517	3,131
90 & Up	0	2	2	0	535	535
<b>Total</b>	<b>252</b>	<b>196</b>	<b>448</b>	<b>\$ 425,164</b>	<b>\$ 294,016</b>	<b>\$ 719,180</b>

**Age Distribution**



**Average Benefit**



\*Includes DROP members



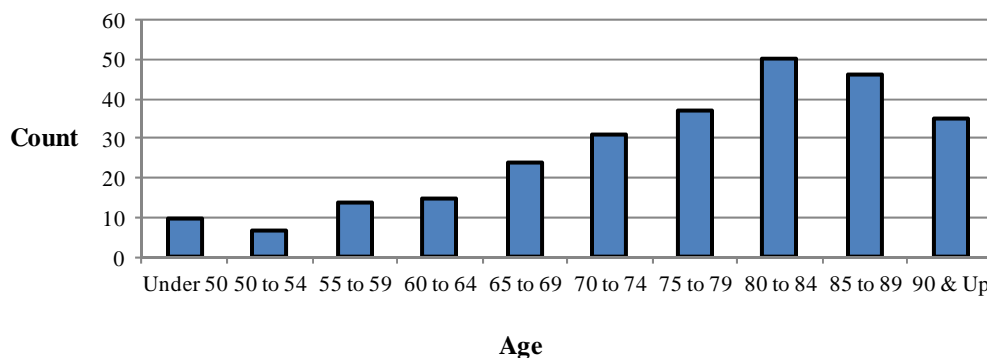
**SUMMARY OF BENEFICIARIES**

as of December 31, 2012

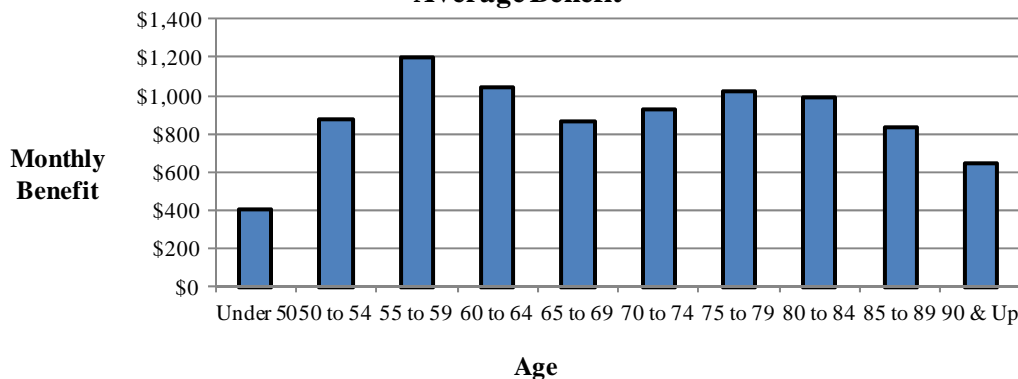
All Plans

Age	Number			Monthly Benefit		
	Male	Female	Total	Male	Female	Total
Under 50	3	7	10	\$ 1,239	\$ 2,842	\$ 4,081
50 to 54	3	4	7	3,497	2,627	6,124
55 to 59	0	14	14	0	16,824	16,824
60 to 64	1	14	15	711	14,929	15,640
65 to 69	3	21	24	2,078	18,688	20,766
70 to 74	4	27	31	1,667	27,177	28,844
75 to 79	3	34	37	2,250	35,363	37,613
80 to 84	10	40	50	6,580	43,079	49,659
85 to 89	6	40	46	3,294	35,006	38,300
90 & Up	2	33	35	872	21,517	22,389
<b>Total</b>	<b>35</b>	<b>234</b>	<b>269</b>	<b>\$ 22,188</b>	<b>\$ 218,052</b>	<b>\$ 240,240</b>

