

Actuarial Valuation and Review as of October 1, 2013







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August 5, 2014

Board of Trustees Government of the Virgin Islands Retirement System GERS Complex St. Thomas, Virgin Islands, 00802

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of October 1, 2013. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal year ending September 30, 2014 and later years and analyzes the preceding two years of experience.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Retirement System. The census information and financial information on which our calculations were based was prepared by the staff of the Government Employees Retirement System (GERS) under the supervision of Mr. Austin L. Nibbs, CPA. That assistance is gratefully acknowledged.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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; changes in 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); and changes in plan provisions or applicable law.

The actuarial calculations were directed under our supervision. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

Leon F. (Rocky) Joyner, FCA, ASA, MAAA, EA

Vice President and Actuary

Aldwin Frias, FSA, FCA, MAAA, EA Senior Vice President and Actuary

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SECTION 1: Valuation Summary for the Government of the Virgin Islands Retirement System

Purpose

This report has been prepared by Segal Consulting to present a valuation of the Government of the Virgin Islands Retirement System as of October 1, 2013. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits and evaluate the funding status of the plan. The valuation results presented in this report are based on:

- > The benefit provisions of the Pension Plan, as administered by the Board as of October 1, 2013;
- > The characteristics of covered active members, retired members and beneficiaries as of October 1, 2013, provided by the GERS;
- > The assets of the Plan as of September 30, 2013, provided by the GERS;
- > Economic assumptions regarding future salary increases and investment earnings; and
- > Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- 1. There were inconsistencies in the data when compared to the prior valuation. The GERS needs to continue to improve the quality of the data being provided for valuation purposes. Segal is available to provide assistance to the GERS in this endeavor. For purposes of this valuation, we have made the following adjustments to the data in order to reflect the potential exposure of the Fund with regards to data issues:
 - > Active participants who were previously coded as Public Safety were assumed to remain as Public Safety employees.
 - > Prior active participants who were vested and not on any 2013 data files were assumed to be eligible for future deferred vested benefits from the System.
 - > Inactive participants who were previously eligible for future deferred vested benefits and not on any 2013 data files were assumed to be eligible for future deferred vested benefits from the System.
 - > Participants listed with active accounts who were first reported in the data as of 2013 and did not have salary information were excluded from this valuation.
 - > Participants with missing salary information were assumed to have the same salary as reported in the 2011 active data. If salary information was still unknown, participants were assumed to have the average salary of participants with salary reported.
 - > Inactive vested participants were assumed to have ten years of service as of the valuation date. Vested benefit amounts were estimated based on participants' salary and assumed service.
 - > Since no employee contribution information is provided for retirees, we assumed that the contributions would guarantee benefit payments for 4 years.
- 2. There was an overall loss during the two-year period since the last valuation was completed. This loss was the combination of actuarial investment losses for the past two years and a loss due to demographic experience as a result of the impact of the Economic Stability Act of 2011 that showed higher and earlier retirements than expected.



SECTION 1: Valuation Summary for the Government of the Virgin Islands Retirement System

- 3. This valuation reflects the suspension of the post-retirement COLA benefit increases effective January 1, 2013 for all non-disabled pensioners. This change decreased the recommend contribution as of October 1, 2013 from 66.9% of total payroll to 59.7% of total payroll. In addition, the funded percentage as of October 1, 2013 increased from 36.8% to 40.2% as a result of the change.
- 4. The total recommended contribution increased from \$212.3 million for the year beginning October 1, 2011 to \$220.9 million for the year beginning October 1, 2013. This increase is mainly due to actual contributions less than the recommended contributions and the experience loss incurred over the past two years offset by the COLA suspension indicated above. Projected contributions for the year beginning October 1, 2013 amount to \$95.9 million, resulting in a shortfall of \$124.9 million.
- 5. The Plan has a funded percentage of 40.2% as of October 1, 2013 as compared to 45.7% as of October 1, 2011. This decrease is also a result of actual contributions less than recommended and the experience loss incurred over the past two years offset by the COLA suspension indicated above.
- 6. This report reflects the impact of the Economic Stability Act of 2011. As a result, the active population declined 9.5% and the retiree population increased 5.1% since September 30, 2011.
- 7. The actuarial valuation report as of October 1, 2013 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected. Unfavorable asset experience will increase the actuarial cost of the Plan, while favorable experience will decrease the actuarial cost of the Plan. Based on all assumptions being exactly met, including the 7.5% investment return assumption, a level active population and a total payroll of \$370.1 million assumed to increase 2.5% per year, the plan is projected to be insolvent by the year ending September 30, 2025. This is two years later than what was reported in the last valuation. This delay in the insolvency date was primarily due to market investment gains over the last two years.

SECTION 1: Valuation Summary for the Government of the Virgin Islands Retirement System

Summary of Key Valuation Results

	September 30				
	2013	% of Pay	2011	% of Pay	
Contributions for fiscal year beginning October 1:					
Recommended	\$220,878,254	59.68%	\$212,341,701	52.63%	
Expected contributions:					
Employer	64,773,076	17.50%	70,607,948	17.50%	
Employee	31,163,003	8.42%	33,697,352	8.35%	
Shortfall	124,942,175	33.76%	\$108,036,401	26.78%	
Funding elements for plan year beginning October 1:					
Normal cost, including administrative expenses	\$52,684,229		\$55,475,323		
Market value of assets	1,252,509,113		1,274,271,359		
Actuarial value of assets	1,237,213,473		1,448,926,591		
Actuarial accrued liability	3,080,464,945		3,168,037,497		
Unfunded actuarial accrued liability	1,843,251,472		1,719,110,906		
Funded Ratio	40.16%		45.74%		
Projected insolvency in Plan Year ending September 30	2025		2023		
Demographic data for plan year beginning October 1:					
Number of retired members and beneficiaries	8,024		7,592		
Number of active members	9,393		10,376		
Projected covered payroll	\$370,131,865		\$403,473,988		
Projected average payroll	\$39,405		\$38,885		



SECTION 2: Valuation Results for the Government of the Virgin Islands Retirement System

A. MEMBER DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered members, including active members, retired members and beneficiaries. This section presents a summary of significant statistical data on these member groups.

