

**EMPLOYEES' RETIREMENT SYSTEM OF THE STATE OF  
HAWAII**

REPORT TO BOARD OF TRUSTEES ON THE 84<sup>TH</sup> ANNUAL  
ACTUARIAL VALUATION

FOR THE YEAR BEGINNING JUNE 30, 2009

January 21, 2010

Board of Trustees  
Employees' Retirement System of  
The State of Hawaii  
City Financial Tower  
201 Merchant St., Ste. 1400  
Honolulu, HI 96813-2980

Dear Trustees:

**SUBJECT: ACTUARIAL VALUATION AS OF JUNE 30, 2009**

We certify that the information contained in the 2009 actuarial valuation report is accurate and fairly presents the actuarial position of the Employees' Retirement System of the State of Hawaii (ERS) as of June 30, 2009.

All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, the results presented comply with the requirements of the Hawaii statutes and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board. The undersigned are independent actuaries. One or more of them are an Enrolled Actuary and/or a Member of the American Academy of Actuaries. All are experienced in performing valuations for large public retirement systems.

#### **ACTUARIAL VALUATIONS**

The primary purpose of the valuation report is to determine the adequacy of the current employer contribution rate through measuring the resulting funding period, to describe the current financial condition of ERS, and to analyze changes in ERS's condition. In addition, the report provides information required by ERS in connection with Governmental Accounting Standards Board Statement No. 25 (GASB No. 25), and it provides various summaries of the data.

Valuations are prepared annually, as of June 30th of each year, the last day of ERS's plan year and fiscal year.

#### **FINANCING OBJECTIVES**

Contribution rates are established by Law that, over time, are intended to remain level as a percent of payroll. The employee and employer contribution rates have been set by Law and are intended to provide for the normal cost plus the level percentage of payroll required to amortize the unfunded actuarial accrued liability (UAAL) over a period not in excess of 30 years.

## **PROGRESS TOWARD REALIZATION OF FINANCING OBJECTIVES**

The actuarial accrued liability, the unfunded actuarial accrued liability (UAAL), and the calculation of the resulting funding period illustrate the progress toward the realization of financing objectives. Like most pension funds across the country, the System was significantly impacted by the severe downturn in the investment markets during fiscal year 2009. Based on this actuarial valuation as of June 30, 2009, ERS's underfunded status has increased significantly because of a loss on the actuarial assets as result of market investment losses. In addition, the System had a the liability experience loss which was caused by higher than expected salary increases. The UAAL is now \$6.236 billion.

The Legislature increased the employer contribution rates to 19.70% for Police and Fire employees and 15.00% for All Other Employees, effective July 1, 2008. Based on these contribution rates and the Employee contributions, the remaining amortization period is 28.2 years. Because this period is less than 30 years, the financing objectives of ERS are currently being realized.

In the absence of significant actuarial losses, the employer contribution rates in fiscal year 2010 and beyond would normally be sufficient to satisfy the GASB No. 25 Annual Required Contribution (ARC) requirements. However, only a portion of the investment losses of fiscal year 2009 have been recognized in this valuation. As the remainder of the losses is recognized in future valuations it is likely that the current employer contribution rates will no longer be sufficient to satisfy the GASB ARC.

## **BENEFIT PROVISIONS AND LEGISLATIVE CHANGES**

There was no legislation enacted that impacted the benefit provisions of the System. See Table 16 of this report for more details on the benefit provisions of the System.

## **ASSUMPTIONS AND METHODS**

The actuarial assumptions used were adopted by the Board on August 14, 2006 based on the recommendations provided by an Experience Study performed by us. While the current investment return assumption is the assumption recommended in the Study, the assumption is actually set by legislative action. Further detail on the assumptions and methods may be found in Table 18 of this report.

In our opinion, the assumptions are internally consistent and are reasonably based on the actual experience of ERS. These assumptions are also in full compliance with all parameters established by GASB No. 25.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions.

Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. The actuarial calculations are intended to provide information for rational decision making.

#### **DATA**

Member data for retired, active, and inactive participants was supplied as of March 31, 2009, by ERS's staff. We have not subjected this data to any auditing procedures, but have examined the data for reasonableness and consistency with the prior year's data. Asset information was supplied by ERS's staff.

#### **RESPONSIBILITY FOR TABLES AND SCHEDULES**

The actuary is responsible for the information with respect to years after 1999 in the Required Supplementary Information, the Schedule of Employer Contributions, and the Notes To Required Supplementary Information in the Financial Section of the ERS's Comprehensive Annual Financial Report (CAFR). Information with respect to years prior to 2000 was supplied by ERS.

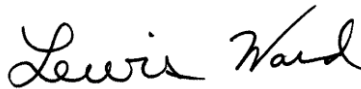
Tables and schedules in the Actuarial Section of the CAFR were generally prepared directly by the Actuary. Certain of these tables, however, were prepared by ERS utilizing information from this report. When those tables were prepared by ERS from our report, they are so noted.

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of state law and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board. The undersigned are independent actuaries and consultants. Mr. Newton is an Enrolled Actuary, a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries. Finally, all of the undersigned are experienced in performing valuations for large public retirement systems.

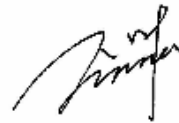
Sincerely,



Joseph P. Newton, FSA, EA  
Senior Consultant & Actuary



Lewis Ward  
Consultant



Linna Ye, ASA  
Actuary

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**SECTION A**

EXECUTIVE SUMMARY

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## Executive Summary

The following table summarizes the key results of the June 30, 2009 actuarial valuation of the Employees' Retirement System of the State of Hawaii (ERS).

Item	2009	2008
<b>Membership</b>		
• Number of		
- Active members	67,912	66,589
- Retirees and beneficiaries	36,999	36,260
- Inactive, vested	6,016	5,847
- Total	110,927	108,696
• Covered payroll for active members	\$3,838.0 million	\$3,601.7 million
• Actual benefit payments and refunds	\$842.6 million	\$796.0 million
<b>Assets</b>		
• Actuarial value	\$11,400.1 million	\$11,381.0 million
• Market value	\$8,818.0 million	\$10,846.8 million
• Return on actuarial value	0.9%	8.9%
• Return on market value	(18.0%)	(4.1%)
• Employer contributions during fiscal year	\$578,635,281	\$488,770,028
• External cash flow %	(1.0%)	(1.4%)
<b>Actuarial Information</b>		
• Total normal cost % (employee + employer)	12.55%	12.54%
• Unfunded actuarial accrued liability (UAAL)	\$6,236.3 million	\$5,168.1 million
• Funded ratio (based on actuarial assets)	64.6%	68.8%
• Funded ratio (based on market assets)	50.0%	65.5%
• Funding period (years)	28.2	22.6
• Employer contribution rate % of projected payroll*		
For FY 2010 & Beyond	15.47%	15.46%
• GASB ARC for FY 2010 % of projected payroll		
Police & Fire Employees	19.91%	17.84%
All Other Employees	14.62%	13.66%
Composite - All Employees	15.17%	14.09%

\* Weighted average of 19.70% Contribution Rate for Police and Firefighters and 15.00% Contribution Rate for All Other Employees beginning July 1, 2008.

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## **SECTION B**

### INTRODUCTION

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## **Introduction**

The results of the June 30, 2009 actuarial valuation of ERS are presented in this report.

The primary purpose of the valuation report is to determine the adequacy of the current employer contribution rates through measuring the resulting funding period, to describe the current financial condition of ERS, and to analyze changes in ERS's condition. In addition, this report presents information required by ERS in connection with Governmental Accounting Standards Board Statement No. 25 (GASB No. 25).

Section C discusses the funded status of ERS. Section D analyzes the change in the UAAL. Section G discusses the disclosure requirements of GASB No. 25.

Sections E, F, H, and I discuss background information used in the preparation of this report-- benefit provisions, actuarial assumptions and methods, financial information, and membership data. Section K contains the actuarial certification.

All the tables referenced by the other sections appear in Section L.

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**SECTION C**  
FUNDED STATUS

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## Funded Status

Table 1 shows the development of the Plan's liabilities and funded status for the current year and compares it with those of the prior year.

The funding policy of ERS uses a method of determining the amortization period that would amortize the UAAL using a fixed contribution rate.

The calculation of the funded status involves the following steps and includes the following comments:

- The actuarial present value of future benefits is determined for the present members, including retired members, beneficiaries, inactive members, and active members. This amounts to \$20.7 billion. Table 2 shows the development of this total for the current year and the prior year.
- The entry age normal funding method is used to allocate the actuarial present value of future benefits between that portion due for the current year (the normal cost), prior years (the actuarial accrued liability) and future years (the present value of future normal cost). Under the entry age normal cost method, the current and future normal costs are determined as a level percentage of payroll. Table 3 shows an analysis of the normal cost for the current year and the prior year. The amount needed to fund the current and future normal costs is 18.79% of pay for Police and Fire employees and 11.83% for All Other employees. It includes all of the employees' contribution (if any) and the employers' normal cost rate. This may be thought of as the total (member plus employer) contribution rate needed to pay for the average new member over their career.
- A part of the normal cost is paid by the employee contributions of 12.20% of pay for Police and Firefighters, leaving 6.59% of pay to be funded by the employers. Thus the current year's employer normal cost for Police and Firefighters is deemed to be 6.59% of the valuation payroll. As for the All Other Employees group, the average weighted effective employee contribution rate is 6.05% of pay, leaving 5.78% of pay to be funded by the employers. This is shown in Line 3 of Table 1.

- The UAAL is \$6.236 billion for 2009, an increase from \$5.168 billion in 2008. As indicated in Table 1, the UAAL equals the difference between the total actuarial accrued liability (Item 7) and current actuarial assets (Item 8). A portion of the contribution rate will be used to amortize the UAAL. This amortization percentage is equal to the difference between the total employer contribution rate and the employer normal cost rate. For Police and Fire employees, this percentage is equal to 13.11% (19.70% - 6.59%). For the All Other employees, this percentage is equal to 9.22% (15.00% - 5.78%).
- In determining the number of years that will be required to amortize the UAAL, an assumption is made concerning future growth of the ERS covered payroll. GASB Statement No. 25 requires that the payroll growth assumption not consider growth in the active employee census. The GASB 25 compliant payroll growth assumption is 3.50%.
- As shown in Item 10 of Table 1 and using the assumed rate of increase in covered payroll of 3.50%, the period to fund the UAAL is 31.0 years for Police and Fire and 27.6 years for the All Other Employees group. The aggregate funding period for ERS is 28.2 years.
- Since the aggregate funding period based on the contribution rates is less than 30 years, the rates will be adequate to meet the requirements of GASB No. 25.
- We think it is important to note that over \$2.5 billion in investment losses are still being deferred to future valuations. Without significant investment gains in the near future, the funded position of ERS will decline in the future and the current contribution rates will no longer satisfy the requirements of the GASB ARC. Because of this we urge strong caution when discussing contribution rate reductions or benefit enhancements.

As of the valuation date, ERS has a funded ratio of 64.6%, based on the actuarial value of assets.

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## **SECTION D**

### **ANALYSIS OF CHANGES**

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## Analysis of Changes

Section C has noted that the unfunded actuarial accrued liability (UAAL) is \$6.236 billion as of June 30, 2009 compared to the \$5.168 billion UAAL for 2008.

Table 7 develops the estimated yield for the year based on two measures of asset values. Table 9b takes the information contained in Table 6 and develops the expected value of actuarial assets for this valuation, based on the investment return assumption of 8%.

As shown in Item 5 of Table 9b, the expected value of actuarial assets as of June 30, 2009 is \$12.209 billion. As developed in Table 6, the actual value of actuarial assets as of the valuation date is \$11.400 billion (as repeated in Item 6 of Table 9b). Thus the asset loss for the year is the difference between the actual value and the expected value, or -\$808.7 million (as shown in Item 7). This asset loss for the year is a direct reflection of the estimated yield for the year based on the value of actuarial assets, namely 0.87% (as shown in Item B4 of Table 7).

The actuarial asset valuation method is intended to smooth out year-to-year fluctuations in the market return. The excess or shortfall in the actual return during the year, compared to the 8% investment return assumption, is spread over this valuation and the next three valuations.

The investment climate became very unfavorable during the 2008/2009 plan year, and the market return of -18.04% was significantly less than the 8% assumption. The rate of return for the actuarial value was 0.87%, which is much greater than the market return because of the four-year smoothing technique. The actuarial value of assets exceeds the market value of assets by -\$2,582 million, so there are -\$2,582 million in deferred investment losses to be recognized over the next three years.

Table 9a indicates that the total actuarial experience loss for the 2008/2009 plan year was \$1,026.1 million (Item 7). As noted above, the actuarial investment loss was equal to -\$808.7 million. This means that there was a liability experience loss during the year equal to -\$217.4 million. As shown in Item 9, this liability experience loss is primarily due to actual salary increases exceeding the recommended salary scale assumption.

Table 9c traces the forces changing the UAAL, the funding period, and the GASB ARC (30-year funding) from the last valuation to this valuation. As may be seen from this table, the experience of the System increased the funding period by more than 6.5 years from the expected funding period of 21.6 years, while the 30-year ARC increased by more than 0.6% of pay over the 30-year ARC from last year's valuation.

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**SECTION E**

ERS ASSETS

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### **ERS Assets**

Table 4 presents a summary of the market value of assets held by the ERS. About 63% of the assets are held in equities (including alternative investments) and real estate compared with 66% last year. Table 5 shows a reconciliation of the assets from the beginning of the prior year to the valuation date.

