Gabriel Roeder Smith & Company
Consultants & Actuaries

CITY OF ROYAL OAK RETIREMENT SYSTEM

REVIEW OF SYSTEM EXPERIENCE
JULY 1, 2006 THROUGH JUNE 30, 2012

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September 26, 2013

The Board of Trustees
City of Royal Oak Retirement System
Royal Oak, Michigan

Dear Board Members:

Presented in this report are the results of a review of Retirement System experience. The investigation was conducted for the purpose of updating the actuarial assumptions used in valuing the City of Royal Oak Retirement System (RORS) actuarial liabilities, assets and actuarially determined employer contribution rates.

The investigation was based upon the data furnished for the annual actuarial valuations during the period ***July 1, 2006 through June 30, 2012.***

We have shown the expected impact of the proposed changes on City contributions as of June 30, 2012. This information is shown in Section D of this report.

Mark Buis and James D. Anderson are Members of the American Academy of Actuaries (MAAA) and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,

Mark Buis, FSA, EA, MAAA

James D. Anderson, FSA, EA, MAAA

MHB:JDA/mrb

INDEX

Section	Page	
	1	Introduction
A		**Demographic Assumptions**
	2	Retirement
	3-4	Retirement Rates
	5	Turnover
	6	Turnover Rates
	7	Disability
	8	Disability Rates
	9	Mortality
	10	Summary of Life Expectancies
	11	Merit and Longevity Portion of Pay Increases
B		**Economic Assumptions**
	12-16	Investment Return and Wage Inflation
	17	Summary of Current and Proposed Assumptions
C	18-19	**Miscellaneous Assumptions and Methods**
D		**Contribution Rates Based on Proposed Changes**
	20	Effects of Recommended Changes in Actuarial Assumptions on Actuarial Liabilities and Pension Contribution Rates
E		**Complete Listing of Recommended Assumptions**
	21	Proposed Retirement Rates
	22	Proposed Turnover rates
	23	Proposed Disability Rates
	24	Proposed Mortality Rates
	25	Proposed Merit and Longevity Portion of Pay Increases

INTRODUCTION

Each year, as of June 30th, the actuarial liabilities of the City of Royal Oak Retirement System are valued. In order to perform the valuation, assumptions must be made regarding the future experience of the System with regard to the following risk areas:

- Rates of **termination** of active members
- Rates of **disability** among active members
- Rates of **retirement** among active members
- Rates of **mortality** among active members, retirants and beneficiaries
- Long-term rates of **investment return** to be generated by the assets of the System
- Patterns of **salary increases** to active members

Assumptions should be carefully chosen and continually monitored. Continued use of outdated assumptions can lead to:

- Understated costs resulting in either an inability to pay benefits when due, or sharp increases in required contributions at some point in the future;

- Overstated costs resulting in either benefit levels that are kept below the level that could be supported by the computed rate or an unnecessarily large burden on the current generation of members, employers and taxpayers.

A single set of assumptions will not be suitable indefinitely. Things change, and our understanding of things also changes. In recognition of this, assumptions used to value the liabilities of the Retirement System should be reviewed and adjusted periodically to recognize changes in experience trends, a changing economic environment (or changing perceptions of the economic environment) and to maintain consistency within the universe of public employee retirement systems. The results of this analysis are shown in Section A of this report.

A common practice among public employee retirement systems is that the actuary recommends a set of demographic assumptions and suggests a range of reasonable alternate economic assumptions. Following discussion involving the actuary, the plan governing body, and other professionals, the plan governing body makes a final choice from the various alternatives.

SECTION A

DEMOGRAPHIC ASSUMPTIONS

RETIREMENT

Discussion: Rates of retirement are used to measure the probabilities of an eligible member retiring from City employment during the next year. During the study period, actual rates of retirement for the City of Royal Oak Retirement System have been higher than expected for all groups.