The decline in the active population and increase in the retiree population since September 30, 2011 is primarily due to the Economic Stability Act of 2011. The significant decline in the ratio of actives to retirees over the last 20 years indicates a smaller contribution base supporting the payment of benefits and expenses.

In addition, there are inactive members with a right to deferred vested pensions that are not shown in the chart below. For purposes of our valuation, the potential liabilities for such inactive members were estimated and reflected in the valuation.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A and B.

A historical perspective of how the member population has changed over the past ten valuations can be seen in this chart.

CHART 1 Member Population: 1993 – 2013

Year Ended September 30	Active Members	Retired Members and Beneficiaries	Ratio of Actives to Retirees
1993	11,642	3,473	3.4
1994	12,116	3,751	3.2
1995	11,493	4,438	2.6
1997	11,572	4,682	2.5
1999	10,763	6,212	1.7
2001	9,303	5,581	1.7
2003	10,037	6,093	1.6
2006	10,739	7,282	1.5
2011	10,376	7,592	1.4
2013	9,393	8,024	1.2



Active Members

Plan costs are affected by the age, years of credited service and payroll of active members. In this year's valuation, there were 9,393 active members with an average age of 46.3, average years of credited service of 14.6 years and average payroll of \$39,405. The 10,376 active members in the prior valuation had an average age of 45.7, average service of 13.9 years and average payroll of \$38,885.

These graphs show a distribution of active members by age and by years of credited service.

CHART 2
Distribution of Active Members by Age as of September 30, 2013

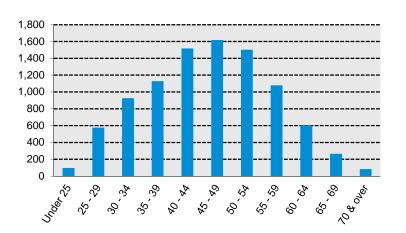
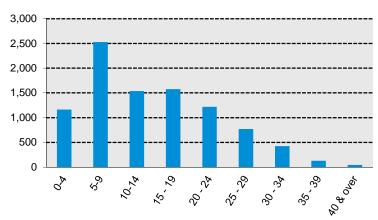


CHART 3
Distribution of Active Members by Years of Credited Service as of September 30, 2013





Retired Members and Beneficiaries

As of September 30, 2013, 7,845 retired members and 179 beneficiaries were receiving total semi-monthly benefits of \$9,287,519. For comparison, in the previous valuation, there were 7,462 retired members and 130 beneficiaries receiving semi-monthly benefits of \$8,381,441.

These graphs show a distribution of the current retired members based on their semi-monthly amount and age, by type of pension.

CHART 4 Distribution of Retired Members by Type and by Semi-Monthly Amount as of September 30, 2013

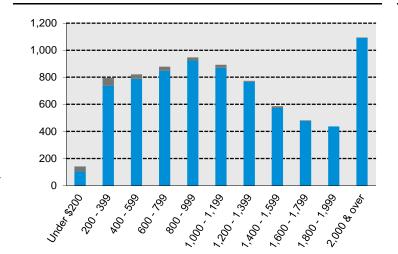
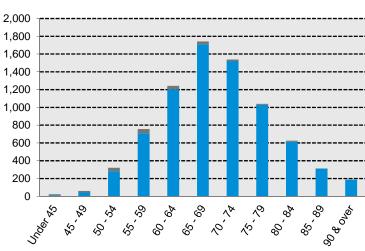


CHART 5 Distribution of Retired Members by Type and by Age as of September 30, 2013



■ Disability
■ Non-Disability



SECTION 2: Valuation Results for the Government of the Virgin Islands Retirement System

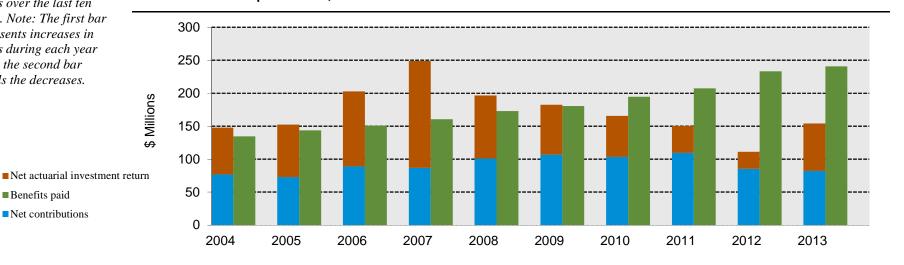
B. FINANCIAL INFORMATION

Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits C, D and E.

The chart depicts the components of changes in the actuarial value of assets over the last ten years. Note: The first bar represents increases in assets during each year while the second bar details the decreases.

CHART 6 Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended September 30, 2004 - 2013





■Benefits paid ■ Net contributions

SECTION 2: Valuation Results for the Government of the Virgin Islands Retirement System

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

The chart shows the determination of the actuarial value of assets as of the valuation date.