Table 6 shows the development of the Actuarial Value of Assets (AVA). An actuarial value is used in order to dampen some of the year-to-year fluctuations which would occur if the market value were used instead. The method used phases in differences between actual and expected earnings at 25% per year. (Expected earnings are now determined using market value and the 8.00% investment return assumption. Actual earnings are net of all investment and administrative expenses.)

Table 7 shows an estimate of the ERS's dollar-weighted rate of return for the year. This is shown on (i) the market value of assets (reflecting all realized and unrealized gains and losses), and (ii) the actuarial value of assets. While the dollar-weighted market return this year was -18.04%, the return on the actuarial value was 0.87%. The difference between these is due to the smoothing effect of the AVA valuation method.

Table 9b determines the asset gain or loss for the year, based on the difference between the actual fund return and the assumed rate of 8%.

Finally, Table 13 shows a history of cash flows for the trust.



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**SECTION F**

**BENEFIT PROVISIONS**

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## Benefit Provisions

Table 16 summarizes the provisions of ERS used in this valuation. Table 17 is a historical record of prior legislative changes starting with changes effective in 1999. There were no benefit changes passed since the last valuation that had an actuarial impact on the valuation.

Legislation was enacted in fiscal year 2007 to increase the employer contribution rates to the System. Effective July 1, 2008, the employer contribution rate for Police and Fire employees increased from 15.75% to 19.70% and the rate for All Other employees increased from 13.75% to 15.00%.

This valuation reflects benefits promised to members by the ERS's statutes. There are no ancillary benefits - retirement type benefits not required by the ERS's statutes but which might be deemed an ERS liability if continued beyond the availability of funding by the current funding source.

Act 179/2004 was adopted during FY2003/2004 and established the new Hybrid Plan that became effective on July 1, 2006. Current participants had the choice to elect to move to the new plan or stay in the current plan. There were 26,228 plan members who elected to so transfer, and the Hybrid Plan provisions have been reflected in the results of this report.

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**SECTION G**

**GASB NO. 25 DISCLOSURE**

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**GASB No. 25 Disclosure**

Governmental Accounting Standards Board (GASB) Statement No. 25 governs reporting for government-sponsored retirement plans.

This report includes Tables 11a, 11b, and 11c--showing information required to be reported under GASB No. 25. Table 11a shows a history of funding progress (a comparison of actuarial assets with the actuarial accrued liability and a comparison of UAAL with compensation).

Table 11b shows the Schedule of Employer Contributions as computed under GASB No. 25, and it shows what percent of this amount was actually received.

Table 11c shows other information that must be included in the notes section of the financial report. The auditor's notes should disclose the following events which may affect the comparability of the trend information shown in Tables 11a and 11b: the change in assumptions effective as of June 30, 2006, and the new salary scale assumption effective June 30, 2007.

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## **SECTION H**

### ACTUARIAL ASSUMPTIONS AND METHODS

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## **Actuarial Assumptions and Methods**

In determining costs and liabilities, actuaries use assumptions about the future, such as rates of salary increase, probabilities of retirement, termination, death and disability, and an investment return assumption. The ERS's Board adopts the assumptions used (other than the investment return assumption), taking into account the actuary's recommendations. The investment return assumption is set by statute.

In addition to the actuarial assumptions, the actuary also makes use of an actuarial funding method to allocate costs to particular years. In common with most public sector plans, ERS uses the entry age normal method. This method produces a relatively level pattern of funding over time, and thereby provides equity among various generations of taxpayers. We continue to believe this method is appropriate for ERS.

Please see Table 18 for a complete description of the actuarial assumptions and methods.

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## **SECTION I**

### **MEMBERSHIP DATA**

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## Membership Data

Membership data was provided in computer files sent on CD-ROM by the staff. Data for active members include sex, birthdate, service, pay rate as of March 2009, employer entity and accumulated employee contributions. Data for inactive, nonretired members was similar, but also includes the members' unreduced benefit. For retired members, data includes status (service retiree, disabled retiree or beneficiary), sex, birthdate, pension amount, pension COLA amount, form of payment, beneficiary sex and birthdate if applicable, and date of retirement.

While not verifying the correctness of the data at the source, we performed various tests to ensure the internal consistency of the data and its overall reasonableness.

Membership statistics are summarized in Table 12a. Table 12b summarizes certain active member data, and the age/service distribution of active members is shown in Table 19. Tables 30-43 show various distributions of retirees.

Since last year, the number of active members increased by 1,323 members from 66,589 to 67,912. These 67,912 active members are distributed as follows:

Category	Number	% of Total
(1)	(2)	(3)
Police & Fire	4,955	7.4%
Contributory	2,532	3.7%
Noncontributory	22,709	33.4%
Hybrid Plan	<u>37,716</u>	<u>55.5%</u>
Total	67,912	100.00%

Total payroll increased 6.6% since last year. For all comparative purposes, payroll is the amount supplied by the staff (i.e., March 2009 pay rate). However, this figure is increased by one year's pay increase to determine the member's rate of pay at July 1, 2009.

Average age and average service of the active members stayed relatively stable this year. Average age increased from 46.6 years to 46.8 years, while average service remained at 12.9 years.



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## **SECTION J**

### SUMMARY AND CLOSING COMMENTS

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## Summary and Closing Comments

To summarize the results of the actuarial valuation of the Employees' Retirement System as of June 30, 2009, it is our opinion that if all assumptions are met going forward, the present assets plus future required contributions will be sufficient to provide the benefits specified in the law. The funding period is greater than the 25-year period preferred by the Board, but is less than the 30-year maximum period specified by GASB No. 25.

There are \$2,582 million in unrecognized investment losses as of the valuation date that are being deferred into the next following three actuarial valuations under the actuarial asset valuation method. In the absence of offsetting gains during the next three plan years, the funded position of the plan should decline. It should be noted that there were unrecognized investment losses in the amount of \$534 million as of June 30, 2008. Hence, during the last year the System has seen an increase in the amount of deferred investment losses of more than \$2 billion.

In our opinion, the results of the actuarial valuation of the Employees' Retirement System of the State of Hawaii as of June 30, 2009, are mixed. On the positive side, the System still has a funding period of less than the 30-year maximum allowed by GASB No. 25.

However, there are also several discouraging results and outlooks. The key ones are as follow:

- The actuarial asset method is now deferring \$2,582 million in deferred investment losses.
- The System continues to experience liability losses due to higher than expected salary increases
- The current contribution rates are likely to produce a funding period in excess of 30 years at the next actuarial valuation

We will be closely monitoring these outlooks over the next few valuations and will be proactive in making recommendations as necessary.

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**SECTION K**

ACTUARIAL CERTIFICATION STATEMENT

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**Actuarial Certification Statement**

	Police and Firefighters June 30, 2009 (1)	All Other Employees June 30, 2009 (2)	All Employees June 30, 2009 (3)
1. Gross normal cost as a percentage of pay	18.79%	11.83%	12.55%
2. Present value of future benefits			
a. Active employees	\$ 2,249,782,797	\$ 9,647,080,045	\$ 11,896,862,842
b. Inactive members	25,468,378	242,957,644	268,426,022
c. Pensioners and beneficiaries	1,372,093,536	7,211,936,414	8,584,029,950
d. Total	<u>\$ 3,647,344,711</u>	<u>\$ 17,101,974,103</u>	<u>\$ 20,749,318,814</u>
3. Present value of future employee and employer contributions			
a. Present value of future normal costs	\$ 657,810,931	\$ 2,455,075,567	\$ 3,112,886,498
b. Present value of future employee contributions	427,691,434	1,026,599,348	1,454,290,782
c. Present value of future employer normal costs (Item 3a - Item 3b)	\$ 230,119,497	\$ 1,428,476,219	\$ 1,658,595,716
4. Actuarial accrued liability (Item 2d - Item 3a)	\$ 2,989,533,780	\$ 14,646,898,536	\$ 17,636,432,316
5. Actuarial value of assets			
a. Annuity Savings Fund	\$ 616,875,800	\$ 663,124,200	\$ 1,280,000,000
b. Pension Accumulation Fund	1,472,216,680	8,647,900,194	10,120,116,874
c. Total	<u>\$ 2,089,092,480</u>	<u>\$ 9,311,024,394</u>	<u>\$ 11,400,116,874</u>
6. Unfunded actuarial accrued liability	\$ 900,441,300	\$ 5,335,874,142	\$ 6,236,315,442
7. Adequacy of contribution rates			
a. Statutory Contribution Rate for Fiscal Year 2010	15.75%	13.75%	13.95%
b. Statutory Contribution Rate beginning Fiscal Year 2010	19.70%	15.00%	15.47%
c. Funding Period in years as of June 30, 2009	31.0	27.6	28.2
8. GASB Annual Required Contribution	19.91%	14.62%	15.17%

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**Actuarial Certification Statement**

The actuarial valuation as of June 30, 2009 is based on the provisions of Chapter 88 of the Hawaii Revised Statutes, as amended. The assumptions used in the cost calculations were those adopted by the Board of Trustees on August 14, 2006 based on statutory requirements and on the actuary's actuarial experience investigation report covering the five-year period July 1, 2000 – June 30, 2005. The actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures.

In our opinion, the contributions required to meet ERS's liabilities were calculated in accordance with the provisions of Chapter 88 regarding the funding of the Employees' Retirement System on an actuarial reserve basis.

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of state law and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board. The undersigned is an independent actuary and consultant. Mr. Newton is an Enrolled Actuarial, a Member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries. Finally, he is experienced in performing valuations for large public retirement systems.



Joseph P. Newton, FSA, EA  
Senior Consultant & Actuary

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## **SECTION L**

### **TABLES**

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**Development of Employer Cost**

	Police and Firefighters June 30, 2009 (1)	All Other Employees June 30, 2009 (2)	All Employees June 30, 2009 (3)
1. Payroll ( adjusted for one year's pay increase )	\$ 405,782,581	\$ 3,624,338,479	\$ 4,030,121,060
2. Gross normal cost (Table 3)	18.79%	11.83%	12.55%
3. Employer normal cost rate (Table 3)	6.59%	5.78%	5.88%
4. Present value future benefits (Table 2)	\$ 3,647,344,711	\$ 17,101,974,103	\$ 20,749,318,814
5. Present value future employer normal cost	\$ 230,119,497	\$ 1,428,476,219	\$ 1,658,595,716
6. Present value future employee contributions	\$ 427,691,434	\$ 1,026,599,348	\$ 1,454,290,782
7. Actuarial accrued liability (Item 4 - Item 5 - Item 6)	\$ 2,989,533,780	\$ 14,646,898,536	\$ 17,636,432,316
8. Actuarial value of assets	\$ 2,089,092,480	\$ 9,311,024,394	\$ 11,400,116,874
9. Unfunded actuarial accrued liability (UAAL) (Item 7 - Item 8)	\$ 900,441,300	\$ 5,335,874,142	\$ 6,236,315,442
10. Funding Period			
a. Statutory Contribution Rate Beginning July 1, 2009	19.70%	15.00%	15.47%
b. Less Employer normal cost	<u>-6.59%</u>	<u>-5.78%</u>	<u>-5.88%</u>
c. Employer Amortization payment (level %) (Item 10a + Item 10b)	13.11%	9.22%	9.59%
d. Funding Period in years	31.0	27.6	28.2

	Police and Firefighters June 30, 2008 (1)	All Other Employees June 30, 2008 (2)	All Employees June 30, 2008 (3)
1. Payroll ( adjusted for one year's pay increase )	\$ 373,473,901	\$ 3,408,628,842	\$ 3,782,102,743
2. Gross normal cost (Table 3)	18.78%	11.83%	12.54%
3. Employer normal cost rate (Table 3)	6.58%	5.79%	5.89%
4. Present value future benefits (Table 2)	\$ 3,388,246,758	\$ 16,049,268,403	\$ 19,437,515,161
5. Present value future employer normal cost	\$ 213,543,889	\$ 1,353,580,123	\$ 1,567,124,012
6. Present value future employee contributions	\$ 397,591,395	\$ 923,730,700	\$ 1,321,322,095
7. Actuarial accrued liability (Item 4 - Item 5 - Item 6)	\$ 2,777,111,474	\$ 13,771,957,580	\$ 16,549,069,054
8. Actuarial value of assets	\$ 2,076,350,165	\$ 9,304,610,839	\$ 11,380,961,003
9. Unfunded actuarial accrued liability (UAAL) (Item 7 - Item 8)	\$ 700,761,309	\$ 4,467,346,741	\$ 5,168,108,050
10. Funding Period			
a. Statutory Contribution Rate Beginning July 1, 2008	19.70%	15.00%	15.46%
b. Less Employer normal cost	<u>-6.58%</u>	<u>-5.79%</u>	<u>-5.89%</u>
c. Employer Amortization payment (level %) (Item 10a + Item 10b)	13.12%	9.21%	9.57%
d. Funding Period in years	22.7	22.5	22.6