**Age Distribution**



**Average Benefit**



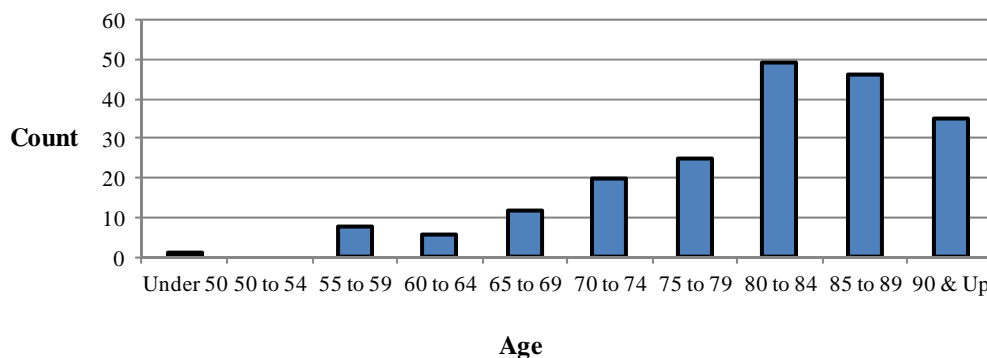


**SUMMARY OF BENEFICIARIES**  
as of December 31, 2012

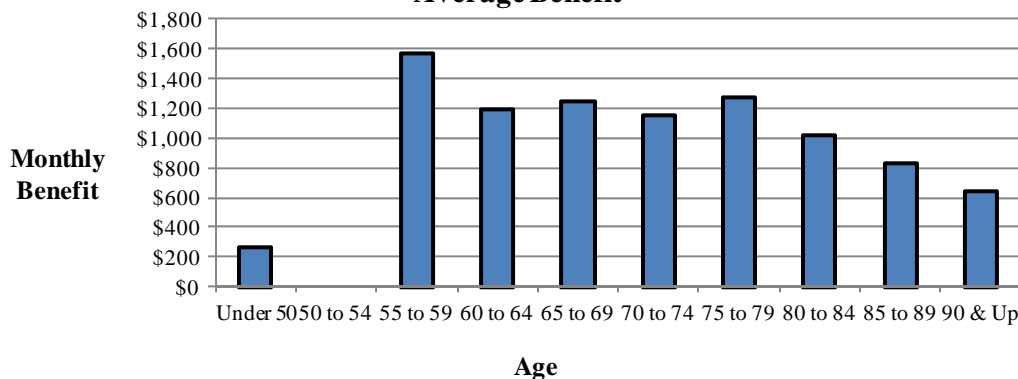
Plan 1

Age	Number			Monthly Benefit		
	Male	Female	Total	Male	Female	Total
Under 50	0	1	1	\$ 0	\$ 259	\$ 259
50 to 54	0	0	0	0	0	0
55 to 59	0	8	8	0	12,590	12,590
60 to 64	1	5	6	711	6,410	7,121
65 to 69	2	10	12	1,451	13,493	14,944
70 to 74	2	18	20	1,179	21,953	23,132
75 to 79	1	24	25	1,321	30,416	31,737
80 to 84	10	39	49	6,580	43,016	49,596
85 to 89	6	40	46	3,294	35,006	38,300
90 & Up	2	33	35	872	21,517	22,389
<b>Total</b>	<b>24</b>	<b>178</b>	<b>202</b>	<b>\$ 15,408</b>	<b>\$ 184,660</b>	<b>\$ 200,068</b>