Summary of Experience: The experience during the study period is summarized below:

Number of Retirements Among Eligible System Members					
Police & Fire		General and Police Service Aides		Total	
Actual	Expected	Actual	Expected	Actual	Expected
50	9.5	63	35.0	113	44.5

Proposal: We recommend a change in the retirement rates for the Police and Fire groups, General employees, and Police Service Aides. The current and proposed retirement rates are shown on the following page. This change will put upward pressure on liabilities.

RETIREMENT RATES
CURRENT RATES OF RETIREMENT

Retirement Ages	General	Police Service Aides	Fire Hired After 10/1/09	Retirement Service	Police, and Fire Hired Before 10/1/09
		Percents of Active Members Retiring within Next Year			
45-49					
50	15%		35%	25	35%
51	10%		35%	26	35%
52	10%		35%	27	35%
53	10%		20%	28	20%
54	10%		20%	29	20%
55	10%	15%	20%	30	20%
56	10%	10%	20%	31	20%
57	10%	10%	20%	32	20%
58	10%	10%	20%	33	20%
59	10%	10%	20%	34	20%
60	10%	10%	20%	35	20%
61	10%	10%	20%	36	20%
62	30%	10%	20%	37	20%
63	15%	10%	20%	38	20%
64	15%	10%	20%	39	20%
65	50%	10%	100%	40	100%
66	40%	10%			
67	40%	30%			
68	40%	15%			
69	40%	15%			
70	100%	100%			
Ref.	625	623	576		576

PROPOSED RATES OF RETIREMENT

Retirement Ages	Percents of Active Members Retiring within Next Year: General	Police Service Aides	Fire Hired After 10/1/09	Retirement Service	Police, and Fire Hired Before 10/1/09
45-49					
50	20%		40%	25	40%
51	15%		40%	26	40%
52	15%		40%	27	40%
53	15%		25%	28	25%
54	15%		25%	29	25%
55	15%	20%	25%	30	25%
56	15%	15%	25%	31	25%
57	15%	15%	25%	32	25%
58	15%	15%	25%	33	25%
59	15%	15%	25%	34	25%
60	15%	15%	25%	35	25%
61	15%	15%	25%	36	25%
62	35%	15%	25%	37	25%
63	20%	15%	25%	38	25%
64	20%	15%	25%	39	25%
65	55%	15%	100%	40	100%
66	45%	15%			
67	45%	35%			
68	45%	20%			
69	45%	20%			
70	100%	100%			
Ref.	2321	2322	2323		2323

TURNOVER

Discussion: During the study period, actual rates of termination for the General employees and Police Service Aides have been higher than expected and rates of termination for the Police and Fire groups have been less than expected at most ages. This experience suggests a need to increase the overall assumed rates of termination for the General employees and Police Service Aides, and decrease the overall assumed rates of termination for the Police and Fire employees. The tables on the current and following pages summarize recent experience and the current and proposed rates of termination.

Summary of Experience: The experience during the study period is summarized below.

Number of General Employee and Police Service Aide Terminations from City Employment

Vested		Non-Vested		Total	
Actual	**Expected**	**Actual**	**Expected**	**Actual**	**Expected**
16	11.9	10	9.1	26	21.0

Number of Police and Fire Terminations from City Employment

Vested		Non-Vested		Total	
Actual	**Expected**	**Actual**	**Expected**	**Actual**	**Expected**
2	4.1	9	9.8	11	13.9

Proposal: Change the current turnover rates to the proposed rates summarized on the following page. This change will have slight downward pressure on liabilities for General members and slight upward pressure for Police and Fire members.