**Actuarial Present Value of Future Benefits**

	Police and Firefighters June 30, 2009 (1)	All Other Employees June 30, 2009 (2)	All Employees June 30, 2009 (3)
1. Active members			
a. Service retirement benefits	\$ 2,134,640,502	\$ 8,760,536,315	\$ 10,895,176,817
b. Termination Benefits	74,612,087	688,066,918	762,679,005
c. Survivor benefits	30,776,107	117,925,709	148,701,816
d. Disability retirement benefits	9,754,101	80,551,103	90,305,204
e. Total	<u>\$ 2,249,782,797</u>	<u>\$ 9,647,080,045</u>	<u>\$ 11,896,862,842</u>
2. Retired members			
a. Service retirement	\$ 1,288,240,681	\$ 6,781,867,166	\$ 8,070,107,847
b. Disability retirement	26,367,284	127,237,567	153,604,851
c. Beneficiaries	57,485,571	302,831,681	360,317,252
d. Total	<u>\$ 1,372,093,536</u>	<u>\$ 7,211,936,414</u>	<u>\$ 8,584,029,950</u>
3. Inactive members			
a. Vested terminations	\$ 22,898,429	\$ 242,312,509	\$ 265,210,938
b. Nonvested terminations	2,569,949	645,135	3,215,084
c. Total	<u>\$ 25,468,378</u>	<u>\$ 242,957,644</u>	<u>\$ 268,426,022</u>
4. Total actuarial present value of future benefits	<u>\$ 3,647,344,711</u>	<u>\$ 17,101,974,103</u>	<u>\$ 20,749,318,814</u>

	Police and Firefighters June 30, 2008 (1)	All Other Employees June 30, 2008 (2)	All Employees June 30, 2008 (3)
1. Active members			
a. Service retirement benefits	\$ 1,950,194,975	\$ 8,082,533,862	\$ 10,032,728,837
b. Termination Benefits	70,108,943	611,632,705	681,741,648
d. Survivor benefits	28,380,596	107,799,287	136,179,883
e. Disability retirement benefits	9,040,885	74,034,778	83,075,663
f. Total	<u>\$ 2,057,725,399</u>	<u>\$ 8,876,000,632</u>	<u>\$ 10,933,726,031</u>
2. Retired members			
a. Service retirement	\$ 1,236,454,997	\$ 6,537,375,832	\$ 7,773,830,829
b. Disability retirement	25,959,362	117,299,769	143,259,131
c. Beneficiaries	50,015,777	263,233,053	313,248,830
d. Total	<u>\$ 1,312,430,136</u>	<u>\$ 6,917,908,654</u>	<u>\$ 8,230,338,790</u>
3. Inactive members			
a. Vested terminations	\$ 18,027,645	\$ 250,127,923	\$ 268,155,568
b. Nonvested terminations	63,578	5,231,194	5,294,772
c. Total	<u>\$ 18,091,223</u>	<u>\$ 255,359,117</u>	<u>\$ 273,450,340</u>
4. Total actuarial present value of future benefits	<u>\$ 3,388,246,758</u>	<u>\$ 16,049,268,403</u>	<u>\$ 19,437,515,161</u>

**Analysis of Normal Cost**

	Police and Firefighters June 30, 2009 <u>(1)</u>	All Other Employees June 30, 2009 <u>(2)</u>	All Employees June 30, 2009 <u>(3)</u>
1. Normal cost as a percent of pay			
a. Service retirement benefits	16.04%	8.40%	9.19%
b. Deferred termination benefits	0.70%	1.22%	1.17%
c. Refunds	1.46%	1.82%	1.78%
d. Disability retirement benefits	0.16%	0.18%	0.18%
e. Survivor benefits	0.43%	0.21%	0.23%
f. Total	<u>18.79%</u>	<u>11.83%</u>	<u>12.55%</u>
2. Employee contribution rate	12.20%	6.05%	6.67%
3. Effective employer normal cost rate (Item 1f - Item 2)	6.59%	5.78%	5.88%

	Police and Firefighters June 30, 2008 <u>(1)</u>	All Other Employees June 30, 2008 <u>(2)</u>	All Employees June 30, 2008 <u>(3)</u>
1. Normal cost as a percent of pay			
a. Service retirement benefits	16.04%	8.39%	9.18%
b. Deferred termination benefits	0.69%	1.24%	1.18%
c. Refunds	1.47%	1.82%	1.78%
d. Disability retirement benefits	0.15%	0.17%	0.17%
e. Survivor benefits	0.43%	0.21%	0.23%
f. Total	<u>18.78%</u>	<u>11.83%</u>	<u>12.54%</u>
2. Employee contribution rate	12.20%	6.04%	6.65%
3. Effective employer normal cost rate (Item 1f - Item 2)	6.58%	5.79%	5.89%

**Plan Net Assets**  
**(Assets at Market or Fair Value)**

Item	Valuation as of	
	June 30, 2009	June 30, 2008
(1)	(2)	(3)
1. Cash and cash equivalents	\$ 392,555,319	\$ 692,390,538
2. Receivables:		
a. Accounts receivable and others	\$ 340,253	\$ 391,174
b. Investment sale proceeds	352,928,523	318,541,558
c. Accrued income	38,677,712	41,405,112
d. Employer contributions	46,378,558	11,765,521
e. Member contributions	3,951,657	3,742,183
f. Subtotal	<u>\$ 442,276,703</u>	<u>\$ 375,845,548</u>
3. Investments		
a. Equity securities	\$ 4,541,676,625	\$ 6,156,177,101
b. Fixed income securities	3,000,889,114	3,258,260,064
c. Real estate investments	696,435,920	895,199,859
d. Real estate mortgages	-	-
e. Alternative investments	429,651,424	457,642,073
f. Subtotal	<u>\$ 8,668,653,083</u>	<u>\$ 10,767,279,097</u>
4. Other		
a. Invested securities lending collateral	\$ 761,555,699	\$ 1,235,028,470
b. Equipment at cost, net of depreciation	11,358,647	11,358,647
c. Other assets	-	-
d. Subtotal	<u>\$ 772,914,346</u>	<u>\$ 1,246,387,117</u>
5. Total assets	\$ 10,276,399,451	\$ 13,081,902,300
6. Liabilities		
a. Bank overdraft	\$ 771,595	\$ 1,592,615
b. Accounts payable	25,538,746	44,341,678
c. Investment commitments payable	670,580,396	954,150,572
d. Due to employers	-	-
e. Securities lending collateral	761,555,699	1,235,028,470
f. Total liabilities	<u>\$ 1,458,446,436</u>	<u>\$ 2,235,113,335</u>
7. Total market value of assets available for benefits (Item 5 - Item 6f)	\$ 8,817,953,015	\$ 10,846,788,965

**Reconciliation of Plan Net Assets**

	Year Ending	
	June 30, 2009 (1)	June 30, 2008 (2)
1. a. Value of assets at beginning of year	\$ 10,846,788,965	\$ 11,434,277,047
b. Adjustment due to post valuation changes in CAFR assets	-	28,139,819
c. Adjusted value of assets at beginning of year	\$ 10,846,788,965	\$ 11,462,416,866
2. Revenue for the year		
a. Contributions		
i. Member contributions	\$ 184,520,539	\$ 163,375,639
ii. Employer contributions	578,635,281	488,770,028
iii. Total	\$ 763,155,820	\$ 652,145,667
b. Income		
i. Interest, dividends, and other income	\$ 299,316,135	\$ 350,072,819
ii. Investment expenses	(12,486,897)	(31,727,430)
iii. Net	\$ 286,829,238	\$ 318,345,389
c. Net realized and unrealized gains (loss)	\$ (2,223,863,835)	\$ (779,408,469)
d. Net income (loss)	\$ (1,937,034,597)	\$ (461,063,080)
e. Total revenue	\$ (1,173,878,777)	\$ 191,082,587
3. Expenditures for the year		
a. Refunds	\$ 3,485,038	\$ 3,668,857
b. Benefit payments	839,128,651	792,312,830
c. Administrative and miscellaneous expenses	12,343,484	10,728,801
d. Total expenditures	\$ 854,957,173	\$ 806,710,488
4. Increase (decrease) in net assets (Item 2e - Item 3d)	\$ (2,028,835,950)	\$ (615,627,901)
5. Value of assets at end of year (Item 1c + Item 4)	\$ 8,817,953,015	\$ 10,846,788,965

### Development of Actuarial Value of Assets

	Year Ending June 30, 2009		
1. Market value of assets at beginning of year	\$ 10,846,788,965		
2. Net new investments			
a. Contributions	\$ 763,155,820		
b. Benefits paid	(839,128,651)		
c. Refunds	(3,485,038)		
d. Subtotal	(79,457,869)		
3. Market value of assets at end of year	\$ 8,817,953,015		
4. Net earnings (3-1-2d)	\$ (1,949,378,081)		
5. Assumed investment return rate	8.00%		
6. Expected return	\$ 864,564,802		
7. Excess/(shortfall) return (4-6)	\$ (2,813,942,883)		
8. Deferred earnings as of June 30, 2009:			
<u>Period End</u>	<u>Excess Return</u>	<u>Percent Deferred</u>	<u>Deferred Amount</u>
(1)	(2)	(3)	(4)
June 30, 2009 (Item 7 above)	\$(2,813,942,883)	75%	\$ (2,110,457,162)
June 30, 2008 (From 2008 report)	(1,383,031,789)	50%	(691,515,895)
June 30, 2007 (From 2007 report)	879,236,790	25%	219,809,198
June 30, 2006 (From 2006 report)	253,933,634	0%	0
			\$ (2,582,163,859)
9. Actuarial value of assets as of June 30, 2009 (Item 3 - Item 8)	\$ 11,400,116,874		
10. Ratio of actuarial value to market value			129.3%

**Estimation of Yields**

	<u>June 30, 2009</u> (1)	<u>June 30, 2008</u> (2)
<b>A. Market value yield</b>		
1. Beginning of year market assets	\$ 10,846,788,965	\$ 11,462,416,866
2. Investment income		
a. Change in assets (Item 3 - Item 1)	\$ (2,028,835,950)	\$ (615,627,901)
b. Cash Flow (excluding expenses)	<u>(79,457,869)</u>	<u>(143,836,020)</u>
c. Total investment income based on market value (Item 2a less Item 2b)	\$ (1,949,378,081)	\$ (471,791,881)
3. End of year market assets	\$ 8,817,953,015	\$ 10,846,788,965
4. Estimated dollar weighted market value yield (net of investment and administrative expenses)	(18.04%)	(4.14%)
<b>B. Actuarial value yield</b>		
1. Beginning of year actuarial assets	\$ 11,380,961,003	\$ 10,589,772,857
2. Investment income (based on asset valuation method)		
a. Change in assets (Item 3 - Item 1)	\$ 19,155,872	\$ 791,188,146
b. Cash Flow	<u>(79,457,869)</u>	<u>(143,836,020)</u>
c. Total investment income based on market value (Item 2a less Item 2b)	\$ 98,613,741	\$ 935,024,166
3. End of year actuarial assets	\$ 11,400,116,874	\$ 11,380,961,003
4. Estimated actuarial value yield (net of investment and administrative expenses)	0.87%	8.89%

**Allocation of Cash and Investments**

	<u>June 30, 2009</u>	<u>June 30, 2008</u>
	(1)	(2)
1. Cash and short-term equivalents	4.3%	6.0%
2. Fixed income securities	33.1%	28.4%
3. Equity securities	50.2%	53.8%
4. Real estate	7.7%	7.8%
5. Other	<u>4.7%</u>	<u>4.0%</u>
6. Total investments	100.0%	100.0%

**Total Experience Gain or Loss**

Item	Police and Firefighters	All Other Employees	All Employees
(1)	(2)	(3)	(4)
A. Calculation of total actuarial gain or loss			
1. Unfunded actuarial accrued liability (UAAL), as of June 30, 2008	\$ 700,761,309	\$ 4,467,346,741	\$ 5,168,108,050
2. Normal cost for the year (employer and employee)	\$ 70,138,399	\$ 335,912,110	\$ 406,050,509
3. Less: contributions and assessments for the year	\$ (118,758,258)	\$ (644,397,562)	\$ (763,155,820)
4. Interest at 8 %			
a. On UAAL	\$ 56,060,905	\$ 357,387,739	\$ 413,448,644
b. On normal cost	2,805,536	13,436,484	16,242,020
c. On contributions	(4,750,330)	(25,775,902)	(30,526,232)
d. Total	\$ 54,116,111	\$ 345,048,321	\$ 399,164,432
5. Expected UAAL as of June 30, 2009 (Sum of Items 1 - 4)	\$ 706,257,561	\$ 4,503,909,610	\$ 5,210,167,171
6. Actual UAAL as of June 30, 2009	\$ 900,441,300	\$ 5,335,874,142	\$ 6,236,315,442
7. Total gain (loss) for the year (Item 5 - Item 6)	\$ (194,183,739)	\$ (831,964,532)	\$ (1,026,148,271)
B. Source of gains and losses			
8. Asset gain (loss) for the year (Table 9b)	\$ (148,371,066)	\$ (660,313,759)	\$ (808,684,825)
9. Salary gain (loss) for the year	(56,722,949)	(176,374,644)	(233,097,593)
10. Other liability gain (loss) for the year	10,910,276	4,723,871	15,634,147
11. Change in benefit provisions	-	-	-
12. Total gain (loss) for the year	\$ (194,183,739)	\$ (831,964,532)	\$ (1,026,148,271)