**Age Distribution**



**Average Benefit**





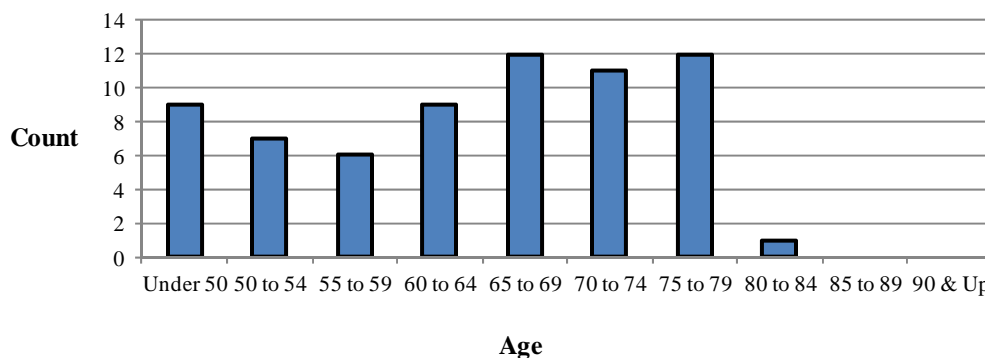
**APPENDIX A: SUMMARY OF MEMBERSHIP DATA**

**SUMMARY OF BENEFICIARIES**  
as of December 31, 2012

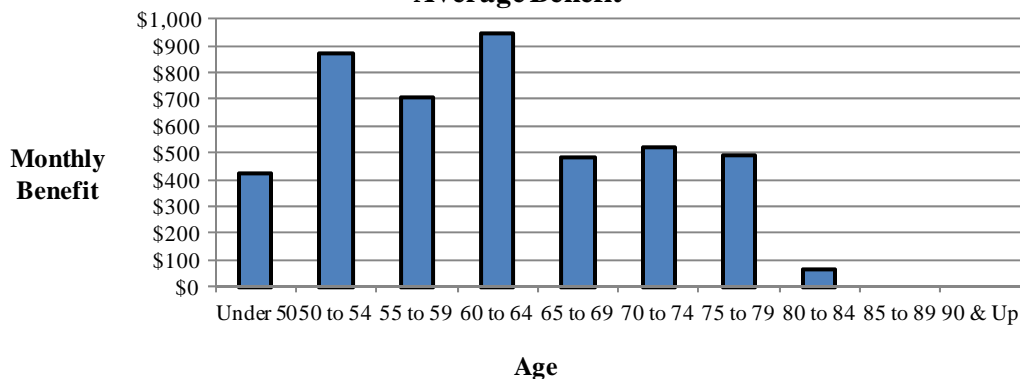
Plan 2

Age	Number			Monthly Benefit		
	Male	Female	Total	Male	Female	Total
Under 50	3	6	9	\$ 1,239	\$ 2,583	\$ 3,822
50 to 54	3	4	7	3,497	2,627	6,124
55 to 59	0	6	6	0	4,234	4,234
60 to 64	0	9	9	0	8,519	8,519
65 to 69	1	11	12	627	5,195	5,822
70 to 74	2	9	11	488	5,224	5,712
75 to 79	2	10	12	929	4,947	5,876
80 to 84	0	1	1	0	63	63
85 to 89	0	0	0	0	0	0
90 & Up	0	0	0	0	0	0
<b>Total</b>	<b>11</b>	<b>56</b>	<b>67</b>	<b>\$ 6,780</b>	<b>\$ 33,392</b>	<b>\$ 40,172</b>

**Age Distribution**



**Average Benefit**





## **Summary of Benefit Provisions**

### **Defined Benefit Plans 1 and 2**

**Plan 1** is applicable to members employed prior to July 18, 1981 who have not elected to be covered by Plan 2.

**Plan 2** is applicable to members employed or re-employed on or after July 18, 1981 and before January 1, 1994 and to other employees who have elected Plan 2 coverage.

**Plan 3** is applicable to members employed on or after January 1, 1994 who have not become covered by Plan 2. Plan 3 members are automatically transferred to Plan 2 after they have 7 years of service unless they file an irrevocable election to remain in Plan 3.

#### **NORMAL RETIREMENT (NO REDUCTION FACTOR)**

**Eligibility – Plan 1:** Age 60 with 7 or more years of service, or any age with 30 or more years of service.

**Eligibility – Plan 2:** Age 62 with 7 or more years of service (effective August 1, 1990).

**Amount of Pension – Plan 1:** Service times 2.5% of Final Average Salary to a maximum of 75% of Final Average Salary.

**Amount of Pension – Plan 2:** Service times 2.25% of Final Average Salary to a maximum of 75% of Final Average Salary (effective January 1, 2000).

**Final Average Salary – all plans:** Average for the 3 consecutive years of service which produce the highest average and which are within the last 10 years of service.

#### **EARLY RETIREMENT (WITH REDUCTION FACTOR)**

**Eligibility – all plans:** Age 55 with 7 or more years of service.

**Amount of Pension – Plan 1:** Computed as for normal retirement, but reduced for each month retirement precedes age 60. The reduction is 0.05 of 1% if service is 29 years but less than 30 years, increasing by 0.05 of 1% for each additional year of service less than 30 years, to a maximum of 0.50 of 1% if service is less than 21 years.