TURNOVER RATES
CURRENT RATES OF TURNOVER

Sample Ages	Years of Service	% of Active Members Separating within Next Year *	
		General & PSA	Police & Fire
ALL	0	12.00%	10.00%
	1	9.00%	7.00%
	2	7.00%	5.00%
	3	5.00%	4.00%
	4	4.50%	3.50%
25	5 & Over	5.00%	3.50%
30		4.50%	2.90%
35		3.55%	1.50%
40		1.45%	0.60%
45		0.75%	0.50%
50		0.75%	0.50%
55		0.75%	0.50%
60		0.75%	0.50%
65		0.75%	0.50%
Ref.		29 55	30 54

PROPOSED RATES OF TURNOVER

Sample Ages	Years of Service	% of Active Members Separating within Next Year *	
		General & PSA	Police & Fire
ALL	0	12.00%	10.00%
	1	9.00%	7.00%
	2	7.00%	5.00%
	3	5.00%	4.00%
	4	4.50%	3.50%
25	5 & Over	4.50%	3.00%
30		4.00%	2.50%
35		3.50%	1.50%
40		2.50%	1.00%
45		2.00%	0.75%
50		1.50%	0.50%
55		1.00%	0.25%
60		1.00%	0.25%
65		1.00%	0.25%
Ref.		29 1300	30 1301

* *No separations are assumed for members eligible to retire.*

DISABILITY

Discussion: The actual number of disability retirements was lower than expected during the study period for all groups.

Number of Disability Retirements from City Employment					
Police and Fire		General and Police Service Aides		Total	
Actual	Expected	Actual	Expected	Actual	Expected
3	5.6	2	4.9	5	10.5

Proposal: Change the current disability rates to the proposed rates summarized on the following page. This change will put slight downward pressure on liabilities.

DISABILITY RATES

CURRENT RATES OF DISABILITY

Sample Ages	% of Active Members Becoming Disabled within Next Year		
	General & PSA		
	Male	Female	Police & Fire
20	0.07%	0.03%	0.10%
25	0.09%	0.05%	0.15%
30	0.10%	0.07%	0.25%
35	0.14%	0.13%	0.30%
40	0.21%	0.19%	0.70%
45	0.32%	0.28%	0.80%
50	0.52%	0.45%	0.95%
55	0.92%	0.76%	1.10%
60	1.53%	1.10%	1.20%
Ref.	33	34	45

PROPOSED RATES OF DISABILITY

Sample Ages	% of Active Members Becoming Disabled within Next Year		
	General & PSA		
	Male	Female	Police & Fire
20	0.04%	0.02%	0.08%
25	0.05%	0.03%	0.11%
30	0.05%	0.04%	0.19%
35	0.07%	0.07%	0.23%
40	0.11%	0.10%	0.53%
45	0.16%	0.14%	0.60%
50	0.26%	0.23%	0.71%
55	0.46%	0.38%	0.83%
60	0.77%	0.55%	0.90%
Ref.	33	34	45
Multiplier:	50%	50%	75%

MORTALITY

Discussion: The mortality assumption is used to measure the probabilities of members dying before retirement and the probability of each benefit payment being made after retirement. The mortality table currently used for healthy lives in the annual valuation of the System is the 1994 Group Annuity Mortality Table (multiplied by 110%). While there were slightly more deaths than expected among retirees over the experience period, the membership in this group is not sufficiently large enough to determine if there is margin for mortality improvements. National trends indicate longevity improvements. Based on our experience with a broad cross section of public sector plans similar in nature to this plan, it is our opinion that the current mortality assumption be updated.

Proposal: We recommend updating the post-retirement mortality assumption to use the RP-2000 Mortality Tables, projected 20 years (multiplied by 110%). Rates for disabled members were set forward 10 years. The current and proposed future life expectancy assumptions are shown on the next page. This change will have upward pressure on liabilities.

SUMMARY OF LIFE EXPECTANCIES UNDER THE CURRENT TABLES

	Single Life Retirement Values	
	Future Life Expectancy (Years)	
Age	Men	Women
50	29.80	34.03
55	25.29	29.33
60	21.01	24.78
65	17.08	20.51
70	13.60	16.60
75	10.51	12.96
80	7.85	9.75
Ref. Table	261	262
Multiplier	1.10	1.10

SUMMARY OF LIFE EXPECTANCIES UNDER THE PROPOSED TABLES

	Single Life Retirement Values	
	Future Life Expectancy (Years)	
Age	Men	Women
50	31.97	33.76
55	27.27	29.03
60	22.72	24.49
65	18.47	20.24
70	14.58	16.34
75	11.01	12.82
80	7.93	9.66
Ref. Table	454	455
Multiplier	1.10	1.10