**Investment Experience Gain or Loss**

Item (1)	June 30, 2009 (2)	June 30, 2008 (3)
1. Actuarial assets, beginning of year	\$ 11,380,961,003	\$ 10,589,772,857
2. Total contributions during year	\$ 763,155,820	\$ 652,145,667
3. Benefits and refunds paid	\$ (842,613,689)	\$ (795,981,687)
4. Assumed net investment income at 8%		
a. Beginning of year assets	\$ 910,476,880	\$ 847,181,829
b. Contributions	30,526,233	26,085,827
c. Benefits and refunds paid	(33,704,548)	(31,839,267)
d. Total	\$ 907,298,565	\$ 841,428,389
5. Expected actuarial assets, end of year (Sum of items 1 through 4)	\$ 12,208,801,699	\$ 11,287,365,226
6. Actual actuarial assets, end of year	\$ 11,400,116,874	\$ 11,380,961,003
7. Asset gain (loss) for year (Item 6 - Item 5)	\$ (808,684,825)	\$ 93,595,777
8. Asset gain (loss) as a percent of actuarial value of assets, end of year (Item 7 / Item 6)	(7.09%)	0.82%

**Analysis of Changes in Valuation Results**

	UAAL (\$ Millions)		Funding Period		GASB ARC	
	Amount	Change	Years	Change	30-year Rate	Change
	(1)	(2)	(3)	(4)	(5)	(6)
1. 2008 Valuation	\$ 5,168	\$ -	22.6 years		14.59%	
2. 2009 Expected valuation results using expected contributions, closed amortization period	5,205	37	21.6 years	-1.0 years	14.01%	-0.58%
3. 2009 expected valuation results using actual contributions	5,210	5	21.6 years	0.0 years	14.02%	0.01%
4. 2009 valuation results using expected assets, expected payroll, expected liabilities and actual salaries	5,443	233	23.3 years	1.7 years	14.38%	0.36%
5. 2009 valuation results using expected assets, expected payroll, and actual liabilities	5,428	(16)	23.1 years	-0.2 years	14.35%	-0.03%
6. 2009 valuation results using actual liabilities, actual assets, and expected payroll	6,236	809	29.8 years	6.7 years	15.61%	1.26%
7. 2009 valuation results using actual liabilities, actual assets, and actual payroll	6,236	-	28.2 years	-1.6 years	15.33%	-0.28%
8. 2009 valuation results, resetting to 30 year amortization	6,236	-	28.2 years	0.0 years	15.17%	-0.16%

**Employer Covered Payroll**

	Police and Firefighters		All Other Employees		All Employees	
	March 31, 2009	March 31, 2008	March 31, 2009	March 31, 2008	March 31, 2009	March 31, 2008
	(1)	(2)	(3)	(4)	(5)	(6)
State of Hawaii	\$ 14,833,837	\$ 14,780,123	\$ 2,872,194,850	\$ 2,707,780,858	\$ 2,887,028,687	\$ 2,722,560,981
City & County of Honolulu	243,679,619	220,235,268	323,784,088	299,039,908	567,463,707	519,275,176
Board of Water Supply	-	-	35,039,714	32,140,596	35,039,714	32,140,596
County of Hawaii	56,536,632	55,116,193	87,310,271	83,338,706	143,846,903	138,454,899
County of Maui	48,609,820	45,209,412	87,458,819	81,033,207	136,068,639	126,242,619
County of Kauai	20,330,467	18,035,988	48,222,285	45,011,991	68,552,752	63,047,979
Total All Employers	\$ 383,990,375	\$ 353,376,984	\$ 3,454,010,027	\$ 3,248,345,266	\$ 3,838,000,402	\$ 3,601,722,250

**Schedule of Funding Progress**  
**(As required by GASB #25)**

Valuation Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial		Annual Covered Payroll	UAAL as % of Payroll (4)/(6)
			Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
June 30, 1997	\$ 7,268.5	\$ 8,001.9	\$ 733.4	90.8%	\$ 2,019.3	36.3%
June 30, 1998	7,906.2	8,492.0	585.8	93.1%	2,135.9	27.4%
June 30, 1999	8,590.8	9,181.7	590.9	93.6%	2,186.5	27.0%
June 30, 2000	9,204.7	9,698.9	494.2	94.9%	2,275.3	21.7%
June 30, 2001	9,516.0	10,506.9	991.0	90.6%	2,444.2	40.5%
June 30, 2002	9,415.2	11,210.2	1,795.1	84.0%	2,671.7	67.2%
June 30, 2003	9,074.0	11,952.1	2,878.1	75.9%	2,826.7	101.8%
June 30, 2004	8,797.1	12,271.3	3,474.2	71.7%	2,865.1	121.3%
June 30, 2005	8,914.8	12,986.0	4,071.1	68.6%	3,041.1	133.9%
June 30, 2006 *	9,529.4	14,661.4	5,132.0	65.0%	3,238.3	158.5%
June 30, 2007 **	10,589.8	15,696.5	5,106.8	67.5%	3,507.0	145.6%
June 30, 2008	11,381.0	16,549.1	5,168.1	68.8%	3,782.1	136.6%
June 30, 2009	11,400.1	17,636.4	6,236.3	64.6%	4,030.1	154.7%

Note : Dollar amounts in millions.

\* Assumption changes and new Hybrid Plan effective June 30, 2006.

\*\* New salary scale assumption effective June 30, 2007.

**Schedule of Employer Contributions**  
**(As required by GASB #25)**

Fiscal Year	Annual Required Contribution	Actual Contribution	Percentage Contributed
(1)	(2)	(3)	(4)
1997	\$ 323,188	\$ 322,121	99.7%
1998	307,680	310,627	101.0%
1999	185,387	154,470	83.3%
2000	172,255	22,392	13.0%
2001	164,397	8,132	4.9%
2002	167,459	167,459	100.0%
2003	190,586	190,586	100.0%
2004	235,686	235,686	100.0%
2005	328,717	328,717	100.0%
2006*	423,446	423,446	100.0%
2007	476,754	454,494	95.3%
2008	510,727	488,770	95.7%
2009	526,538	578,635	109.9%

Note : Dollar amounts in thousands

\* Effective July 1, 2005 the required contributions are based on contribution rates and not specific dollar amounts.

**Notes to Required Supplementary Information**  
(as required by GASB #25)

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation date	June 30, 2009
Actuarial cost method	Entry Age Normal
Amortization method	Level percent, open
Remaining amortization period as of June 30, 2009	28.2 years
Asset valuation method	4-year smoothed market
Actuarial assumptions:	
Investment rate of return (set by statute)*	8.00%
Projected salary increases *	17.75% to 4.00%
*Includes inflation at	3.00%
Cost-of-living adjustments (COLAs)**	2.50%

\*\*COLAs are not compounded, they are based on original pension amount

**Membership Data**

	Police and Firefighters		All Other Employees		All Employees	
	June 30, 2009	June 30, 2008	June 30, 2009	June 30, 2008	June 30, 2009	June 30, 2008
	(1)	(2)	(3)	(4)	(5)	(6)
1. Active members						
a. Number	4,955	4,915	62,957	61,674	67,912	66,589
b. Total payroll	\$ 383,990,376	\$ 353,376,984	\$ 3,454,010,026	\$ 3,248,345,266	\$ 3,838,000,402	\$ 3,601,722,250
c. Average salary	\$ 77,496	71,898	\$ 54,863	\$ 52,670	\$ 56,514	\$ 54,089
d. Average age	41.0	40.8	47.2	47.1	46.8	46.6
e. Average service	13.6	13.3	12.8	12.9	12.9	12.9
2. Inactive members						
a. Number	242	198	5,774	5,649	6,016	5,847
b. Total annual deferred benefits	\$ 3,783,554	\$ 2,968,626	\$ 41,172,623	41,090,755	\$ 44,956,177	\$ 44,059,381
c. Average annual deferred benefit	\$ 15,635	\$ 14,993	\$ 7,131	7,274	\$ 7,473	\$ 7,535
3. Service retirees						
a. Number	2,794	2,756	30,149	29,685	32,943	32,441
b. Total annual benefits	\$ 109,398,947	\$ 104,209,828	\$ 644,026,292	617,724,664	\$ 753,425,239	\$ 721,934,492
c. Average annual benefit	\$ 39,155	\$ 37,812	\$ 21,361	20,809	\$ 22,871	\$ 22,254
4. Disabled retirees						
a. Number	168	169	1,318	1,283	1,486	1,452
b. Total annual benefits	\$ 2,693,142	\$ 2,633,489	\$ 12,925,859	12,070,600	\$ 15,619,001	\$ 14,704,089
c. Average annual benefit	\$ 16,031	\$ 15,583	\$ 9,807	9,408	\$ 10,511	\$ 10,127
5. Beneficiaries						
a. Number	190	175	2,380	2,192	2,570	2,367
b. Total annual benefits	\$ 5,018,325	\$ 4,381,336	\$ 29,182,882	\$ 25,795,764	\$ 34,201,207	\$ 30,177,100
c. Average annual benefit	\$ 26,412	\$ 25,036	\$ 12,262	11,768	\$ 13,308	\$ 12,749

**Historical Summary of Active Member Data**

Year Ending June 30,	Active Members		Covered Payroll		Average Salary		Average Age	Average Service
	Number	Percent Increase	Amount in \$ Millions	Percent Increase	\$ Amount	Percent Increase		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1992	55,410	3.4%	\$ 1,828.7	9.1%	\$ 33,003	5.5%		
1993	57,467	3.7%	1,976.1	8.1%	34,387	4.2%		
1994	58,890	2.5%	2,029.9	2.7%	34,469	0.2%		
1995	58,498	-0.7%	2,083.0	2.6%	35,608	3.3%		
1996	56,985	-2.6%	1,990.1	-4.5%	34,923	-1.9%		
1997	57,044	0.1%	2,019.3	1.5%	35,399	1.4%		
1998	57,797	1.3%	2,135.9	5.8%	36,955	4.4%		
1999	58,387	0.9%	2,186.5	2.4%	37,448	1.3%		
2000	59,191	1.4%	2,275.3	4.1%	38,440	2.6%	45.5	13.0
2001	59,992	1.4%	2,350.2	3.3%	39,175	1.9%	45.6	13.3
2002	62,208	3.7%	2,568.7	9.3%	41,292	5.4%	45.8	13.2
2003	62,292	0.1%	2,718.4	5.8%	43,640	5.7%	46.0	13.1
2004	62,573	0.5%	2,755.5	1.4%	44,037	0.9%	46.0	13.0
2005	63,073	0.8%	2,924.5	6.1%	46,368	5.3%	46.3	13.0
2006	64,069	1.6%	3,113.7	6.5%	48,599	4.8%	46.4	13.0
2007	65,251	1.8%	3,340.5	7.3%	51,194	5.3%	46.5	13.0
2008	66,589	2.1%	3,601.7	7.8%	54,089	5.7%	46.6	12.9
2009	67,912	2.0%	\$ 3,838.0	6.6%	\$ 56,514	4.5%	46.8	12.9



## History of Cash Flow

Year Ending June 30,	Contributions			Expenditures				External Cash Flow for the Year <sup>2</sup>	Market Value of Assets	External Cash Flow as Percent of Market Value
	Employee	Employer	Total	Benefit Payments	Refunds	Administrative Expenses <sup>1</sup>	Total			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2000	\$ 57.4	\$ 22.4	\$ 79.8	\$ (471.2)	\$(47.5)	\$ (4.2)	\$ (522.9)	\$ (443.1)	\$ 9,931.8	(4.5%)
2001	54.5	8.1	62.6	(503.3)	(45.5)	(4.9)	(553.7)	(491.1)	8,772.0	(5.6%)
2002	55.4	167.5	222.9	(530.4)	(38.4)	(5.8)	(574.6)	(351.7)	7,907.0	(4.4%)
2003	57.2	190.6	247.8	(569.2)	(36.2)	(6.8)	(612.2)	(364.4)	7,687.2	(4.7%)
2004	55.1	235.7	290.8	(636.2)	(2.3)	(10.5)	(649.0)	(358.2)	8,565.4	(4.2%)
2005	57.1	328.7	385.8	(676.3)	(3.4)	(7.3)	(687.0)	(301.2)	9,195.9	(3.3%)
2006	56.3	423.4	479.7	(720.5)	(2.5)	(8.5)	(731.5)	(251.8)	9,932.4	(2.5%)
2007	144.7	454.5	599.2	(761.0)	(3.5)	(9.6)	(774.1)	(174.9)	11,434.3	(1.5%)
2008	163.4	488.8	652.2	(792.3)	(3.7)	(10.7)	(806.7)	(154.5)	10,846.8	(1.4%)
2009	\$ 184.5	\$ 578.6	\$763.1	\$ (839.1)	\$ (3.5)	\$ (12.3)	\$ (854.9)	\$ (91.8)	\$ 8,818.0	(1.0%)

Amounts in \$ millions

<sup>1</sup> Excludes investment expenses

<sup>2</sup> Column (9) = Column (4) + Column (8)

**Solvency Test**

	<u>June 30, 2009</u>	<u>June 30, 2008</u>
	(1)	(2)
1. Actuarial accrued liability (AAL)		
a. Active member contributions	\$ 1,168,903,589	\$ 1,029,521,498
b. Retirees and beneficiaries	8,584,029,950	8,230,338,790
c. Active and inactive members	<u>7,883,498,777</u>	<u>7,289,208,766</u>
d. Total	\$ 17,636,432,316	\$ 16,549,069,054
2. Actuarial value of assets	\$ 11,400,116,874	\$ 11,380,961,003
3. Cumulative portion of AAL covered		
a. Active member contributions	100%	100%
b. Retirees and beneficiaries	100%	100%
c. Active and inactive members	21%	29%

**Highlights of Last Five Annual Actuarial Valuations**  
2005 through 2009

Item	Valuation Date: June 30				
	2005	2006	2007	2008	2009
Number of active members	63,073	64,069	65,251	66,589	67,912
Number of inactive members	4,938	5,164	5,554	5,847	6,016
Number of pensioners	31,344	32,199	33,117	33,893	34,429
Number of beneficiaries	1,957	2,105	2,207	2,367	2,570
Average monthly contributory plan pension amount	\$ 1,717	\$ 1,792	\$ 1,869	\$ 1,941	\$ 2,019
Average monthly noncontributory plan pension amount	\$ 1,305	\$ 1,335	\$ 1,359	\$ 1,388	\$ 1,421
Average monthly hybrid plan pension amount	n/a	n/a	\$ 1,453	\$ 1,603	\$ 1,602
Average monthly beneficiary amount	\$ 966	\$ 989	\$ 1,025	\$ 1,062	\$ 1,109
Total actuarial value of assets (\$millions)	\$ 8,915	\$ 9,529	\$ 10,590	\$ 11,381	\$ 11,400
Unfunded actuarial accrued liability (\$millions)	\$ 4,071.1	\$ 5,132.0	\$ 5,106.8	\$ 5,168.1	\$ 6,236.3
Funding Period (in years) <sup>(1)</sup>	25.7	35.2	25.5	22.6	28.2
Item (Dollar amounts in millions)	Fiscal Year				
	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
Total calculated appropriations	\$ 322.8	\$ 423.4 <sup>(2)</sup>	\$ 454.5 <sup>(2)</sup>	\$ 488.8 <sup>(2)</sup>	\$ 578.6 <sup>(2)</sup>
EIR Program appropriations	5.9	-	-	-	-
Excess investment earnings credit	-	-	-	-	-
Net employer appropriations	\$ 328.7	\$ 423.4 <sup>(2)</sup>	\$ 454.5 <sup>(2)</sup>	\$ 488.8 <sup>(2)</sup>	\$ 578.6 <sup>(2)</sup>

<sup>(1)</sup> Beginning with the 2004 valuation, the purpose of the valuation is to determine the remaining amortization period based on the statutory contribution rates. Prior valuations determined the dollar amount needed to amortize the UAAL over a fixed period of time.