**Amount of Pension – Plan 2:** Computed as for normal retirement, but reduced for each month retirement precedes age 62. The reduction is 0.6% per month for every year of age less than 62 with a maximum reduction of 50.4% at age 55.



## **APPENDIX B: SUMMARY OF BENEFIT PROVISIONS**

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### **DEFERRED RETIREMENT (VESTED TERMINATION)**

**Eligibility – all plans:** 7 or more years of service. A terminated employee may apply for a reduced pension upon meeting the applicable age requirement for early retirement or an unreduced pension upon meeting the applicable age requirement for normal retirement. A terminated employee may elect a refund of employee contributions, plus applicable interest, in lieu of a deferred retirement benefit.

**Amount of Pension – all plans:** An amount computed as for normal retirement. Vested deferred pensions are adjusted during the deferral period based on changes in National Average Earnings, up to 5.5% annual adjustments.

### **DEFERRED RETIREMENT OPTION PLAN (DROP)**

**Eligibility – all plans:** Member must be eligible to retire under early reduced or normal age and/or service requirements and elect to participate in DROP for up to 5 years.

**Amount of Benefit – all plans:** Benefit computed based on years of service, Final Average Salary as of the DROP election date, and length of DROP period. Benefit is paid into member's notional DROP account during the deferral period. Member continues to make required employee contributions during the deferral period. Interest at an annual rate of 5%, compounded monthly, is credited to the notional DROP account. Voluntary termination of employment during the DROP period results in loss of accrued interest. Balance of DROP account is payable within 90 days of actual termination of employment.

### **SERVICE-CONNECTED DISABILITY**

**Eligibility – all plans:** No age or service requirement. Requires total and permanent disability, as defined in State worker's compensation act, for employment by the City in a position commensurate with the employee's training, experience and education.

**Amount of Pension – Plan 1:** 60% of final rate of Salary.

**Amount of Pension – Plan 2:** 50% of final rate of Salary.

### **NON-SERVICE DISABILITY**

**Eligibility – all plans:** 7 or more years of service. Requires total and permanent disability for employment by the City in a position commensurate with the employee's training, experience and education.

**Amount of Pension – Plan 1:** 30% of Final Average Salary plus 1% of Final Average Salary times service over 7 years; maximum is 50% of Final Average Salary.

**Amount of Pension – Plan 2:** 25% of final rate of Salary.



## **APPENDIX B: SUMMARY OF BENEFIT PROVISIONS**

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### **POST-RETIREMENT SURVIVOR BENEFITS**

**Eligibility – all plans Surviving Spouse:** Must have been married to retired employee for one year or more, at time of death if retired after January 1, 2000. If retired prior to January 1, 2000, must have been married to retired employee at retirement.

**Eligibility – all plans Minor Children:** Must be less than 18 years old.

**Amount of Pension – all plans Surviving Spouse:** 50% of amount that was being paid to retiree.

**Amount of Pension – all plans Minor Child with Surviving Spouse:** 10% of the member's Final Average Salary for each child under age 18. Maximum, including surviving spouse benefit, is 75% of Final Average Salary.

**Amount of Pension – all plans Minor Child without Surviving Spouse:** 20% of the member's Final Average Salary for each child under age 18. Maximum benefit is 60% of Final Average Salary.

### **POST-RETIREMENT FUNERAL BENEFITS**

**Eligibility – Designated Beneficiary:** Must have been designated by the retired employee.

**Amount of Benefit – Plan 1:** \$1,500

**Amount of Benefit – Plan 2:** None

### **PRE-RETIREMENT SURVIVOR BENEFITS**

**Eligibility – Surviving Spouse:** Death of employee with 7 or more years of service.

**Eligibility – Designated Beneficiary:** The beneficiary designated by an unmarried member or by a member who fails to meet the 7 year service requirement for the surviving spouse benefit.

**Amount of Pension – Surviving Spouse:** 50% of amount that that the deceased employee would have been entitled to had he/she been on an unreduced retirement at time of death.