CHART 7

Determination of Actuarial Value of Assets

		Year Ended September 30,		
		2013	2012***	
1. Market value of assets, September 30, 2013		\$1,252,509,113	\$1,303,393,954	
	Original	Unrecognized	Unrecognized	
2. Calculation of unrecognized return	Amount *	Return**	Return**	
(a) Year ended September 30, 2013	\$18,086,329	\$14,469,063	N/A	
(b) Year ended September 30, 2012	70,822,106	42,493,264	\$56,657,685	
(c) Year ended September 30, 2011	-96,672,474	-38,668,990	-58,003,484	
(d) Year ended September 30, 2010	-14,988,487	-2,997,697	-5,995,395	
(e) Year ended September 30, 2009	-81,518,792	0	-16,303,759	
(f) Year ended September 30, 2008	-278,583,217	0	0	
(g) Total unrecognized return		15,295,640	-23,644,953	
3. Preliminary actuarial value: (1) - (2g)		1,237,213,473	1,327,038,907	
4. Adjustment to be within 20% corridor		0	0	
5. Final actuarial value of assets as of September 30, 2013: (3) + (4)		1,237,213,473	<u>\$1,327,038,907</u>	
6. Actuarial value as a percentage of market value: $(5) \div (1)$		98.8%	101.8%	
7. Amount deferred for future recognition: (1) - (5)		15,295,640	-\$23,644,953	

^{*} Total return on market value basis minus expected return on actuarial basis

^{***} Actuarial value of assets as of September 30, 2012 was calculated based on preliminary financial information



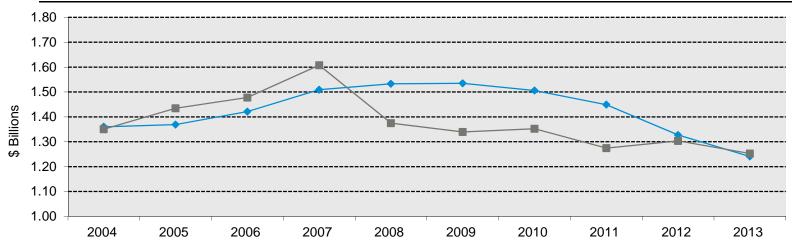
^{**} Recognition at 20% per year over 5 years

Both the actuarial value and market value of assets are representations of the Retirement System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the Retirement Systems's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

This chart shows the change in the actuarial value of assets versus the market value over the past ten years.

CHART 8

Actuarial Value of Assets vs. Market Value of Assets as of September 30, 2004 – 2013





- Actuarial Value

── Market Value

SECTION 2: Valuation Results for the Government of the Virgin Islands Retirement System

C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

As shown below, the total loss is \$233.3 million. The net experience variation from individual sources other than investments was approximately 3.5% of the expected actuarial accrued liability. A discussion of the major components of the actuarial experience is on the following pages.

This chart provides a summary of the actuarial experience over the past two years.

CHART 9 Actuarial Experience for Two-Year Period Ended September 30, 2013

1.	Net loss from investments*	-\$107,056,550
2.	Net loss from administrative expenses	-7,375,649
3.	Net loss from other experience	<u>-118,862,891</u>
4.	Net experience loss: $(1) + (2) + (3)$	-\$233,295,090

^{*} Details in Chart 10



SECTION 2: Valuation Results for the Government of the Virgin Islands Retirement System

Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Retirement System's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 7.50%. The actual rate of return on an actuarial basis for the 2013 plan year was 5.83% and 1.67% for the 2012 year.

Since the actual return for each year was less than the assumed return, the Retirement System experienced an actuarial loss during the two-year period ending September 30, 2013 with regard to its investments.

This chart shows the gain/(loss) due to investment experience.

CHART 10 Actuarial Value Investment Experience

	Year I	Ended
	September 30, 2013	September 30, 2012
1. Actual return	\$72,583,326	\$23,046,297
2. Average value of assets	1,245,834,527	1,376,459,600
3. Actual rate of return: $(1) \div (2)$	5.83%	1.67%
4. Assumed rate of return	7.50%	7.50%
5. Expected return: (2) x (4)	\$93,437,590	\$103,234,470
6. Actuarial gain/(loss): (1) – (5)	<u>-\$20,854,264</u>	<u>-\$80,188,173</u>



Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last twelve years, including five-year and twelve-year averages. Based upon this experience and future expectations, we have maintained the assumed rate of return of 7.50%. We will continue to monitor the plan's investment returns in the future.

CHART 11
Investment Return – Actuarial Value vs. Market Value: 2002 - 2013

	Actuarial Value Investment Return		Market Investmer	
Year Ended September 30	Amount	Percent	Amount	Percent
2002	\$47,652,769	3.62%	-\$24,338,277	-2.05%
2003	65,092,552	4.97%	194,663,983	17.55%
2004	71,121,154	5.40%	132,269,237	10.61%
2005	79,765,485	6.02%	155,416,276	11.82%
2006	113,850,560	8.51%	104,567,156	7.45%
2007	162,081,911	11.71%	203,822,428	14.15%
2008	95,522,330	6.48%	-160,719,061	-10.23%
2009	75,674,851	5.06%	38,166,899	2.85%
2010	62,251,642	4.18%	104,159,043	8.05%
2011	40,829,900	2.80%	19,891,578	1.53%
2012	23,046,297	1.67%	174,056,576	14.48%
2013	<u>72,583,326</u>	5.83%	111,523,919	9.12%
Total	\$909,472,777		\$1,053,479,757	
Most	ecent five-year average return	3.88%		7.04%
	Twelve-year average return	5.50%		6.74%

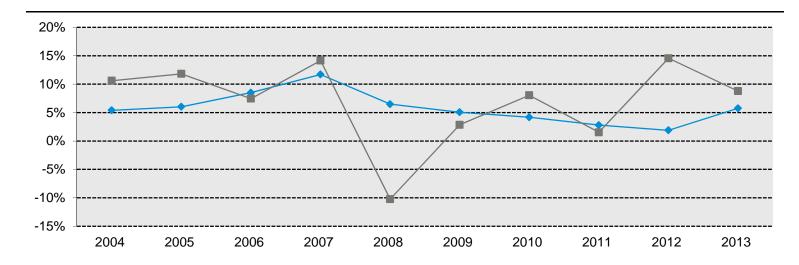


Note: Each year's yield is weighted by the average asset value in that year.