<sup>(2)</sup> Beginning with the fiscal year beginning July 1, 2005 a dollar contribution amount is not determined under the provisions of Act 181/2004. Instead a fixed percentage of payroll is contributed (15.75% for Police and Fire, 13.75% for All Others). Beginning July 1, 2008, the percentages will increase to 19.70% for Police and Fire, 15.00% for All Others.

**Summary of Benefit Provisions**

	<u>Noncontributory Plan</u>	<u>Contributory Plan</u>	<u>Hybrid Plan</u>
<b>Employee Contributions</b>	No employee contributions	7.8% of salary	6.0% of salary
<b>Normal Retirement</b>			
<b>Eligibility</b>	Age 62 and 10 years credited service; or Age 55 and 30 years credited service	Age 55 and 5 years credited service	Age 62 and 5 years credited service; or Age 55 and 30 years credited service
<b>Benefit</b>	1 ¼% of average final compensation times years of credited service (Average final compensation or AFC is an average of the highest salaries during any three years of credited service, excluding any salary paid in lieu of vacation or if ERS membership occurred prior to 1/1/71, AFC may be an average of the highest salaries during any five years of credited service including any salary paid in lieu of vacation.)	2% of average final compensation times years of credited service (Average final compensation or AFC is an average of the highest salaries during any three years of credited service, excluding any salary paid in lieu of vacation or if ERS membership occurred prior to 1/1/71, AFC may be an average of the highest salaries during any five years of credited service including any salary paid in lieu of vacation.)	2% of average final compensation times years of credited service, split formula for unconverted noncontributory service at 1 ¼% (Average final compensation or AFC is an average of the highest salaries during any three years of credited service, excluding any salary paid in lieu of vacation or if ERS membership occurred prior to 1/1/71, AFC may be an average of the highest salaries during any five years of credited service including any salary paid in lieu of vacation.)

	<u>Noncontributory Plan</u>	<u>Contributory Plan</u>	<u>Hybrid Plan</u>
<b>Early Retirement</b>			
Eligibility	Age 55 and 20 years credited service	Any age and 25 years credited service	Age 55 with 20 years credited service
Benefit	Maximum allowance reduced 6% per year under age 62	Maximum allowance reduced 5% per year under age 55 plus 4% per year under age 50	Maximum allowance reduced 5% for each year under age 62
<b>Deferred Vesting</b>			
Eligibility	10 years credited service	5 years credited service and contributions left in the ERS	5 years credited service and contributions left in the ERS
Benefit	Accrued maximum allowance payable at age 65	Accrued maximum allowance payable at age 55	Accrued maximum allowance payable at age 62
<b>Annuity Savings Account</b>			
Interest	Not applicable	4.5% per annum on employee contributions and accrued interest	4.5% per annum on employee contributions and accrued interest
Eligibility	Not applicable	Requests refund and forfeits future retirement benefit	Requests refund and forfeits future retirement benefit
Benefit			
- Terminates with less than 5 years credited service	Not applicable	Return of member's contributions and accrued interest	Return of member's contributions and accrued interest
- Terminates with 5 or more years of credited service	Not applicable	Return of member's contributions and accrued interest	Return of member's Hybrid Plan contributions and accrued interest, both times 150%. Return of non-Hybrid balance transfers and accrued interest.

	<b>Noncontributory Plan</b>	<b>Contributory Plan</b>	<b>Hybrid Plan</b>
<b>Ordinary Disability</b>			
Eligibility	10 years credited service	10 years credited service	10 years credited service
Benefit	1 ¼% of AFC times years of credited service, unreduced for age (Minimum is 12.5% AFC)	1 ¾% of AFC times years of credited service, unreduced for age  (Minimum is 30% AFC)	2% of AFC times years of credited service, unreduced for age, split formula for unconverted noncontributory service at 1 ¼% (Minimum is 30% AFC)
<b>Service-Connected Disability</b>			
Eligibility	Any age or credited service	Any age or credited service	Any age or credited service
Benefit	Accrued maximum allowance, but not less than 15% AFC.  For accidents that occur on or after July 1, 2004, lifetime pension of 35% of AFC.	Totally disabled: lifetime pension of 66 2/3% AFC plus annuity.  Occupationally disabled: same benefit (66 2/3% pension plus annuity) paid for 3 years and then pension is reduced to 33 1/3% AFC if not totally disabled.  For accidents on or after July 7, 1998, lifetime pension of 50% of AFC plus refund of member's contributions and accrued interest.	Lifetime pension of 35% of AFC plus refund of member's contributions and accrued interest.

	<b>Noncontributory Plan</b>	<b>Contributory Plan</b>	<b>Hybrid Plan</b>
<b>Ordinary Death</b>			
Eligibility	Active employee at time of death with at least 10 years of credited service	Active employee at time of death with at least 1 year of service	Active employee at time of death with at least 5 years of service
Benefit	<p>Surviving spouse/reciprocal beneficiary and dependent children receive a benefit equal to a percentage of member's accrued maximum allowance unreduced for age; or</p> <p>Option B (100% Joint and Survivor) benefit for surviving spouse if member was eligible for retirement at time of death and a percentage of member's accrued maximum allowance unreduced for age for the dependent children</p>	<p>Lump sum payment of member's contributions and accrued interest plus a percentage of the salary earned in the 12 months preceding death; or</p> <p>Option 3 (50% Joint and Survivor) benefit if member was not eligible for retirement at the time of death, credited with 10 years of service, and one beneficiary designated (benefit calculated using the ordinary disability retirement formula); or</p> <p>Option 2 (100% Joint and Survivor) benefit if member was eligible for retirement at the time of death and one beneficiary designated</p>	<p>Return of member's Hybrid Plan contributions and accrued interest (both times 150%) plus return of non-Hybrid balance transfers and accrued interest; or</p> <p>Option 3 (50% Joint Survivor) lifetime benefit if credited with at least 10 years of service and one beneficiary designated; or</p> <p>Option 2 (100% Joint Survivor) lifetime monthly benefit if member was eligible for service retirement at time of death, and one beneficiary designated</p>

	<b>Noncontributory Plan</b>	<b>Contributory Plan</b>	<b>Hybrid Plan</b>
<b>Service-Connected Death</b>			
Eligibility	Any age or service	Any age or service	Any age or service
Benefit	<p>Surviving spouse/reciprocal beneficiary receives pension equal to 30% of AFC (until remarriage or re-entry into a new reciprocal beneficiary relationship); additional benefits payable to surviving dependent children (up to age 18)</p> <p>If there is no spouse/reciprocal beneficiary or dependent children, no benefit is payable.</p>	<p>Lump sum payment of member's contributions and accrued interest, plus pension of 50% AFC to surviving spouse/reciprocal beneficiary (until remarriage or re-entry into a new reciprocal beneficiary relationship);</p> <p>If there is no surviving spouse or reciprocal beneficiary, surviving dependent children (up to age 18) or dependent parents shall be eligible for a monthly benefit.</p> <p>If there is no spouse/reciprocal beneficiary or dependent children/parents, the ordinary death benefit shall be payable to the designated beneficiary.</p>	<p>Lump sum payment of member's contributions and accrued interest, plus pension of 50% AFC to surviving spouse/reciprocal beneficiary (until remarriage or re-entry into a new reciprocal beneficiary relationship);</p> <p>If there is no surviving spouse or reciprocal beneficiary, surviving dependent children (up to age 18) or dependent parents shall be eligible for a monthly benefit.</p> <p>If there is no spouse/reciprocal beneficiary or dependent children/parents, the ordinary death benefit shall be payable to the designated beneficiary.</p>



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The plan provisions summarized above apply to teachers and most State and County employees. Special provisions applicable to other groups of employees are outlined below:

- A. Police officers, firefighters, investigators of the Department of the Prosecuting Attorney and the Attorney General, narcotic enforcement investigators, and public safety investigators contribute 12.2% of their monthly salary to the ERS instead of 7.8%. These members may retire at age 55 with 5 years of credited service or at any age with 25 years of credited service and receive a retirement benefit of 2 ½% of average final compensation (AFC) for each year of such service up to a maximum of 80% AFC, provided the last 5 years of credited service in any of these occupations.
- B. Judges, elected officials, and legislative officers may retire at age 55 with at least 5 years of credited service, or at any age with at least 10 years of credited service and receive a pension of 3 ½% of AFC for each year of such service plus an annuity from their contributions allocable to the period of such service. This benefit cannot exceed 75% of the AFC. Judges hired after June 30, 1999 require 25 years of credited service in order to retire before age 55.
- C. Sewer workers in specified classifications, water safety officers, and emergency medical technicians (EMTs) may retire at any age if they are credited with 25 years of such service with the last 5 or more years in these occupations. (The 25-year feature is phased in through 7/1/2008 for EMTs.)
- D. Sewer workers in specified classifications, water safety officers, and emergency medical technicians (EMTs) that transfer to the Hybrid Plan contribute 9.75% of their monthly salary to the ERS. These members may retire at age 62 with 5 years of credited service or at any age if they are credited with 25 years of such service with the last 5 or more years in these occupations.

### **Post Retirement Benefit**

Each retiree's original retirement allowance is increased by 2 ½% on each July 1 beginning the calendar year after retirement. This cumulative benefit is not compounded and increased each year by another 2 ½% of the original retirement allowance without a ceiling (i.e., 2 1.2% of the original retirement allowance the first year, 5% the second year, 7 ½% the third year, etc.).

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**Retirement Options****Contributory and Hybrid Plans**

**Maximum Allowance:** The member receives a lifetime maximum allowance and at death the difference between the value of the member's contributions at the time of retirement and the retirement allowance paid prior to death is paid to the designated beneficiary(ies) or estate.

**Option One:** The member receives a reduced lifetime allowance based on age and at death, the difference between the initial insurance reserve and the retirement allowance paid prior to death is paid to the designated beneficiary(ies) or estate.

**Option Two (100% Joint and Survivor with Pop-Up):** The member receives a reduced lifetime allowance based on ages of both the member and the sole beneficiary and at death of the member, the same allowance is paid to the designated beneficiary for life. Should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance, and all payments will cease at the retiree's death.

**Option Three (50% Joint and Survivor with Pop-Up):** This plan is similar to Option Two. The member receives a reduced lifetime allowance which is higher than Option Two and is based on ages of both the member and the sole beneficiary; however, at death of the member one-half of the allowance is paid to the designated beneficiary for life. Like Option Two, should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance, and all payments will cease at the retiree's death.

**Option Four:** This option allows the member to devise a plan that will provide a benefit according to the member's specifications. It requires certification by the Actuary and approval of the Board of Trustees. The following Option Four plans have been approved:

**Combination of Options Five and Maximum Allowance:** The member receives a reduced lifetime allowance and is allowed to withdraw the pre-1987 nontaxable contribution, 50% of accumulated contributions, or 75% of accumulated contributions (Hybrid Plan members are not allowed the 75% option); at death, the difference between the value of the member's contributions at the time of retirement and the retirement allowance paid prior to death is paid to the designated beneficiary(ies) or estate.

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Combination of Options Five and One: The member receives a reduced lifetime allowance and is allowed to withdraw the pre-1987 nontaxable contributions, 50% of accumulated contributions, or 75% of accumulated contributions (Hybrid Plan members are not allowed the 75% option); at death, the difference between the initial insurance reserve and the retirement allowance paid prior to death is paid to the designated beneficiary(ies) or estate.