**Amount of Pension – Designated Beneficiary:** The deceased employee's contributions, plus applicable interest, plus one month's Salary for each full year of service up to a maximum of 6 years.

### **OTHER TERMINATION BENEFITS**

**Eligibility – all plans:** Termination of employment without eligibility for any other benefit.

**Amount of Benefit – all plans:** Accumulated employee contributions with interest at 5% per year compounded monthly are refunded.



## APPENDIX B: SUMMARY OF BENEFIT PROVISIONS

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### POST-RETIREMENT ADJUSTMENTS OF PENSIONS

**Eligibility – Plan 1:** Completion of 12 months of retirement.

**Eligibility – Plan 2:** If retired on or after January 1, 2000, completion of 12 months of retirement. If retired before January 1, 2000, there is no adjustment (effective February 19, 2000).

**Annual Amount – Plan 1:** 3% of the base amount of benefit (simple COLA).

**Annual Amount – Plan 2:** 2% of the base amount of benefit (simple COLA).

### EMPLOYEE CONTRIBUTIONS

Plan 1: 6.4% of total compensation

Plan 2: 4.7% of base salary and longevity pay (effective February 19, 2000)

Plan 3: 4.7% of compensation (effective February 19, 2000)

### CITY CONTRIBUTIONS

Actuarially determined amount which together with employee contributions and investment earnings will fund the obligations of the System in accordance with accepted actuarial principles

Plan 3: 4.7% of compensation, less forfeitures from non-vested terminations (effective February 19, 2000).

### UNUSED SICK LEAVE

Each bi-weekly service credit of accumulated unused sick leave is converted to a service credit for the purpose of computing annual benefit amounts.

### VESTING OF CONTRIBUTIONS

**Plan 3:** Member contributions and investment earnings thereon are 100% vested. City contributions and investment earnings thereon are 25% vested after 3 years of service, 50% vested after 5 years of service, and 100% vested after 7 years of service.

### DISTRIBUTION OF VESTED ACCOUNTS

**Plan 3:** Vested accounts are payable upon termination of City employment or death. Available forms of payment are prescribed by the Board.

### DISABILITY RETIREMENT

**Plan 3:** Service and non-service connected disability benefits are the same as those of Plan 2. Plan 3 members may alternatively elect to receive a refund of their Plan 3 vested account.





## **APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS**

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### **ACTUARIAL COST METHOD**

The actuarial cost method is a procedure for allocating the actuarial present value of pension benefits and expenses to time periods. The method used for the valuation is known as the Entry Age Normal actuarial cost method, and have the following characteristics:

- (i) The annual normal costs for each individual active member are sufficient to accumulate the value of the member's pension at time of retirement.
- (ii) Each annual normal cost is a constant percentage of the member's year-by-year projected covered compensation.

The Entry Age Normal actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's assumed pensionable compensation rates between the entry age of the member and the assumed exit ages.

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called actuarial liability. Deducting actuarial assets from the actuarial liability determines the unfunded actuarial liability or (surplus). The unfunded actuarial liability/(surplus) is financed as a level percent of member payroll over an open 20-year period.

### **ACTUARIAL ASSUMPTIONS**

Retirement System contribution requirements and actuarial present values are calculated by applying experience assumptions to the benefit provisions and membership information of the Retirement System, using the actuarial cost method.

The principal areas of risk which require experience assumptions about future activities of the Retirement System are:

- (i) Long-term rates of investment return to be generated by the assets of the System
- (ii) Patterns of pay increases to members
- (iii) Rates of mortality among members, retirees and beneficiaries
- (iv) Rates of withdrawal of active members
- (v) Rates of disability among active members
- (vi) The age patterns of actual retirements



## APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS

In making a valuation, the monetary effect of each assumption is calculated for as long as a present covered person survives – a period of time which can be as long as a century.

Actual experience of the Retirement System will not coincide exactly with assumed experience. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experiences. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time to time, one or more of the assumptions are modified to reflect experience trends (but not random or temporary year-to-year fluctuations). A complete review of the actuarial assumptions was completed in 2009. The use of updated assumptions was effective with the December 31, 2009 valuation.