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

This chart illustrates how this leveling effect has actually worked over the years 2004 - 2013.

CHART 12
Market and Actuarial Rates of Return for Years Ended September 30, 2004 - 2013



Actuarial Value

─■ Market Value



SECTION 2: Valuation Results for the Government of the Virgin Islands Retirement System

Administrative Expenses

Administrative expenses for the two year period ending September 30, 2013 totaled \$38,063,187 compared to the assumption of \$30,194,009, payable monthly. This resulted in a loss of \$7,375,649, when adjusted for timing. Based on this experience and future expectations, we have changed the assumption to \$16 million, payable at the beginning of the year, for the October 1, 2013 plan year.

Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- > retirement experience (earlier or later than expected),
- > mortality (more or fewer deaths than expected),
- > the number of disability retirements, and
- > salary increases different than assumed.

Another difference may be a significant change in the participant data and changes resulting from estimating the potential liability for current inactive vested members that might be eligible for future benefits.

The net loss from this other experience for the two-year period ending September 30, 2013 amounted to \$118,862,891, which is approximately 3.5% of the expected actuarial accrued liability. This loss was primarily due to the demographic changes resulting from the Economic Stability Act of 2011 that showed higher and earlier retirements than expected. We are continuously monitoring the plan's experience and may revise our actuarial assumptions in the future, if warranted.

D. RECOMMENDED CONTRIBUTION

The amount of annual contribution recommended to fund the Plan is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability. This total amount is then divided by the projected payroll for active members to determine the funding rate of 59.68% of payroll for the year beginning October 1, 2013 as compared to 52.63% of payroll as of October 1, 2011.

The recommended contribution is based on a fixed 20-year amortization of the unfunded actuarial accrued liability as adopted by the Board.

The recommended contributions as of October 1, 2013 are based on all of the data described in the previous sections, the actuarial assumptions described in Section 4, and the Plan provisions adopted at the time of preparation of the Actuarial Valuation. They include all changes affecting future costs, adopted benefit changes, actuarial gains and losses and changes in the actuarial assumptions. This includes the suspension of the COLA effective January 1, 2013. However, any changes effective after September 30, 2013 are not reflected in this valuation.

The chart compares this valuation's recommended contribution with the prior valuation.

CHART 13
Recommended Contribution

	Year Beginning October 1				
	20	13	2011		
	Amount	% of Payroll	Amount	% of Payroll	
1. Total normal cost	\$36,684,229	9.91%	\$40,601,427	10.06%	
2. Administrative expenses	16,000,000	4.32%	14,873,896	3.69%	
3. Employer normal cost: $(1) + (2)$	\$52,684,229	14.23%	\$55,475,323	13.75%	
4. Actuarial accrued liability	3,080,464,945		3,168,037,497		
5. Actuarial value of assets	<u>1,237,213,473</u>		<u>1,448,926,591</u>		
6. Unfunded actuarial accrued liability: (4) - (5)	\$1,843,251,472		\$1,719,110,906		
7. Payment on unfunded actuarial accrued liability	168,194,025	45.44%	156,866,378	38.88%	
8. Total recommended contribution*: (3) + (7)	<u>\$220,878,254</u>	<u>59.68%</u>	<u>\$212,341,701</u>	<u>52.63%</u>	
9. Projected employer contribution	\$64,773,076	17.50%	\$70,607,948	17.50%	
10. Projected members contributions	<u>31,163,003</u>	8.42%	33,697,352	<u>8.35%</u>	
11. Total expected contributions (9) + (10)	\$95,936,079	25.92%	\$104,305,300	25.85%	
12. Shortfall (8) - (11)	<u>\$124,942,175</u>	<u>33.76%</u>	<u>\$108,036,407</u>	<u>26.78%</u>	
13. Projected payroll	\$370,131,865		\$403,473,988		



^{*} Recommended contributions are assumed to be paid at the beginning of the year.

SECTION 3: Supplemental Information for the Government of the Virgin Islands Retirement System

EXHIBIT A

Table of Plan Coverage

	Year Ende	d September 30	
Category	2013	2011	Change From Valuation Year
Active members in valuation:			
Number	9,393	10,376	-9.5%
Average age	46.3	45.7	N/A
Average years of service	14.6	13.9	N/A
Projected total payroll	\$370,131,865	\$403,473,988	-8.3%
Projected average payroll	\$39,405	\$38,885	1.3%
Total active vested members	5,706	6,073	-6.0%
Retired members:			
Number in pay status	7,845	7,462	5.1%
Average age	69.4	69.3	N/A
Average semi-monthly benefit	\$1,174	\$1,117	5.1%
Beneficiaries:			
Number in pay status	179	130	37.7%
Average age	77.4	74.1	N/A
Average semi-monthly benefit	\$412	\$345	19.4%