MERIT AND LONGEVITY PORTION OF PAY INCREASES

Discussion: Pay increases granted to individual active members consist in principle of two parts. The first part is an across-the-board economic type of increase related to inflation or cost-of-living changes. The second part, merit and/or longevity increases, relates to the performance of individual active members during a given year. Merit and longevity may include promotions and pay increases related to years of experience. Overall, merit and longevity pay increases were lower than expected during the experience period.

Proposal: Lower the rates of merit and longevity as well as the base (economic) rate of salary increase for all groups. The current and proposed rates are shown below.

Current Rates

Sample Ages	Annual Rate of Salary Increase for Sample Age Merit & Longevity	
	General & PSA	Police-Fire
20	3.8%	3.0%
25	3.1%	3.0%
30	2.7%	3.0%
35	2.4%	2.1%
40	2.1%	0.8%
45	1.7%	0.2%
50	1.1%	0.1%
55	0.7%	0.0%
60	0.2%	0.0%
65	-	-
Ref	5	225

Proposed Rates

Sample Ages	Annual Rate of Salary Increase for Sample Age Merit & Longevity	
	General & PSA	Police-Fire
20	2.9%	2.3%
25	2.3%	2.3%
30	2.0%	2.3%
35	1.8%	1.6%
40	1.6%	0.6%
45	1.3%	0.2%
50	0.9%	0.1%
55	0.5%	0.0%
60	0.1%	0.0%
65	-	-
Ref	417	418

SECTION B

ECONOMIC ASSUMPTIONS

ECONOMIC ASSUMPTIONS
INVESTMENT RETURN AND WAGE INFLATION

Considerations in establishing economic assumptions include:

- Historical patterns
- Economic forecasts
- Investment policy
- Funding level
- Generally accepted practice
- Acceptable level of risk of having to increase future contributions
- Appropriate balance between generations of participants and taxpayers

Only hindsight will tell whether a particular combination of economic assumptions is optimal. If the economic environment remains favorable, a change to more optimistic assumptions provides a reasonable means of freeing up contribution dollars today. The trade-off is that additional risk is incurred. If a change proves to be overly optimistic, future contributions will increase.

Current economic assumptions for the City of Royal Oak Retirement System are as follows:

Net Investment Return	7.75%
Wage Inflation	3.50%
Price Inflation	3.00%

Price Inflation. In past years, no specific price inflation assumption was necessary in order to perform the actuarial valuation. However, price inflation is a key component of the underlying wage inflation and interest rate assumptions and must now be disclosed in actuarial reports. The chart on the following page shows historical averages of both price and wage inflation. While long term historical averages approach 4.0%, short term averages are generally between 2.0% and 3.0%. Most investment firms expect inflation to be between 2.0% and 3.0%, and the 2012 annual report of the Social Security Trustees uses 2.8% as the intermediate assumption. **We believe a reasonable range within which to set this long term assumption is anywhere from 2.0% to 3.0%.**

SUMMARY OF FINDINGS - ECONOMIC ASSUMPTIONS (CONTINUED)

Year	Annual Increase in Prices (CPI-U)	Wages (NAE)	Difference
3-Year Avg	2.1%	3.1%	1.0%
5-Year Avg	1.8%	2.0%	0.2%
10-Year Avg	2.4%	3.0%	0.6%
20-Year Avg	2.4%	3.4%	1.0%
30-Year Avg	2.9%	3.8%	0.9%
50-Year Avg	4.1%	4.8%	0.7%

Wage Inflation. The long-term rate of increase in National Average Earnings over the last 50 years is somewhat higher than the current RORS assumption, although shorter term averages are below it. It is expected that, in the long run, salary increases in all parts of the country will be close to the national averages. However, few economists are forecasting a repeat of the high inflation rates experienced in the 1970s. In addition, average salaries in RORS have risen at approximately 2.8% a year since 1988 and approximately 2.4% over the last 10 years. **We believe a reasonable range within which to set this long term assumption is anywhere from 2.75% to 3.75%.**

We have illustrated the approximate impact on contribution requirements if the wage inflation assumption were changed from 3.50% to 3.00% on page 20.