**Investment Rate of Return** (net of administrative expenses): This assumption is 7.75% a year, compounded annually and consists of 3.5% long-term price inflation and a 4.25% real rate of return over price inflation. This assumption, used to equate the value of payments due at different points in time, was adopted by the Board and was first used for the December 31, 1981 valuation, although the allocation between inflation and real return has changed periodically, most recently in 2009.

**Salary Increase Rates:** These rates are used to project current pay amounts to those upon which a benefit will be based. This table was first used in the December 31, 2009 valuation.

Years of Service	Annual Rate of Salary Increase for Sample Service Durations			
	Inflation Component	Productivity Component	Merit and Longevity	Total
1	3.50%	0.50%	3.20%	7.20%
2	3.50	0.50	3.00	7.00
3	3.50	0.50	2.80	6.80
4	3.50	0.50	2.60	6.60
5	3.50	0.50	2.40	6.40
6	3.50	0.50	2.20	6.20
7	3.50	0.50	2.00	6.00
8	3.50	0.50	1.80	5.80
9	3.50	0.50	1.70	5.70
10	3.50	0.50	1.60	5.60
11	3.50	0.50	1.50	5.50
12	3.50	0.50	1.40	5.40
13	3.50	0.50	1.30	5.30
14	3.50	0.50	1.20	5.20
15	3.50	0.50	1.06	5.06
16	3.50	0.50	0.92	4.92
17	3.50	0.50	0.78	4.78
18	3.50	0.50	0.65	4.65
19	3.50	0.50	0.50	4.50
20	3.50	0.50	0.50	4.50
21	3.50	0.50	0.50	4.50
22	3.50	0.50	0.50	4.50
23	3.50	0.50	0.50	4.50
24	3.50	0.50	0.50	4.50
25	3.50	0.50	0.50	4.50
Over 25	3.50	0.50	0.25	4.25



## APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS

The salary increase assumptions will produce 4.0% annual increases in active member payroll (the inflation and productivity base rate) given a constant active member group size. This is the same payroll growth assumption used to amortize the unfunded actuarial liability. The real rate of return over assumed wage growth is 3.75% per year.

Changes actually experienced in average pay and total payroll have been as follows:

	Year Ended					5 Year (Average) Compounded Annual Increase
	12/31/12	12/31/11	12/31/10	12/31/09	12/31/08	
Average Payroll	3.2%	(1.1)%	1.1%	5.5%	2.2%	2.8%
Total Payroll	2.3%	(10.0)%	(4.3)%	0.8%	3.1%	(1.7)%

**Mortality Table:** This assumption is used to measure the probabilities of members dying and the probabilities of each pension payment being made after retirement.

Healthy Retirees

And Beneficiaries: RP-2000 Healthy Annuitant Table (ages set forward 2 years for males, 0 for females)

Disabled Retirees: RP-2000 Disabled Table for Males and Females

Active Members: RP-2000 Employee Table (ages set forward 2 years for males, 0 for females)

The RP-2000 Tables are used with generational mortality.

Sample Ages <sup>(1)</sup>	Present Value of \$1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
50	\$136.27	\$141.98	30.4	34.6
55	128.67	135.41	25.7	29.7
60	118.41	127.04	21.2	25.1
65	150.86	116.91	16.9	20.7
70	91.20	104.80	13.0	16.7
75	75.12	90.90	9.7	13.0
80	58.98	75.76	6.9	9.8
85	44.42	60.20	4.8	7.1

(1) Ages in 2000

This table was first used for the December 31, 2004 actuarial valuation.



## APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS

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**Rates of Retirement and Deferred Retirement Option Plan (DROP) Elections:** These rates are used to measure the probability of eligible members retiring under either the regular retirement provisions or from the Deferred Retirement Option Plan.

**Percent Retiring During Year**

Retirement		
Age	Plan 1	Plan 2
55	15%	5%
56	15	5
57	15	5
58	15	5
59	15	5
60	40	5
61	40	5
62	20	30
63	20	30
64	20	40
65	100	40
66	N/A	30
67	N/A	30
68	N/A	30
69	N/A	30
70	N/A	100

In addition, the following assumptions would apply to members in this category:

**Plan 1:** 70% of members with 30 or more years of service will elect the DROP with an average DROP period of 48 months. The remaining 30% are assumed to retire immediately.