EXHIBIT B

Members in Active Service as of September 30, 2013

By Age, Years of Service, and Average Payroll

	Years of Service									
Age	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	97	87	10							
	\$27,905	\$27,830	\$28,559	\$0	\$0	\$0	\$0	\$0	\$0	\$0
25 - 29	575	300	266	9						
	30,941	31,789	30,111	\$27,246						
30 - 34	927	203	559	157	8					
	33,883	34,265	33,459	34,817	\$35,534					
35 - 39	1,128	150	404	362	200	12				
	36,309	34,379	33,798	38,460	38,603	\$41,891				
40 - 44	1,517	138	393	306	470	195	15			
	39,495	35,459	35,283	38,648	42,765	44,039	\$42,757			
45 - 49	1,617	93	286	256	348	419	197	18		
	41,530	37,056	34,756	38,549	41,826	45,889	47,841	\$38,409		
50 - 54	1,502	86	261	176	218	284	280	191	6	
	41,869	38,014	34,814	38,361	39,400	44,261	49,008	45,504	\$34,578	
55 - 59	1,080	59	168	134	173	182	172	131	57	4
	42,210	37,382	37,484	37,375	39,323	41,152	48,071	50,259	48,759	\$37,974
60 - 64	604	36	108	80	95	77	78	59	50	21
	45,226	44,377	35,841	39,957	41,946	43,173	51,582	55,274	57,398	56,579
65 - 69	264	9	54	46	47	36	20	20	16	16
	41,190	39,143	35,699	37,921	38,636	39,004	44,871	46,522	60,498	52,116
70 & over	82	3	20	11	17	13	8	5		5
	43,093	36,500	39,947	39,620	38,283	50,844	41,131	47,881		61,820
Total	9,393	1,164	2,529	1,537	1,576	1,218	770	424	129	46
	\$39,405	\$34,316	\$34,180	\$38,038	\$40,929	\$44,144	\$48,450	\$48,108	\$52,904	\$53,978



EXHIBIT C
Summary Statement of Income and Expenses on an Actuarial Value Basis

	Year Ended Se	ptember 30, 2013	Year Ended Sep	tember 30, 2012*
Net assets at actuarial value at the beginning of the year		\$1,327,038,907		\$1,448,926,591
Contribution income:				
Employer contributions	\$64,431,322		\$66,677,155	
Employee contributions	34,090,376		37,727,063	
Less administrative expenses	<u>-19,581,770</u>		<u>-18,481,417</u>	
Net contribution income		78,939,928		85,922,801
Other income**		-783,854		2,239,690
Investment income:				
Interest, dividends and other income	\$34,610,880		\$35,788,070	
Adjustment towards market value	42,623,235		-7,703,128	
Less investment fees	<u>-4,650,789</u>		<u>-5,038,645</u>	
Net investment income		72,583,326		23,046,297
Total income available for benefits		\$150,739,400		\$111,208,788
Less benefit payments:				
Benefits paid to members	-\$234,361,509		-\$225,769,530	
Refunds of member contributions	<u>-6,203,325</u>		<u>-7,326,942</u>	
Net benefit payments		-\$240,564,834		-\$233,096,472
Change in reserve for future benefits		-\$89,825,434		-\$121,887,684
Net assets at actuarial value at the end of the year		\$1,237,213,473		\$1,327,038,907

^{*} Based on draft financial statements.



^{**} Includes adjustments due to restatement from draft financial statements.

EXHIBIT D
Summary Statement of Income and Expenses on a Market Value Basis

	Year Ended Sep	tember 30, 2013	Year Ended Sep	tember 30, 2012*
Net assets at market value at the beginning of the year		\$1,303,393,954		\$1,274,271,359
Contribution income:				
Employer contributions	\$64,431,322		\$66,677,155	
Employee contributions	34,090,376		37,727,063	
Less administrative expenses	<u>-19,581,770</u>		<u>-18,481,417</u>	
Net contribution income		78,939,928		85,922,801
Other income**		-783,854		2,239,690
Investment income:				
Interest, dividends and other income	\$34,610,880		\$35,788,070	
Net asset appreciation	81,563,828		143,307,151	
Less investment and administrative fees	<u>-4,650,789</u>		<u>-5,038,645</u>	
Net investment income		111,523,919		174,056,576
Total income available for benefits		\$189,679,993		\$262,219,067
Less benefit payments:				
Benefits paid to members	-\$234,361,509		-\$225,769,530	
Refunds of member contributions	<u>-6,203,325</u>		<u>-7,326,942</u>	
Net benefit payments		-\$240,564,834		-\$233,096,472
Change in reserve for future benefits		-\$50,884,841		\$29,122,595
Net assets at market value at the end of the year		\$1,252,509,113		\$1,303,393,954

^{*} Based on draft financial statement.



^{**} Includes adjustments due to restatement from draft financial statements.

EXHIBIT E
Summary Statement of Plan Assets

	Year Ended Sep	tember 30, 2013	Year Ended Sep	tember 30, 2012*
Cash and cash equivalents		\$63,394,844		\$88,926,100
Accounts receivable:				
Due from the department of finance and other agencies	\$7,842,309		\$8,885,430	
Accrued interest receivable	5,405,371		4,246,131	
Other assets	<u>4,655,116</u>		<u>4,406,556</u>	
Total accounts receivable		17,902,796		17,538,117
Investments:				
Mutual funds	\$525,599,647		\$151,795,002	
Equities	154,875,735		476,814,801	
Member loans	148,069,305		143,805,579	
Debt securities	119,374,073		162,217,018	
Real estate	106,740,444		95,599,692	
Limited partnerships	57,693,182		55,741,370	
Asset backed securities	41,622,704		84,000,927	
Other investments	30,874,093		41,737,539	
Total investments at market value		1,184,849,183		1,211,711,928
Total assets		\$1,266,146,823		\$1,318,176,145
Less accounts payable:				
Retirement benefits in process of payment	-\$4,501,849		-\$3,505,193	
Securities purchased	-566,263		-2,848,173	
Foreign currency contracts	-294,996		-142,933	
Other liabilities	<u>-8,274,602</u>		<u>-10,341,937</u>	
Total accounts payable		-\$13,637,710		-\$16,838,236
Net assets at market value		\$1,252,509,113		\$1,303,393,954
Net assets at actuarial value		\$1,237,213,473		\$1,327,038,907

^{*} Based on draft financial statement.