SUMMARY OF FINDINGS - ECONOMIC ASSUMPTIONS (CONTINUED)

Investment Return and Spread. The RORS asset mix is approximately 61% in equities (common stock, real estate, and venture capital). Market returns for portfolios with equity holdings at that level have exceeded 7.75% since the early 1980s, although prior to that, returns were much weaker, and real returns were actually negative in some years. Of course, the results of the past decade are causing investment professionals to reconsider their longer term views of the investment markets. As a result, many systems have been lowering their investment return assumption. Although many systems have lowered their investment return assumption, RORS's current assumption is still well within the mainstream. Each retirement system will have a different investment return assumption given their asset allocation and risk tolerance. Additionally, we have modeled RORS's current investment portfolio using the expectations of various investment consulting firms. The results on page 15 range from a median 20-year geometric return of 6.82% to a mean return of 7.79%. Keep in mind that we are not investment experts and this analysis is based on broad ranges and average of averages.

GRS recommends seeking advice from RORS's investment consultants prior to making a change in the 7.75% investment return assumption.

We have illustrated the approximate impact on contribution requirements if the investment return assumption were changed to 7.50% on page 20.

SUMMARY OF FINDINGS - ECONOMIC ASSUMPTIONS (CONCLUDED)

Investment Return Expectations of Various Investment Consultants

Investment Consultant	Distribution of 20-Year Average Geometric Net Nominal Return 25th	50th	75th	Probability of exceeding 7.75% *	Expected Nominal Rate of Return **
(1)	(2)	(3)	(4)	(5)	(4)
1	4.10%	6.09%	8.13%	29.1%	6.96%
2	4.10%	6.14%	8.22%	30.1%	7.05%
3	4.43%	6.52%	8.66%	34.9%	7.47%
4	4.45%	6.63%	8.85%	36.6%	7.66%
5	5.30%	7.09%	8.91%	40.3%	7.78%
6	5.02%	7.16%	9.34%	42.7%	8.15%
7	4.92%	7.28%	9.68%	44.7%	8.48%
8	5.38%	7.66%	10.00%	49.0%	8.79%
Average	**4.71%**	**6.82%**	**8.98%**	**38.4%**	**7.79%**

**Plan's current return assumption net of expenses.*

***Based on 3.0% Price Inflation*

2006 – 2012 EXPERIENCE ANALYSIS
HISTORICAL PATTERNS OF INVESTMENT RETURN, PAY INCREASES & INFLATION

Calendar Year Period	Gross Market Returns: Bonds (Long) U.S. Treasury	Gross Market Returns: Bonds (Long) Corp. (S&P AA)	Gross Market Returns: Cash Equiv. (T Bills)	Stocks (S&P 500)	Price Inflation (CPI)	National Average Earnings	Sample Balanced Fund*: Total Return (I)	Sample Balanced Fund*: Spread: I - NAE
1950-1959	(0.1)%	1.0 %	1.9 %	19.4 %	2.2 %	4.5 %	13.2 %	8.7 %
1960-1969	1.4 %	1.7 %	3.9 %	7.8 %	2.5 %	4.3 %	5.9 %	1.6 %
1970-1979	5.5 %	6.2 %	6.3 %	5.9 %	7.4 %	6.9 %	6.2 %	(0.7)%
1980-1989	12.6 %	13.0 %	8.9 %	17.5 %	5.1 %	5.8 %	16.1 %	10.3 %
1990-1999	8.8 %	8.4 %	4.9 %	18.2 %	2.9 %	4.2 %	14.9 %	10.7 %
2000-2009	7.7 %	7.6 %	2.8 %	(0.9)%	2.5 %	2.9 %	2.9 %	0.0 %
2010	10.1 %	12.4 %	0.1 %	15.1 %	1.5 %	2.4 %	13.7 %	11.3 %
2011	28.2 %	18.0 %	0.0 %	2.1 %	3.0 %	3.1 %	8.9 %	5.8 %
2012	3.3 %	10.7 %	0.1 %	16.0 %	1.7 %	3.9 %	13.0 %	9.1 %
Last 63 Years	**6.3 %**	**6.6 %**	**4.5 %**	**11.0 %**	**3.7 %**	**4.7 %**	**9.8 %**	**5.1 %#**