Combination of Options Five and Two: The member receives a reduced lifetime allowance based on ages of both member and the sole beneficiary, and is allowed to withdraw the pre-1987 nontaxable contributions, 50% of accumulated contributions, or 75% of accumulated contributions (Hybrid Plan members are not allowed the 75% option); at death of the member, the same allowance is paid to the designated beneficiary for life. As in the case of Option Two, should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance (as adjusted for the contribution withdrawal), and all payments will cease at the retiree's death.

Combination of Options Five and Three: The member receives a reduced lifetime allowance based on ages of both member and the sole beneficiary, and is allowed to withdraw the pre-1987 nontaxable contributions, 50% of accumulated contributions, or 75% of accumulated contributions (Hybrid Plan members are not allowed the 75% option); at death of the member, one-half of the allowance is paid to the designated beneficiary for life. As in the case of Option Three, should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance (as adjusted for the contribution withdrawal), and all payments will cease at the retiree's death.

**Option Five:** The member receives a reduced lifetime allowance and is allowed to withdraw all accumulated contributions; at death, the retiree is entitled to the pension for the entire month that death occurs.

Option Four and Option Five are restricted to those members with at least ten years of credited service excluding unused sick leave credit.

Regardless of the option selected, should death occur during the first year of retirement, the designated beneficiary may elect to receive benefits as if death had occurred immediately prior to retirement in lieu of the death benefits described above.

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**Noncontributory Plan**

**Maximum Allowance:** The member receives a lifetime pension and at death, the retiree is entitled to the pension for the entire month that death occurs.

**Option A (50% Joint and Survivor with Pop-Up):** The member receives a reduce lifetime pension and at death of the member, one-half of the pension is paid to the sole designated beneficiary for life. Should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance, and all payments will cease at the retiree's death.

**Option B (100% Joint and Survivor with Pop-up):** The member receives a reduce lifetime pension and at death of the member, the same pension is paid to the sole designated beneficiary for life. Like Option A, should the designated beneficiary predecease the retiree, another beneficiary cannot be named, the benefit will revert back to the Maximum Allowance, and all payments will cease at the retiree's death.

**Option C (Ten-Year Guarantee):** The member receives a reduce lifetime pension. Should death occur within two years of retirement, the same pension will be paid to the designated beneficiary for the balance of the ten-year period. Should the designated beneficiary predecease the retiree, another beneficiary can be named.

Regardless of the option selected, should death occur during the first year of retirement, the designated beneficiary may elect to receive benefits as if death had occurred immediately prior to retirement in lieu of the death benefits described above.

## Summary of Plan Changes

### **Act 65, effective July 1 1999**

Requires judges who enter or re-enter service after June 30, 1999 to be at least 55 years old and five years of service or have 25 years of service to rehire.

### **Act 100, effective June 30, 1999**

Uses actuarial investment earnings in excess of a ten percent (10%) actuarial investment yield rate to reduce the employer's contribution requirements by \$147.0 million and \$50.6 million for fiscal years ending June 30, 2000 and 2001, respectively.

### **Act 284, effective June 30, 2001**

Provide an increase in pension benefits for current retirees with military service who retired prior to July 2, 1989. A retirant who rendered honorable active military service could be granted up to 4 years of military service credits based upon his/her years of credited service under the ERS, not to exceed his/her actual years of military service. The years of military service credits granted are based on the following schedule:

- 0 years for retirants with less than 8 years of credited service
- Up to 2 years of retirants with 8 years or more of credited service
- Up to 3 years of retirants with 20 years or more of credited service
- Up to 4 years of retirants with 25 years or more of credited service

For each year of military service credits granted on the schedule above, the retirant will be provided a \$36.00 increase in his/her monthly pension or retirement allowance.

### **Act 199, effective June 30, 2003**

Emergency Medical Technicians (EMTs) are allowed to retire with an unreduced benefit after 25 years of service regardless of age, of which the last five or more years prior to retirement must be in that capacity. This feature is phased in one year at a time, July 1, 2003 through June 30, 2008.

**Act 177, effective July 1, 2004**

This Act allows police officers with a permanent service-connected disability to retain the 2-1/2% benefit multiplier for each year of service as a police officer.

**Act 179, effective July 1, 2004**

This Act increased the Noncontributory service-connected disability formula to 35% of average final compensation. The Act also changed the methodology for crediting interest on contributions for terminated members so that interest continues to accrue until the date of refund. The Act adds a "pop-up" feature to the joint & survivor benefit options if the beneficiary pre-deceases the retiree.

This Act also created the new Hybrid Plan which became effective July 1, 2006.

**Act 181, effective July 1, 2004**

This Act establishes fixed employer contribution rates as a percentage of compensation effective July 1, 2005. Employers will contribute 15.75% for their police officers and firefighters and 13.75% for other employees.

**Act 183, effective July 1, 2004**

This Act amends the ERS statutes to comply with the federal tax limits on compensation retroactive to July 1, 1996.

**Act 56, effective December 1, 2004**

This Act amends the ERS statutes to allow the automatic cost-of-living-adjustment to be reflected when determining actuarial equivalent optional forms of payment.

**Act 256, effective July 5, 2007**

Legislation was enacted to remove the statutory salary increase assumption from the statutes and to grant the System's Board of Trustees the authority to set the salary increase assumption. As a result of this legislation, the Board has adopted effective with this valuation the salary increase assumption recommended by GRS as a result of the Experience Study performed in 2006.

Legislation was also enacted to increase the employer contribution rates to the System. Effective July 1, 2008, the employer contribution rate for Police and Fire employees will increase from 15.75% to 19.70% and the rate for All Other employees will increase from 13.75% to 15.00%.

**Summary of Actuarial Methods and Assumptions  
(Adopted on August 14, 2006 and on June 30, 2007)**

*I. Valuation Date*

The valuation date is June 30th of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

*II. Actuarial Cost Method*

The funding period required to amortize the unfunded actuarial accrued liability (UAAL) is determined using the Entry Age Actuarial Cost Method. This method assigns the plan's total unfunded liabilities (the actuarial present value of future benefits less the actuarial value of assets) to various periods. The unfunded actuarial accrued liability is assigned to years prior to the valuation, and the normal cost is assigned to the year following the valuation. The remaining costs are assigned to future years.

The normal cost is the level percentage of payroll contribution required to accumulate the needed funds to pay all expected benefits. This percentage of payroll is then applied to the total compensation for the prior year for all active members, and is then adjusted for the payroll growth assumption.

The actuarial accrued liability is the difference between the total present value of future benefits and the actuarial present value of future normal costs. The unfunded actuarial accrued liability (UAAL) is the excess of the actuarial accrued liability over the actuarial value of assets.

Since the State statutes governing the System establish the current employee and Employer contribution rates, the actuarial valuation determines the number of years required to amortize (or fund) the UAAL on a level percentage of payroll basis, taking into account the payroll growth assumption and the normal cost expressed as a percent of pay.

Because of this amortization procedure, any change in the unfunded actuarial accrued liability due to (i) actuarial gains and losses, (ii) changes in actuarial assumptions, or (iii) amendments, affects the funding period.

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III. Funding of Unfunded Actuarial Accrued Liability

All of the following concepts will be discussed on an aggregate basis with regards to the contributory, the Hybrid, and the noncontributory plans. The total normal cost for benefits provided by ERS is 12.49% of payroll, which is 9.61% of payroll less than the total contributions required by Law (15.46% from employers plus 6.64% in the aggregate from employees). Since only 5.85% of the employer's 15.46% contribution is required to meet the normal cost (6.64% comes from the employee contribution), it is intended that the remaining 9.91% of payroll will be used to amortize any unfunded actuarial accrued liabilities over a period of years in the future, assuming that total payroll increases by 3.50% per year.

IV. Actuarial Value of Assets

The actuarial value of assets is equal to the market value, adjusted for a four-year phase in of actual investment return in excess of expected investment return. The actual return is calculated net of investment and administrative expenses, and the expected investment return is equal to the assumed investment return rate multiplied by the prior year's market value of assets, adjusted for contributions, benefits paid, and refunds.

V. Actuarial Assumptions

A. Economic Assumptions

1. Investment return: 8% per year, compounded annually, composed of an assumed 3.00% inflation rate and a 5.00% net real rate of return. (Set by legislative action.)
2. Payroll growth rate: 3.50% per annum.
3. Salary increase rate: As shown below



Years of Service	General Employees		Teachers	
	Service-related Component	Total Annual Rate of Increase Including 3.00% Inflation Component and 1.00% General Increase Rate	Service-related Component	Total Annual Rate of Increase Including 3.00% Inflation Component and 1.50% General Increase Rate
(1)	(2)	(3)	(2)	(3)
0	4.00%	8.00%	4.00%	8.50%
1	2.50%	6.50%	3.00%	7.50%
2	1.50%	5.50%	2.50%	7.00%
3	1.00%	5.00%	2.00%	6.50%
4	0.75%	4.75%	1.50%	6.00%
5	0.50%	4.50%	1.00%	5.50%
6	0.50%	4.50%	1.00%	5.50%
7	0.25%	4.25%	0.75%	5.25%
8	0.25%	4.25%	0.75%	5.25%
9	0.25%	4.25%	0.75%	5.25%
10	0.25%	4.25%	0.50%	5.00%
11	0.25%	4.25%	0.50%	5.00%
12	0.25%	4.25%	0.50%	5.00%
13	0.00%	4.00%	0.50%	5.00%
14	0.00%	4.00%	0.50%	5.00%
15 or more	0.00%	4.00%	0.00%	4.50%

Police & Firefighters		
Years of Service	Service-related Component	Total Annual Rate of Increase Including 3.00% Inflation Component and 1.75% General Increase Rate
(1)	(2)	(3)
0	13.00%	17.75%
1	11.00%	15.75%
2 or more	0.00%	4.75%

Salary increases are assumed to occur once a year, on July 1. Therefore the pay used for the period between the valuation date and the first anniversary of the valuation date is equal to the reported pay for the prior year, annualized if necessary, and then increased by the salary increase assumption.

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**B. Demographic Assumptions****1. Post-Retirement Mortality rates****General Employees**

- a. Healthy males – Client Specific Table for males, 90% multiplier.
- b. Healthy females - Client Specific Table for females, 90% multiplier.
- c. Disabled males - 1994 US Group Annuity Mortality Static Table for males set forward ten years.
- d. Disabled females - 1994 US Group Annuity Mortality Static Table for females set forward eleven years.

**Teachers**

- a. Healthy males – Client Specific Table for male teachers, 75% multiplier.
- b. Healthy females - Client Specific Table for female teachers, 65% multiplier.
- c. Disabled males - 1994 US Group Annuity Mortality Static Table for males set forward four years.
- d. Disabled females - 1994 US Group Annuity Mortality Static Table for females set forward six years.

**Police and Fire**

- a. Healthy males – 1994 US Group Annuity Mortality Static Table for males, 85% multiplier.
- b. Healthy females - 1994 US Group Annuity Mortality Static Table for females, 85% multiplier.
- c. Disabled males - 1994 US Group Annuity Mortality Static Table for males set forward five years.
- d. Disabled females - 1994 US Group Annuity Mortality Static Table for females set forward five years.

2. Pre-retirement Mortality Rates

The male pre-retirement mortality rates are multiples of a table that has the RP-2000 Male Employee rates for ages 1 to 70 and the RP-2000 Combined Male rates for ages above 70. Similarly, the female pre-retirement rates are multiples of a table that has the RP-2000 Female Employee rates for ages 1 to 70 and the RP-2000 Combined Female rates for ages above 70. The following table shows the factors that are used in conjunction with the tables described above to derive the final ordinary and accidental death rates.