EXHIBIT F
Development of the Fund Through September 30, 2013

Year Ended September 30	Employer Contributions	Employee Contributions	Other Income	Net Actuarial Investment Return*	Administrative Expenses	Benefit Payments	Actuarial Value of Assets at End of Year
2004	\$54,084,454	\$30,800,512		\$71,121,154	\$8,095,749	\$134,528,897	\$1,360,288,336
2005	51,542,030	30,415,687		79,765,485	9,287,655	143,758,685	1,368,965,198
2006	65,061,430	34,209,871		113,850,560	10,257,747	150,736,277	1,421,093,035
2007	60,778,382	35,769,001		162,081,911	9,838,704	160,639,245	1,509,244,380
2008	75,871,146	36,957,585		95,522,330	11,927,702	172,785,884	1,532,881,855
2009	80,177,004	40,099,762		75,674,851	13,364,747	180,533,545	1,534,935,280
2010	77,004,630	40,107,669		62,251,642	13,609,415	194,685,196	1,506,004,610
2011	80,849,762	42,997,146		40,829,900	14,440,676	207,314,151	1,448,926,591
2012	66,677,155	37,727,063	\$2,239,690**	23,046,297	18,481,417	233,096,472	1,327,038,907
2013	64,431,322	34,090,376	-783,854**	72,583,326	19,581,770	240,564,834	1,237,213,473

^{*} Net of investment fees

^{**} Includes adjustment due to restatement from draft financial statements

EXHIBIT G

Section 415 Limitations

Section 415 of the Internal Revenue Code (IRC) specifies the maximum benefits that may be paid to an individual from a defined benefit plan and the maximum amounts that may be allocated each year to an individual's account in a defined contribution plan.

A qualified pension plan may not pay benefits in excess of the Section 415 limits. The ultimate penalty for noncompliance is disqualification: active participants could be taxed on their vested benefits and the IRS may seek to tax the income earned on the plan's assets.

In particular, Section 415(b) of the IRC limits the maximum annual benefit payable at the Normal Retirement Age to a dollar limit of \$160,000 indexed for inflation. That limit is \$205,000 for 2013 and \$210,000 for 2014. Normal Retirement Age for these purposes is age 62. These are the limits in simplified terms. They must be adjusted based on each participant's circumstances, for such things as age at retirement, form of benefits chosen and after tax contributions.

Benefits in excess of the limits may be paid through a qualified governmental excess plan that meets the requirements of Section 415(m).

Legal Counsel's review and interpretation of the law and regulations should be sought on any questions in this regard.



EXHIBIT H

Definitions of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or Actuarial Assumptions:

The estimates on which the cost of the Plan is calculated including:

- (a) <u>Investment return</u> the rate of investment yield that the Plan will earn over the long-term future;
- (b) <u>Mortality rates</u> the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) <u>Retirement rates</u> the rate or probability of retirement at a given age;
- (d) <u>Withdrawal rates</u> the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Normal Cost:

The amount of contributions required to fund the benefit allocated to the current year of service.

Actuarial Accrued Liability For Actives:

The value of all projected benefit payments for current members less the portion that will be paid by future normal costs.

Actuarial Accrued Liability For Pensioners:

The single-sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

Unfunded Actuarial Accrued Liability:

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.



Amortization of the Unfunded

Actuarial Accrued Liability: Payments made over a period of years equal in value to the Plan's unfunded actuarial

accrued liability.

Investment Return: The rate of earnings of the Plan from its investments, including interest, dividends and

capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one

year to the next.

EXI	HBIT I		
Sur	nmary of Actuarial Valuation Results as of October 1, 2013		
The	valuation was made with respect to the following data supplied to us:		
1.	Retired members as of the valuation date (including 179 beneficiaries in pay status)		8,024
2.	Members active during the year ended September 30, 2013		9,393
	Fully vested	5,706	
	Not vested	3,687	
The 1. 2. 3. 4.	actuarial factors as of the valuation date are as follows: Normal cost, including administrative expenses Present value of future benefits Present value of future normal costs Actuarial accrued liability Retired members and beneficiaries	¢1 970 425 094	\$52,684,229 3,329,205,062 248,740,117 3,080,464,945
	Inactive members with vested rights	\$1,879,425,986 163,556,545	
	Active members Active members	1,037,482,414	
5.	Actuarial value of assets (\$1,252,509,113 at market value as reported by Bert Smith & Co., CPAs)		1,237,213,473
6.	Unfunded actuarial accrued liability		\$1,843,251,472



EXHIBIT I (continued)

Summary of Actuarial Valuation Results as of October 1, 2013

Th	e determination of the recommended contribution is as follows:	
1.	Total normal cost	\$36,684,229
2.	Administrative expenses	16,000,000
3.	Total normal cost: $(1) + (2)$	\$52,684,229
4.	Payment on projected unfunded actuarial accrued liability	\$168,194,025
5.	Total recommended contribution: (3) + (4), payable at beginning of year	\$220,878,254
6.	Total expected contributions	<u>\$95,936,079</u>
	Employer	\$64,773,076
	Members	31,163,003
7.	Shortfall (5) - (6)	\$124,942,175
8.	Projected payroll	\$370,131,865
9.	Total recommended contribution as a percentage of projected payroll: $(5) \div (8)$	59.68%



EXHIBIT II
History of Employer Contributions

Plan Year Ended September 30	Annual Required Contributions*	Actual Contributions	Percentage Contributed
2004	\$108,358,399	\$54,084,454	49.91%
2005**	120,184,848	51,542,030	42.89%
2006**	131,059,471	65,061,430	49.64%
2007	137,797,268	60,778,382	44.11%
2008**	138,488,871	75,871,146	54.79%
2009**	147,490,851	80,177,004	54.36%
2010**	157,817,709	77,004,630	48.79%
2011**	162,841,336	80,849,762	49.65%
2012	178,644,349	66,677,155	37.32%
2013**	172,439,842	64,431,322	37.36%