* Sample Balanced Fund	
Equities	65%
Bonds - Government	20%
- Corporate	14%
Cash Equivalents	1%
	100%

 # Historical Spread

Observed spread is very sensitive to the observation period, even over long periods, as illustrated below:

Observation Period	Spread
63 years	5.1%
53 years	4.5%
43 years	5.2%
33 years	7.0%

Note: Market index returns do not reflect investment expense (commissions and management fees). Those expenses generally range from 0.25% to 1.0% of assets. The net real rate of return for a plan that pays its own investment expenses would be correspondingly lower.

SUMMARY OF CURRENT AND PROPOSED ASSUMPTIONS

	Economic Assumptions			Non-Economic Assumptions	
				Demographic	
Assumption Set	Net Rate of Investment Return	Rate of Inflation Wage	Rate of Inflation Spread	Police and Fire	General and Police Service Aides
A. Base	7.75%	3.50%	4.25%	Current	Current
B. Proposed Demographic	7.75	3.50	4.25	Proposed	Proposed
C. Alternate I Economic	7.50	3.50	4.00	Proposed	Proposed
D. Alternate II Economic	7.75	3.00	4.75	Proposed	Proposed
E. Alternate III Economic	7.50	3.00	4.50	Proposed	Proposed

SECTION C

MISCELLANEOUS ASSUMPTIONS AND METHODS

Annuity Withdrawal Option

If elected, a member's contribution account balance is paid in a lump sum at retirement. The regular retirement benefit is then reduced so that total benefits paid (lump sum plus monthly pension) are equivalent to the regular retirement benefit. The interest rate used to establish equivalency is based on the PBGC rates in effect at the time of retirement. These rates have averaged just over 2% for the last 5 years. Since the interest rate used to value liabilities is greater than 2.0% (currently 7.75% assumed interest rate), members who elect this option receive a higher net benefit than if this offset was calculated using valuation assumptions. Liabilities for active members are currently not increased to account for this subsidy. However, since PBGC rates are much lower now than they have been historically, we recommend an adjustment factor of 3.0%. Future studies should be conducted periodically to review the appropriateness of this assumption.

Load in FAC for Unused Sick and Vacation Time

Unused vacation and sick leave can be rolled into final average compensation at time of retirement. As a result our valuation includes a percent load to account for this provision. We analyzed the final average compensation with and without the unused vacation and sick leave for all members who retired during the period 2006 to 2012. Based on the results of this analysis we recommend the following change:

Division	Actual	Current Assumption	Proposed Assumption
General and Police Service Aides	2.70%	3.00%	3.00%
Police and Fire	10.70	4.00	7.00

Option Factors

Option factors are calculated using the current interest assumption and the assumed rates of mortality. If a retiring member elects an optional form of benefit, the assumed benefit is multiplied by the appropriate option factor to produce the benefit actually payable. As a matter of common practice, option factors are usually revised to correspond to the new interest and mortality assumptions adopted with an experience study.

Currently, option factors for survivor benefits are calculated using a 7.75% interest rate assumption and current assumed rates of mortality. If our recommended mortality tables are adopted, we recommend a change to the option factors. Examples of option factors calculated using the old and new mortality assumptions are shown below along with using the new mortality and a 7.0 % interest rate. If the new assumptions are adopted, we recommend the new actuarial factors be adopted for retirements on or after January 1, 2014 to allow time for administrative changes. We would also recommend that any change in assumptions also be adopted for service purchase calculations and that such changes be reviewed by legal counsel.