Type	General Employees	Teachers	Police and Fire
	Male and Females	Male and Females	Male and Females
Ordinary	40%	35%	15%
Accidental	10%	5%	35%

3. Disability rates – The assumed total disability rates for employees covered by the contributory plan, hybrid plan and the noncontributory plan at select ages are multiples of the client specific table that follows:

Age	Male & Female
25	0.000%
30	0.001%
35	0.008%
40	0.026%
45	0.064%
50	0.146%
55	0.198%
60	0.217%

Note: The disability rates project the percentage of employees at each age that is assumed to become disabled before retiring. Multiples of the rates above are assumed to be ordinary disability or accidental disability, and vary by employee group as follows:

Type	General Employees		Teachers		Police and Fire
	Male	Female	Male	Female	Male & Female
Ordinary	150%	95%	40%	40%	70%
Accidental	20%	5%	5%	5%	35%

4. Termination Rates - Separate male and female rates, based on both age and service, developed from 2006 Experience Study. Rates reflect terminations for causes other than death, disability or retirement. Employees eligible for retirement are assumed to have no probability of termination. Sample rates are shown below:

For first 6 years of service

Group	Expected Terminations per 100 Lives (Male Members)					
	Years of Service					
	0	1	2	3	4	5
General Employees	15.5	12.5	10.5	9.0	7.0	6.5
Teachers	32.0	22.0	14.0	12.0	10.0	9.0
Police & Fire	11.0	7.5	4.0	4.0	4.0	4.0

Group	Expected Terminations per 100 Lives (Female Members)					
	Years of Service					
	0	1	2	3	4	5
General Employees	18.5	16.5	12.5	10.0	8.0	7.0
Teachers	28.0	22.0	15.0	14.0	11.0	8.0
Police & Fire	11.0	7.5	4.0	4.0	4.0	4.0

After first 6 years of service

Age	Expected Terminations per 100 Lives				
	Years of Service				
	General Employees Males	General Employees Females	Teachers Males	Teachers Females	Police & Fire
(1)	(2)	(3)	(4)	(5)	(6)
25	6.08	7.38	4.35	6.50	2.00
30	5.04	4.82	4.12	5.80	2.82
35	4.03	3.75	3.80	4.41	2.50
40	3.36	3.02	3.38	3.32	1.66
45	2.81	2.49	2.57	2.65	0.94
50	2.58	2.62	2.56	2.60	0.66
55	3.67	3.92	4.53	4.97	0.00
60	4.00	4.24	5.59	4.66	0.00

5. Retirement rates - Separate male and female rates, based on age, developed from the 2006 Experience Study. Sample rates are shown below:

Contributory Plan and Hybrid Plan

Age	Expected Retirements per 100 Lives				
	General Employees		Teachers		Police and Fire
	Male	Female	Male	Female	Male & Female
45	1	0	0	0	18
46	1	0	0	0	18
47	1	0	0	0	18
48	1	0	0	0	18
49	1	0	0	0	18
50	2	1	1	0	18
51	2	1	1	0	18
52	2	1	1	1	18
53	2	1	4	1	18
54	6	5	7	4	25
55	20	20	20	22	25
56	15	10	15	18	22
57	15	10	15	18	22
58	15	10	15	18	22
59	15	12	15	18	22
60	15	12	14	18	30
61	18	15	14	18	30
62	35	35	14	25	30
63	20	25	14	18	30
64	20	20	14	18	30
65	35	45	25	25	100
66	25	25	25	25	100
67	30	30	25	30	100
68	25	40	25	40	100
69	25	40	25	40	100
70	25	25	25	25	100
71	25	25	25	25	100
72	25	25	25	25	100
73	25	25	25	25	100
74	25	25	25	25	100
75	100	100	100	100	100

Noncontributory Plan

Age	Expected Retirements per 100 Lives			
	General Employees		Teachers	
	Male	Female	Male	Female
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0
51	0	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	10	10	10	13
56	9	10	9	12
57	9	10	9	12
58	9	10	9	15
59	9	10	9	18
60	10	15	10	18
61	18	15	10	18
62	30	25	15	30
63	30	25	10	16
64	25	25	10	16
65	40	30	24	30
66	35	30	18	20
67	30	25	15	20
68	30	25	15	20
69	30	25	15	20
70	20	25	15	25
71	20	25	15	25
72	20	25	15	25
73	20	25	15	25
74	20	25	15	25
75	100	100	100	100

C. Other Assumptions

1. Percent married: 77% of male employees and 57.6% of female employees are assumed to be married.
2. Age difference: Male members are assumed to be four years older than their spouses, and female members are assumed to be four years younger than their spouses.
3. Percent electing annuity on death for contributory participants (when eligible): All of the spouses of married participants who die after becoming eligible for a retirement benefit are assumed to elect an annuity or a refund, whichever is more valuable at time of participant's death.
4. Percent electing deferred termination benefit: vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
5. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt when eligible for early retirement.
6. Administrative expenses: The assumed investment return rate represents the anticipated net return after payment of all investment and administrative expenses.
7. Reemployment, purchase of service, transfers: No recognition is made of (i) future member reimbursements upon reemployment, (ii) future purchase of additional service, or (iii) special transfer provisions.
8. Sick Leave: It is assumed that all members will have their benefit service increased by sick leave and the following loads will be applied by group:

General Employees	3.75%
Teachers	4.25%
Police and Fire	5.00%

9. COLA delay: It is assumed that the first COLA will be received 9 months after retirement.
10. There will be no recoveries once disabled.
11. No surviving spouse will remarry and there will be no children's benefit.



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12. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
  13. Decrement timing: Retirements and terminations of Teachers are assumed to occur at the beginning of the year. All other decrements are assumed to occur mid-year.
  14. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
  15. Decrement relativity: Decrement rates are used directly from the Experience Study, without adjustment for multiple decrement table effects.
  16. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
  17. Benefit Service: All members are assumed to accrue 1 year of service each year. Exact fractional service is used to determine the amount of benefit payable.

#### VI. Participant Data

Participant data was supplied on CD-ROM for (i) active members, (ii) inactive vested members, who are entitled to a future deferred benefit, (iii) members and beneficiaries receiving benefits.

Salary supplied for the current year was based on the earnings for the March preceding the valuation date. This salary was compared to March base pay plus a twelve-month average of overtime, with the greater of the two being used for valuation pay.

VII. Dates of Adoption of Assumptions and Methods

Generally, actuarial assumptions and methods were adopted by the Board of Trustees on August 14, 2006 as recommended by Gabriel, Roeder, Smith & Company. The legislature sets the investment return assumption. The salary scale assumption prior to the June 30, 2007 valuation was also set by statute. The 2007 Legislature removed this constraint as of June 30, 2007, and this assumption is now set by the Board based on the Actuary's recommendations.

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## **SECTION M**

### **STATISTICAL TABLES**

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## STATISTICAL TABLES

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**Distribution of Active Members by Age and by Years of Service - All Employees  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total Count & Avg. Comp.
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	
Under 25	276 \$40,066	269 \$38,808	89 \$40,233	33 \$41,335	8 \$34,388	2 \$35,652	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	677 \$39,570
25-29	631 \$43,372	1,037 \$42,870	840 \$45,924	600 \$47,343	376 \$47,903	477 \$47,838	3 \$49,216	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	3,964 \$45,354
30-34	421 \$46,033	830 \$44,955	710 \$47,587	647 \$48,728	613 \$50,602	2,422 \$52,672	252 \$53,602	2 \$47,233	0 \$0	0 \$0	0 \$0	0 \$0	5,897 \$49,890
35-39	2,002 \$45,190	764 \$45,340	678 \$49,463	514 \$49,487	502 \$51,148	2,550 \$53,615	1,973 \$59,591	490 \$59,851	4 \$40,114	0 \$0	0 \$0	0 \$0	9,477 \$52,078
40-44	216 \$45,437	554 \$45,080	515 \$48,589	429 \$46,358	393 \$53,567	1,909 \$52,152	1,597 \$58,971	2,407 \$63,087	504 \$67,171	4 \$77,299	0 \$0	0 \$0	8,528 \$56,344
45-49	221 \$40,395	524 \$44,351	517 \$46,869	382 \$48,337	322 \$48,181	1,710 \$48,748	1,227 \$54,574	2,247 \$61,497	2,120 \$67,141	439 \$68,945	1 \$61,014	0 \$0	9,710 \$56,802
50-54	179 \$42,631	419 \$44,610	400 \$46,623	354 \$48,948	293 \$49,473	1,519 \$48,170	1,164 \$54,712	1,888 \$58,742	1,922 \$65,253	1,682 \$71,658	428 \$68,162	8 \$47,923	10,256 \$58,508
55-59	140 \$44,734	347 \$49,956	281 \$50,847	266 \$49,489	258 \$53,292	1,312 \$49,876	1,050 \$54,082	1,731 \$57,563	1,618 \$65,120	1,420 \$72,388	1,426 \$75,040	320 \$70,740	10,169 \$61,408
60-64	57 \$43,205	191 \$50,327	174 \$50,684	156 \$54,623	176 \$53,209	846 \$51,465	653 \$54,118	1,122 \$58,427	957 \$64,124	642 \$70,203	562 \$78,499	973 \$79,065	6,509 \$63,097
65 & Over	16 \$55,299	51 \$54,173	61 \$47,348	67 \$57,522	64 \$47,605	422 \$49,260	334 \$52,531	423 \$56,915	329 \$60,082	211 \$71,975	206 \$81,894	541 \$90,124	2,725 \$64,743
Total	4,159 \$44,304	4,986 \$44,818	4,265 \$47,686	3,448 \$48,710	3,005 \$50,651	13,169 \$51,107	8,253 \$56,431	10,310 \$60,100	7,454 \$65,504	4,398 \$71,431	2,623 \$75,192	1,842 \$80,732	67,912 \$56,514

**Distribution of Active Members by Age and by Years of Service  
Noncontributory Members, All  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total Count & Avg. Comp.
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	
Under 25	0 \$0	0 \$0	0 \$0	21 \$35,156	7 \$35,165	1 \$35,280	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	29 \$35,163
25-29	0 \$0	0 \$0	2 \$30,000	288 \$45,434	174 \$43,553	230 \$44,448	1 \$34,243	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	695 \$44,576
30-34	2 \$12,920	0 \$0	3 \$39,325	298 \$45,456	270 \$48,145	1,016 \$49,726	102 \$46,597	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,691 \$48,470
35-39	6 \$37,831	2 \$42,322	4 \$42,797	233 \$48,078	226 \$47,534	1,071 \$49,624	709 \$54,743	183 \$54,374	2 \$42,951	0 \$0	0 \$0	0 \$0	2,436 \$51,077
40-44	1 \$23,130	2 \$55,492	3 \$50,857	206 \$44,271	181 \$49,480	890 \$48,983	659 \$53,313	877 \$56,789	164 \$54,856	1 \$37,968	0 \$0	0 \$0	2,984 \$52,255
45-49	0 \$0	0 \$0	2 \$44,318	164 \$44,723	148 \$45,304	889 \$46,147	611 \$49,918	897 \$56,827	696 \$60,780	87 \$61,483	0 \$0	0 \$0	3,494 \$52,742
50-54	0 \$0	0 \$0	1 \$42,153	151 \$43,442	126 \$44,179	698 \$44,190	564 \$51,150	894 \$54,228	755 \$60,347	348 \$64,311	123 \$62,533	6 \$46,527	3,666 \$53,533
55-59	1 \$51,312	1 \$52,968	0 \$0	100 \$44,414	97 \$46,399	581 \$45,693	483 \$49,733	844 \$54,171	682 \$59,629	366 \$68,811	365 \$71,036	126 \$73,135	3,646 \$56,591
60-64	1 \$100,328	1 \$42,576	0 \$0	52 \$46,451	68 \$50,831	373 \$44,763	343 \$49,769	603 \$55,285	470 \$60,647	213 \$67,691	187 \$76,294	374 \$76,805	2,685 \$59,231
65 & Over	0 \$0	0 \$0	0 \$0	25 \$50,578	34 \$47,382	196 \$42,433	195 \$48,334	305 \$54,139	226 \$57,714	94 \$69,850	82 \$81,111	226 \$89,581	1,383 \$60,474
<b>Total</b>	<b>11 \$38,872</b>	<b>6 \$48,529</b>	<b>15 \$42,168</b>	<b>1,538 \$45,323</b>	<b>1,331 \$46,853</b>	<b>5,945 \$47,259</b>	<b>3,667 \$51,431</b>	<b>4,603 \$55,350</b>	<b>2,995 \$59,820</b>	<b>1,109 \$66,669</b>	<b>757 \$72,045</b>	<b>732 \$79,870</b>	<b>22,709 \$53,893</b>

**Distribution of Active Members by Age and by Years of Service  
Noncontributory Members, General Employees  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total Count & Avg. Comp.
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	
Under 25	0 \$0	0 \$0	0 \$0	21 \$35,156	7 \$35,165	1 \$35,280	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	29 \$35,163
25-29	0 \$0	0 \$0	2 \$30,000	151 \$42,492	107 \$40,816	158 \$42,166	1 \$34,243	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	419 \$41,862
30-34	2 \$12,920	0 \$0	3 \$39,325	203 \$43,901	161 \$47,060	548 \$48,065	65 \$42,170	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	982 \$46,551
35-39	3 \$34,406	2 \$42,322	3 \$42,245	183 \$47,110	163 \$45,224	754 \$47,698	361 \$51,957	151 \$52,405	2 \$42,951	0 \$0	0 \$0	0 \$0	1,622 \$48,722
40-44	1 \$23,130	2 \$55,492	2 \$40,896	175 \$42,151	126 \$43,780	696 \$46,112	455 \$50,705	598 \$54,160	137 \$53,059	1 \$37,968	0 \$0	0 \$0	2,193 \$49,233
45-49	0 \$0	0 \$0	2 \$44,318	138 \$43,311	117 \$42,926	717 \$42,889	487 \$47,089	703 \$53,769	495 \$58,056	81 \$61,460	0 \$0	0 \$0	2,740 \$49,740
50-54	0 \$0	0 \$0	1 \$42,153	127 \$42,045	99 \$42,294	561 \$40,876	449 \$47,441	748 \$51,217	607 \$57,796	276 \$62,007	112 \$60,816	6 \$46,527	2,986 \$50,703
55-59	1 \$51,312	0 \$0	0 \$0	82 \$41,326	79 \$44,863	477 \$43,045	380 \$45,673	654 \$49,089	532 \$55,288	290 \$65,501	274 \$66,997	111 \$70,745	2,880 \$52,637
60-64	0 \$0	0 \$0	0 \$0	38 \$41,088	52 \$47,418	297 \$41,676	274 \$46,807	476 \$50,048	331 \$53,982	150 \$61,920	143 \$72,574	209 \$69,214	1,970 \$53,326
65 & Over	0 \$0	0 \$0	0 \$0	22 \$48,952	27 \$40,252	169 \$40,496	168 \$44,610	266 \$50,770	178 \$52,165	66 \$58,502	44 \$64,978	108 \$78,427	1,048 \$51,987
<b>Total</b>	<b>7</b> \$29,072	<b>4</b> \$48,907	<b>13</b> \$39,792	<b>1,140</b> \$43,340	<b>938</b> \$44,120	<b>4,378</b> \$44,434	<b>2,640</b> \$47,921	<b>3,596</b> \$51,680	<b>2,282</b> \$55,978	<b>864</b> \$62,818	<b>573</b> \$67,026	<b>434</b> \$71,585	<b>16,869</b> \$50,393