**Plan 2:** 70% of members with 33.33 or more years of service and are at least age 62 will elect the DROP with an average DROP period of 36 months.

All members of the retirement system were assumed to retire on or before age 70.

This assumption was first used in the December 31, 2009 actuarial valuation.



## APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS

**Rates of Separation from Active Membership:** This assumption measures the probabilities of a member terminating employment. The rates do not apply to members who are eligible to retire.

Sample Ages	Years of Service	Probability of Terminating During Year
ALL	0	25.00%
	1	19.00
	2	14.00
	3	11.00
	4	9.00
25	Over 4	9.00
30		7.00
35		5.25
40		4.00
45		3.50
50		2.50
55		1.50
60		1.50

These rates were first used for the December 31, 2009 valuation.

**Forfeiture of Vested Benefits:** The assumption is that a percentage of the actuarial present value of vested termination benefits will be forfeited by a withdrawal of accumulated contributions.

Years of Service	Percent Forfeiting
Under 15	60%
15-19	40
20-24	20
25 or more	0

This table was first used for the December 31, 2004 actuarial valuation.

**Rates of Disability:** This assumption measures the probabilities of a member becoming disabled.

Sample Ages	% of Active Members Becoming Disabled During Next Year
25	0.02%
30	0.03
35	0.04
40	0.07
45	0.10
50	0.18
55	0.32
60	0.53

These rates were first used for the December 31, 2009 valuation. Disabilities are assumed to be non-duty related.



## APPENDIX C: ACTUARIAL COST METHOD AND ASSUMPTIONS

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**Administrative Expenses:** Assumed to be paid from investment earnings.

**Active Member Group Size:** Assumed to remain constant.

**Vested Deferred Pensions:** Amounts are assumed to increase during the deferral period at 4.0% per year. This assumption was first used for the December 31, 2009 valuation.

### MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

**Marriage Assumption:** 70% of non retired participants are assumed to be married for purposes of death benefits. In each case, the male was assumed to be 3 years older than the female.

**Pay Increase Timing:** Assumed to be mid-year.

**Decrement Timing:** Decrements of all types are assumed to occur mid-year.

**Eligibility Testing:** Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year at the start of the year in which the decrement is assumed to occur.

**Benefit Service:** Service calculated to the nearest month, as of the decrement date, is used to determine the amount of benefit payable.

**Other:** The turnover decrement does not operate during retirement eligibility.

**Miscellaneous Loading Factors:** The calculated normal retirement benefits were increased by 4% to account for the inclusion of unused sick leave in the calculation of Service. This assumption was changed with the December 31, 2004 valuation.

**Plan 3 Transfer Assumption:** For purposes of the valuation, Plan 3 members are assumed to transfer to Plan 2 if they acquire 7 years of service. An additional reserve is held for the difference between the market and actuarial value of assets. This assumption was changed with the December 31, 2004 valuation.



## APPENDIX D: GLOSSARY OF TERMS

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<b>Actuarial Liability</b>	The difference between the actuarial present value of system benefits and the actuarial present value of future normal costs. Also referred to as “accrued liability” or “actuarial liability”
<b>Actuarial Assumptions</b>	Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.
<b>Accrued Service</b>	Service credited under the system which was rendered before the date of the actuarial valuation.
<b>Actuarial Equivalent</b>	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate assumptions.
<b>Actuarial Cost Method</b>	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement system benefit between future normal cost and actuarial liability; sometimes referred to as the “actuarial funding method”.
<b>Experience Gain (Loss)</b>	The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates.
<b>Actuarial Present Value</b>	The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.
<b>Amortization</b>	Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with lump sum payment.
<b>Normal Cost</b>	The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method.
<b>Unfunded Actuarial Liability</b>	<p>The difference between actuarial liability and the valuation assets.</p> <p>Most retirement systems have unfunded actuarial liability. They arise each time new benefits are added and each time an actuarial loss is realized.</p> <p>The existence of unfunded actuarial liability is not in itself bad, anymore than a mortgage on a house is bad. Unfunded actuarial liability does not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial liability and the trend in its amount.</p>