Retiring Participants' Ages		50% Joint & Survivor			100% Joint & Survivor		
				Proposed			Proposed
Retiree	Beneficiary	Present	Proposed	7.50%	Present	Proposed	7.50%
50	45	0.94908	0.96185	0.96040	0.90310	0.92651	0.92382
55	50	0.93175	0.94759	0.94594	0.87223	0.90040	0.89743
60	55	0.90994	0.92899	0.92718	0.83476	0.86739	0.86424
65	60	0.88481	0.90628	0.90435	0.79341	0.82862	0.82541

Amortization Policy

The current actuarial valuation report computes contribution amounts using a 30-year rolling amortization period for Police and Fire and a 26-year closed amortization period for the General employees and Police Service Aides. The maximum period allowed under GASB is 30 years. Shorter amortization periods will increase the volatility of contribution rates from year to year. We recommend using a closed amortization for the Police and Fire group. This change would not have an immediate impact on the contribution rate.

Asset Valuation Method

The City of Royal Oak Retirement System currently uses a 4-year asset smoothing method with no corridor. The Funding Value of Assets recognizes assumed investment income fully each year. Differences between actual and assumed investment income are phased-in over closed 4-year periods. This is a very common method among public retirement systems. Most systems use an averaging period between 3 and 10 years with 5 being the most common. We do not recommend any changes at this time. If, however, the Board has concerns over the volatility of contributions, a smoothing period of 5 or 7 years could be considered. If the smoothing period was lengthened, we would recommend establishing a 'corridor', so that the Funding Value will not diverge too far from the actual Market Value. Systems which use a corridor will vary on the amount of the corridor, but it is typically between 10% and 30%.

SECTION D

CONTRIBUTION RATES BASED ON PROPOSED CHANGES

EFFECTS OF RECOMMENDED CHANGES IN ACTUARIAL ASSUMPTIONS ON ACTUARIAL LIABILITIES AND PENSION CONTRIBUTION RATES
RESULTS AS OF JUNE 30, 2012

	GENERAL AND POLICE SERVICE AIDES				
	A	**B**	**C**	**D**	**E**
	Baseline	**New Decrements**	**New Decrements with 7.50% Interest**	**New Decrements with 3.0% Wage Inflation**	**New Decrements with 7.50% Interest and 3.0% Wage Inflation**
Actuarial Value of Assets	$ 52,554,782	$ 52,554,782	$ 52,554,782	$ 52,554,782	$ 52,554,782
Actuarial Accrued Liability	75,528,666	78,094,915	80,017,923	77,629,973	79,539,254
Unfunded Accrued Liability	$ 22,973,884	$ 25,540,133	$ 27,463,141	$ 25,075,191	$ 26,984,472
Funded Percent	69.6 %	67.3 %	65.7 %	67.7 %	66.1 %
Employer Normal Cost %	9.65 %	9.41 %	10.24 %	8.57 %	9.35 %
Employer Normal Cost $	$ 666,933	$ 639,808	$ 696,241	$ 577,078	$ 629,601
Amortization Amount	2,002,375	2,226,046	2,343,628	2,185,523	2,302,780
Estimated Dollar Contribution	$ 2,669,308	$ 2,865,854	$ 3,039,869	$ 2,762,601	$ 2,932,381