^{*} Based on GASB Statement No. 25

^{**} Estimated based on prior year's actuarial valuation

EXHIBIT III
Schedule of Funding Progress

Actuarial Valuation Date October 1,	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b) - (a) / (c)
2004*	\$1,360,288,336	\$2,337,790,360	\$977,502,024	58.19%	\$372,996,234	262.07%
2005*	1,366,982,183	2,455,556,736	1,088,574,553	55.67%	355,462,276	306.24%
2006	1,421,093,035	2,657,664,564	1,236,571,529	53.47%	394,595,844	313.38%
2007*	1,509,244,380	2,750,383,258	1,241,138,878	54.87%	419,161,255	296.10%
2008*	1,530,604,789	2,840,823,515	1,310,218,726	53.88%	433,549,406	302.21%
2009*	1,534,899,736	2,932,161,397	1,397,261,661	52.35%	458,154,309	304.98%
2010*	1,505,970,212	3,019,029,885	1,513,059,673	49.88%	440,026,457	343.86%
2011	1,448,926,591	3,168,037,497	1,719,110,906	45.74%	403,473,988	426.08%
2012*	1,327,038,907	3,168,037,497	1,603,758,454	45.28%	381,012,309	420.92%
2013	1,237,213,473	3,080,464,945	1,843,251,472	40.16%	370,131,865	498.00%

^{*} For these years, the AAL was estimated based on projecting the AAL from the last completed actuarial valuation.



EXHIBIT IV Funded Ratio

A critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the actuarial value of assets to the actuarial accrued liabilities of the Plan as calculated. High ratios indicate a well-funded plan with assets sufficient to cover the plan's actuarial accrued liabilities. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.

The chart below depicts a history of the funded ratios for this plan.

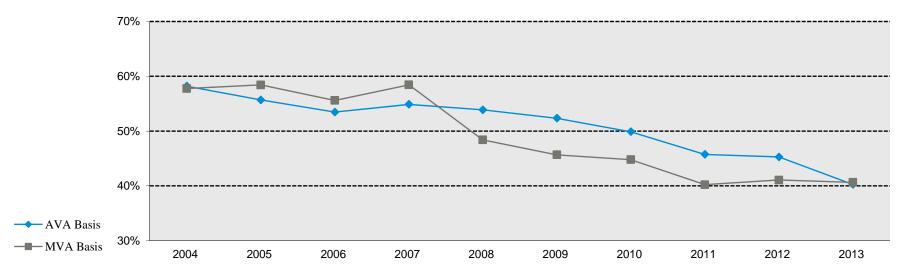




EXHIBIT V

Supplementary Information Required by the GASB

Valuation date	October 1, 2012
, 11-1-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	October 1, 2013
Actuarial cost method	Entry Age Normal Cost Method
Amortization method	Level dollar, closed group
Remaining amortization period	20 years
Asset valuation method	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the actuarial value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.
Actuarial assumptions:	
Investment rate of return	7.50%
Projected salary increases	4.00%
Cost of living adjustments	Disability benefits are increased by 1% per year prior to age 60.
Plan membership:	
Retired members and beneficiaries receiving benefits	8,024
Active members	<u>9.393</u>
Total	17,417



EXHIBIT VI

Actuarial Assumptions and Actuarial Cost Method

Mortality Rates:

RP-2000 Combined Healthy Mortality Table set forward 2 years

This mortality table was determined to contain provision appropriate to reasonably reflect future mortality improvement, based on a review of mortality experience as of the measurement date.

Termination Rates before Retirement:

Rate (%)

	Mortality Disability		ability	Withdrawal		
Age	Male	Female	Non-Public Safety	Public Safety	Regular	Non-Regular
20	0.04	0.02	0.03	0.05	7.94	5.44
25	0.04	0.02	0.03	0.05	7.72	4.89
30	0.06	0.04	0.03	0.05	7.22	3.70
35	0.09	0.06	0.03	0.06	6.28	2.35
40	0.12	0.09	0.05	0.09	5.15	1.13
45	0.17	0.13	0.09	0.18	3.98	0.27
50	0.27	0.20	0.20	0.40	2.56	0.00
55	0.47	0.35	0.43	0.85	0.94	0.00
60	0.88	0.67	0.87	1.74	0.09	0.00

Retirement Rates:

Retirement Rates for Regular Members

Age/Service	<u>Males</u>	<u>Females</u>
54 and 30 years of service	20%	0%
57 and 30 years of service	30%	25%
60 and 30 years of service	30%	50%
63 and 10 years of service	100%	100%



Retirement Rates (continued):

Public Safety: 100% at the earlier of 25 years of service or 55 with 10 years of

service.

Judges: 100% at 50 with 20 years of service.

Legislature: 100% at 53 with 6 years of service.

Unknown Data for Participants:

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

Adjustment for Incomplete Data:

Due to inconsistent or incomplete data as of September 30, 2013, the following assumptions were made:

- > Active participants who were previously coded as Public Safety were assumed to remain as Public Safety employees.
- > Prior active participants who were previously eligible for future deferred vested benefits and not on any 2013 data files were assumed to be eligible for future deferred vested benefits from the System.
- > Inactive participants who were previously eligible for future deferred vested benefits and not on any 2013 data files were assumed to be eligible for future deferred vested benefits from the System.
- > Participants listed with active accounts who were first reported in the data as of 2013 and did not have salary information were excluded from this valuation.
- > Participants with missing salary information were assumed to have the same salary as reported in the 2011 active data. If salary information was still unknown, participants were assumed to have the average salary of participants with salary reported.
- > Inactive vested participants were assumed to have ten years of service as of the valuation date. Vested benefit amounts were estimated based on participants' salary and assumed service.
- > Since no employee contribution information is provided for retirees, we assumed that the contributions would guarantee benefit payments for 4 years.



Percent Married:	80%
Age of Spouse:	Females 3 years younger than males.
Net Investment Return:	7.5%
Salary Increases:	4.0%
Annual Administrative Expenses:	\$16,000,000, payable at the beginning of the year for the year beginning October 1, 2013.
Actuarial Value of Assets:	Market value of assets less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected return on the actuarial value, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.
Actuarial Cost Method:	Entry Age Normal Actuarial Cost Method. Entry Age is the age at the time the participant commenced employment. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated as a level percent of salary.
Change in Assumptions:	Based on past experience and future expectations, the annual administrative expense assumption was changed from \$14,873,896 to \$16,000,000.



EXHIBIT VII

Summary of Plan Provisions

This exhibit summarizes the major provisions of the Retirement System included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Plan Year: October 1 through September 30

Plan Status: Ongoing plan

Service Pension:

Regular Employees

Amount Age 60 with 10 years of service or any age with 30 years of service

Amount Tier 1: 2.5% of Final Average Salary* per year of service up to 100%

Tier 2: 1.75% of Final Average Salary* per year of service up to 100%

Public Safety Employees

Age 55 with 10 years of service or any age with 20 years of service

Amount

Tier 1: 3.0% of Final Average Salary* per year of service up to 90%

Tier 2: 2.1% of Final Average Salary* per year of service up to 90%



^{*} Final Average Salary for Regular and Public Safety Employees is based on the average of the highest annual salary up to a maximum of \$65,000 for any five years in the last 10 years.

Legislature

Eligibility Age 50 with 6 years of service or any age with 20 years of service

Amount Tier 1: 2.5% of highest compensation for years 1-6

3% of highest compensation for years 7-12

4% of highest compensation for years above 12, up to a maximum of 75%

Tier 2: 3.5% of highest compensation for years 1-6

4% of highest compensation for years 7-12 4.5% of highest compensation for years 13-20

5% of highest compensation for years above 20, up to a maximum of 100%

Judges

Eligibility Age 50 with 6 years of service

Amount 5% of highest compensation per year of service up to 100%

Early Retirement:

Regular Employees

Eligibility Age 50 with 10 years of service

Amount Service Pension reduced 3.9% per year less than age 60

Public Safety Employees

Eligibility Age 50 with 10 years of service

Amount Service Pension reduced 3.9% per year less than age 55

Disability:

Duty Connected Disability

Eligibility Total and permanent disability as a result of performance of duty

Amount Tier 1: 75% salary less workers compensation

Tier 2: 52.5% salary less workers compensation



Non-Duty Connected Disability

Eligibility 9 years of service and total and permanent disability

Amount Tier 1: 2.0% of Final Average Salary* per year of service up to 60%, 20% minimum

Tier 2: 1.4% of Final Average Salary* per year of service up to 42%, 14% minimum

* Final Average Salary for Regular and Public Safety Employees is based on the average of the highest annual salary up to a maximum of \$65,000 for any five years in the last 10 years.

Vesting:

Eligibility 10 years of service and leave contributions in System

Amount Service pension accrued at termination

Severance Benefit:

Amount Refund of contributions with 4% annual interest, if no other benefits payable

Post-Retirement COLAs:

Disabled Pensioners 1% of the original retirement benefit each year up to age 60

Pensioners and Survivor annuitants None

Pre-Retirement Death Benefit:

Duty Connected Death

Eligibility Death in service as a result of performance of duty

Amount Tier 1: Annuity of 40% of salary in effect on date of death to widow plus 10% of salary for each child up to age 18 to a maximum family benefit of 60% of salary. If no

widow, 10% of salary is payable on behalf of each child under age 18 to a maximum family benefit of 50%. If no widow or children, each dependent parent is entitled to

25% of salary.

Tier 2: Annuity of 28% of salary in effect on date of death to widow plus 7% of salary for each child up to age 18 to a maximum family benefit of 42% of salary. If no widow, 7% of salary is payable on behalf of each child under age 18 to a maximum family benefit of 35%. If no widow or children, each dependent parent is entitled to

17.5% of salary.



Non-Duty Connected Death

Eligibility Death in service

Amount Accumulated contributions of deceased member to designated beneficiary.

Tier 1: If, at the time of death, the member was eligible for a service or early retirement annuity, the surviving spouse, if any, can elect a 100% survivor annuity based on the benefit which would have been payable to the member had he/she retired

the date before he/she died

Post-Retirement Death Benefits:

Lump - sum Benefit Lump sum payment equal to the excess of the sum of contributions plus annual salary

at retirement (maximum \$10,000) over the total of benefits paid.

Husband and Wife If married, pension benefits are paid in the form of a joint and survivor annuity unless

this form is rejected by the participant and spouse. If not rejected, the benefit amount otherwise payable is reduced to reflect the joint and survivor coverage. If rejected, or if not married, benefits are payable for the life of the employee, or in any other

available optional form elected by the employee in an actuarially equivalent amount.

Optional Forms of Payment: 50% joint-and-survivor annuity

100% joint-and-survivor annuity

Contribution Rates:

Employee Contribution Rates (% of Payroll)	Tier 1	Tier 2	
Regular Employees	8%	8.5%	
Public Safety Employees	10%	10.625%	
Legislature	9%	11%	
Judges	11%		

Employer Contributions: 17.5% of payroll

Changes in Plan Provisions: Effective January 1, 2013, the annual COLA is suspended for non-disabled

pensioners.

8041119v1/00326.002