	POLICE-FIRE				
	A	**B**	**C**	**D**	**E**
	Baseline	**New Decrements**	**New Decrements with 7.50% Interest**	**New Decrements with 3.0% Wage Inflation**	**New Decrements with 7.50% Interest and 3.0% Wage Inflation**
Actuarial Value of Assets	$ 71,458,574	$ 71,458,574	$ 71,458,574	$ 71,458,574	$ 71,458,574
Actuarial Accrued Liability	115,066,703	119,358,873	122,508,250	118,648,747	121,778,431
Unfunded Accrued Liability	$ 43,608,129	$ 47,900,299	$ 51,049,676	$ 47,190,173	$ 50,319,857
Funded Percent	62.1 %	59.9 %	58.3 %	60.2 %	58.7 %
Employer Normal Cost %	12.86 %	13.43 %	14.58 %	12.25 %	13.33 %
Amortization %	28.71 %	31.55 %	32.69 %	32.92 %	34.16 %
Computed Employer%	41.57 %	44.98 %	47.27 %	45.17 %	47.49 %
Estimated Dollar Contribution	$ 3,811,399	$ 4,124,049	$ 4,334,011	$ 4,121,463	$ 4,333,147

SECTION E

COMPLETE LISTING OF RECOMMENDED ASSUMPTIONS

PROPOSED RETIREMENT RATES

Retirement Ages	Percents of Active Members Retiring within Next Year: General	Police Service Aides	Fire Hired After 10/1/09	Retirement Service	Police, and Fire Hired Before 10/1/09
45-49					
50	20%		40%	25	40%
51	15%		40%	26	40%
52	15%		40%	27	40%
53	15%		25%	28	25%
54	15%		25%	29	25%
55	15%	20%	25%	30	25%
56	15%	15%	25%	31	25%
57	15%	15%	25%	32	25%
58	15%	15%	25%	33	25%
59	15%	15%	25%	34	25%
60	15%	15%	25%	35	25%
61	15%	15%	25%	36	25%
62	35%	15%	25%	37	25%
63	20%	15%	25%	38	25%
64	20%	15%	25%	39	25%
65	55%	15%	100%	40	100%
66	45%	15%			
67	45%	35%			
68	45%	20%			
69	45%	20%			
70	100%	100%			
Ref.	2321	2322	2323		2323

PROPOSED TURNOVER RATES

Sample Ages	Years of Service	% of Active Members Separating within Next Year *	
		General & PSA	Police & Fire
ALL	0	12.00%	10.00%
	1	9.00%	7.00%
	2	7.00%	5.00%
	3	5.00%	4.00%
	4	4.50%	3.50%
25	5 & Over	4.50%	3.00%
30		4.00%	2.50%
35		3.50%	1.50%
40		2.50%	1.00%
45		2.00%	0.75%
50		1.50%	0.50%
55		1.00%	0.25%
60		1.00%	0.25%
65		1.00%	0.25%
Ref.		29 1300	30 1301

* *No separations are assumed for members eligible to retire.*

PROPOSED DISABILITY RATES

Sample Ages	% of Active Members Becoming Disabled within Next Year		
	General & PSA		
	Male	Female	Police & Fire
20	0.04%	0.02%	0.08%
25	0.05%	0.03%	0.11%
30	0.05%	0.04%	0.19%
35	0.07%	0.07%	0.23%
40	0.11%	0.10%	0.53%
45	0.16%	0.14%	0.60%
50	0.26%	0.23%	0.71%
55	0.46%	0.38%	0.83%
60	0.77%	0.55%	0.90%
Ref.	33	34	45
Multiplier:	50%	50%	75%

PROPOSED MORTALITY RATES

	Single Life Retirement Values	
	Future Life Expectancy (Years)	
Age	Men	Women
50	31.97	33.76
55	27.27	29.03
60	22.72	24.49
65	18.47	20.24
70	14.58	16.34
75	11.01	12.82
80	7.93	9.66
Ref. Table	454	455
Multiplier	1.10	1.10

PROPOSED MERIT AND LONGEVITY PORTION OF PAY INCREASES WITH 3.0% WAGE INFLATION

Sample Ages	Annual Rate of Salary Increase for Sample Age Merit & Longevity	
	General & PSA	Police-Fire
20	2.9%	2.3%
25	2.3%	2.3%
30	2.0%	2.3%
35	1.8%	1.6%
40	1.6%	0.6%
45	1.3%	0.2%
50	0.9%	0.1%
55	0.5%	0.0%
60	0.1%	0.0%
65	-	-
Ref	417	418