**Distribution of Active Members by Age and by Years of Service  
Noncontributory Members, Teachers  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total Count & Avg. Comp.
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	
Under 25	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0
25-29	0 \$0	0 \$0	0 \$0	137 \$48,676	67 \$47,922	72 \$49,454	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0
30-34	0 \$0	0 \$0	0 \$0	95 \$48,778	109 \$49,747	468 \$51,671	37 \$54,375	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0
35-39	3 \$41,256	0 \$0	1 \$44,452	50 \$51,623	63 \$53,511	317 \$54,205	348 \$57,634	32 \$63,664	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0
40-44	0 \$0	0 \$0	1 \$70,779	31 \$56,240	55 \$62,538	194 \$59,282	204 \$59,129	279 \$62,423	27 \$63,976	0 \$0	0 \$0	0 \$0	0 \$0
45-49	0 \$0	0 \$0	0 \$0	26 \$52,217	31 \$54,278	172 \$59,729	124 \$61,029	194 \$67,908	201 \$67,490	6 \$61,797	0 \$0	0 \$0	0 \$0
50-54	0 \$0	0 \$0	0 \$0	24 \$50,836	27 \$51,088	137 \$57,760	115 \$65,634	146 \$69,654	148 \$70,806	72 \$73,141	11 \$80,014	0 \$0	0 \$0
55-59	0 \$0	1 \$52,968	0 \$0	18 \$58,483	18 \$53,141	104 \$57,837	103 \$64,712	190 \$71,663	150 \$75,025	76 \$81,445	91 \$83,196	15 \$90,826	15 \$71,456
60-64	1 \$100,328	1 \$42,576	0 \$0	14 \$61,009	16 \$61,924	76 \$56,827	69 \$61,530	127 \$74,917	139 \$76,519	63 \$81,432	44 \$88,384	165 \$86,421	715 \$75,499
65 & Over	0 \$0	0 \$0	0 \$0	3 \$62,506	7 \$74,880	27 \$54,563	27 \$71,504	39 \$77,118	48 \$78,290	28 \$96,600	38 \$99,792	118 \$99,790	335 \$87,024
<b>Total</b>	<b>4</b> \$56,024	<b>2</b> \$47,772	<b>2</b> \$57,616	<b>398</b> \$51,003	<b>393</b> \$53,378	<b>1,567</b> \$55,150	<b>1,027</b> \$60,456	<b>1,007</b> \$68,456	<b>713</b> \$72,118	<b>245</b> \$80,252	<b>184</b> \$87,674	<b>298</b> \$91,937	<b>5,840</b> \$64,001



**Distribution of Active Members by Age and by Years of Service  
Contributory Members, All  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	
Under 25	20 \$56,961	28 \$55,728	13 \$56,536	6 \$61,265	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	67 \$56,749
25-29	124 \$50,861	84 \$58,535	92 \$61,471	67 \$62,105	41 \$66,411	66 \$66,194	1 \$62,460	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	475 \$59,356
30-34	23 \$53,441	47 \$56,155	79 \$61,241	63 \$64,141	77 \$63,319	332 \$65,909	62 \$70,784	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	683 \$64,266
35-39	23 \$57,609	25 \$58,610	44 \$62,377	36 \$58,729	53 \$62,434	400 \$65,850	394 \$73,884	88 \$83,123	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,063 \$69,354
40-44	9 \$56,704	13 \$62,346	13 \$61,401	14 \$66,015	32 \$65,951	175 \$66,122	255 \$76,219	391 \$83,333	147 \$93,127	3 \$90,409	0 \$0	0 \$0	0 \$0	1,052 \$78,617
45-49	2 \$55,002	4 \$62,588	6 \$60,590	6 \$74,710	11 \$72,489	46 \$68,360	74 \$73,424	281 \$83,647	308 \$92,513	220 \$78,873	0 \$0	0 \$0	0 \$0	958 \$83,401
50-54	2 \$50,974	4 \$75,192	3 \$48,780	5 \$64,809	5 \$89,997	21 \$89,350	58 \$79,876	111 \$86,509	180 \$93,078	667 \$77,567	138 \$74,327	0 \$0	0 \$0	1,194 \$80,555
55-59	2 \$54,148	0 \$0	4 \$58,939	0 \$0	2 \$78,022	16 \$78,250	21 \$89,450	30 \$96,516	79 \$100,661	471 \$75,049	411 \$78,226	64 \$73,944	64 \$73,944	1,100 \$78,827
60-64	1 \$48,708	0 \$0	3 \$49,212	2 \$127,080	2 \$129,174	14 \$103,158	7 \$71,448	9 \$119,899	23 \$103,813	187 \$68,180	153 \$78,035	209 \$77,592	209 \$77,592	610 \$77,091
65 & Over	0 \$0	0 \$0	2 \$80,050	0 \$0	1 \$48,708	8 \$108,609	4 \$73,064	4 \$84,571	4 \$86,788	59 \$58,164	67 \$64,727	136 \$83,019	136 \$83,019	285 \$74,085
Total	206 \$52,812	205 \$58,261	259 \$61,099	199 \$63,490	224 \$65,752	1,078 \$67,484	876 \$75,039	914 \$84,594	741 \$93,961	1,607 \$75,227	769 \$76,313	409 \$78,825	409 \$78,825	7,487 \$75,231

**Distribution of Active Members by Age and by Years of Service  
Contributory Members, General Employees  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.
Under 25	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0
25-29	0 \$0	1 \$25,855	0 \$0	2 \$47,003	0 \$0	2 \$58,847	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	5 \$47,511
30-34	1 \$48,708	0 \$0	2 \$47,168	0 \$0	0 \$0	7 \$48,319	1 \$48,708	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	11 \$48,180
35-39	3 \$80,412	0 \$0	1 \$47,913	1 \$34,291	4 \$52,848	16 \$52,888	6 \$52,750	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	31 \$54,759
40-44	1 \$48,708	0 \$0	2 \$71,581	0 \$0	4 \$82,617	13 \$60,507	9 \$90,208	14 \$67,634	2 \$63,922	2 \$71,945	0 \$0	0 \$0	47 \$71,051
45-49	1 \$48,708	1 \$63,148	2 \$46,266	0 \$0	3 \$98,988	4 \$69,993	8 \$56,539	11 \$75,745	12 \$83,683	103 \$55,132	0 \$0	0 \$0	145 \$60,342
50-54	2 \$50,974	2 \$87,522	3 \$48,780	1 \$98,600	3 \$93,120	8 \$127,277	13 \$94,540	13 \$101,292	20 \$93,430	329 \$61,305	88 \$60,298	0 \$0	482 \$65,787
55-59	1 \$48,708	0 \$0	1 \$66,500	0 \$0	2 \$78,022	10 \$84,794	13 \$93,374	8 \$121,465	21 \$110,618	304 \$66,974	218 \$67,204	45 \$64,183	623 \$69,866
60-64	1 \$48,708	0 \$0	3 \$49,212	2 \$127,080	2 \$129,174	12 \$106,028	6 \$72,136	7 \$125,562	10 \$122,749	138 \$62,132	96 \$71,206	101 \$65,324	378 \$70,180
65 & Over	0 \$0	0 \$0	2 \$80,050	0 \$0	1 \$48,708	8 \$108,609	4 \$73,064	2 \$96,648	1 \$52,446	44 \$52,511	52 \$59,311	70 \$74,372	184 \$66,393
<b>Total</b>	10 \$58,672	4 \$66,012	16 \$56,157	6 \$80,176	19 \$83,225	80 \$79,701	60 \$79,956	55 \$93,469	66 \$100,054	920 \$62,214	454 \$65,808	216 \$68,019	1,906 \$67,437

**Distribution of Active Members by Age and by Years of Service  
Contributory Members, Teachers  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total Count & Avg. Comp.	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.		
Under 25	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0
25-29	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0
30-34	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0
35-39	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	2 \$64,357	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	2 \$64,357
40-44	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1 \$53,958	1 \$54,183	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	2 \$54,070
45-49	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	3 \$70,919	0 \$0	13 \$74,777	0 \$0	0 \$0	0 \$0	16 \$74,053
50-54	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1 \$38,207	1 \$149,062	2 \$108,613	0 \$0	113 \$74,039	16 \$73,833	0 \$0	133 \$74,829	
55-59	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1 \$82,996	1 \$99,241	74 \$75,862	127 \$82,151	10 \$85,668	213 \$80,215	
60-64	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	33 \$80,333	36 \$80,812	98 \$87,197	167 \$84,464	
65 & Over	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1 \$82,563	1 \$130,900	15 \$74,749	10 \$74,031	66 \$92,190	93 \$87,737	
<b>Total</b>	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1 \$38,207	4 \$82,934	8 \$81,216	2 \$115,071	248 \$75,502	189 \$80,762	174 \$89,003	626 \$81,030	

**Distribution of Active Members by Age and by Years of Service  
Contributory Members, Police and Firefighters  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total Count & Avg. Comp.	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.		
Under 25	20 \$56,961	28 \$55,728	13 \$56,536	6 \$61,265	0 #DIV/0!	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	67 \$56,749
25-29	124 \$50,861	83 \$58,929	92 \$61,471	65 \$62,570	41 \$66,411	64 \$66,424	1 \$62,460	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	470 \$59,482
30-34	22 \$53,656	47 \$56,155	77 \$61,607	63 \$64,141	77 \$63,319	325 \$66,288	61 \$71,146	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	672 \$64,529
35-39	20 \$54,188	25 \$58,610	43 \$62,713	35 \$59,427	49 \$63,217	384 \$66,390	386 \$74,262	88 \$83,123	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,030 \$69,803
40-44	8 \$57,703	13 \$62,346	11 \$59,550	14 \$66,015	28 \$63,570	162 \$66,573	245 \$75,796	376 \$83,995	145 \$93,530	1 \$127,337	0 \$0	0 \$0	0 \$0	1,003 \$79,021
45-49	1 \$61,295	3 \$62,401	4 \$67,752	6 \$74,710	8 \$62,552	42 \$68,205	66 \$75,471	267 \$84,116	296 \$92,871	104 \$102,898	0 \$0	0 \$0	0 \$0	797 \$87,784
50-54	0 \$0	2 \$62,861	0 \$0	4 \$56,361	2 \$85,313	12 \$68,327	44 \$73,971	96 \$84,047	160 \$93,034	225 \$103,118	34 \$110,872	0 \$0	0 \$0	579 \$94,165
55-59	1 \$59,588	0 \$0	3 \$56,418	0 \$0	0 \$0	6 \$67,344	8 \$83,075	21 \$87,655	57 \$97,017	93 \$100,798	66 \$107,082	9 \$109,718	9 \$107,357	264 \$98,853
60-64	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	2 \$85,939	1 \$67,320	2 \$100,079	13 \$89,247	16 \$95,281	21 \$104,496	10 \$107,357	10 \$107,357	65 \$98,339
65 & Over	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1 \$62,424	2 \$81,903	0 \$0	5 \$102,445	0 \$0	0 \$0	8 \$92,307
<b>Total</b>	196 \$52,513	201 \$58,107	243 \$61,424	193 \$62,971	205 \$64,132	997 \$66,533	812 \$74,637	851 \$84,052	673 \$93,301	439 \$102,344	126 \$107,490	19 \$108,476	19 \$108,476	4,955 \$77,496

**Distribution of Active Members by Age and by Years of Service  
Hybrid Plan Members, All  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total Count & Avg. Comp.
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	
Under 25	256 \$38,746	241 \$36,842	76 \$37,444	6 \$43,028	1 \$28,951	1 \$36,024	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	581 \$37,809
25-29	507 \$41,540	953 \$41,489	746 \$44,050	245 \$45,550	161 \$47,892	181 \$45,453	1 \$50,944	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	2,794 \$43,167
30-34	396 \$45,770	783 \$44,283	628 \$45,909	286 \$48,743	266 \$49,415	1,074 \$51,367	88 \$49,616	2 \$47,233	0 \$0	0 \$0	0 \$0	0 \$0	3,523 \$47,784
35-39	1,973 \$45,068	737 \$44,898	630 \$48,603	245 \$49,469	223 \$52,129	1,079 \$53,042	870 \$57,068	219 \$55,076	2 \$37,278	0 \$0	0 \$0	0 \$0	5,978 \$49,413
40-44	206 \$45,053	539 \$44,625	499 \$48,242	209 \$47,098	180 \$55,474	844 \$52,597	683 \$57,991	1,139 \$60,985	193 \$57,865	0 \$0	0 \$0	0 \$0	4,492 \$53,844
45-49	219 \$40,262	520 \$44,211	509 \$46,717	212 \$50,386	163 \$49,154	775 \$50,566	542 \$57,248	1,069 \$59,594	1,116 \$64,106	132 \$57,315	1 \$61,014	0 \$0	5,258 \$54,654
50-54	177 \$42,537	415 \$44,315	396 \$46,618	198 \$52,747	162 \$52,340	800 \$50,562	542 \$55,726	883 \$59,821	987 \$63,932	667 \$69,582	167 \$67,212	2 \$52,109	5,396 \$57,009
55-59	137 \$44,548	346 \$49,947	277 \$50,731	166 \$52,546	159 \$57,186	715 \$52,639	546 \$56,569	857 \$59,540	857 \$66,213	583 \$72,482	650 \$75,274	130 \$66,842	5,423 \$61,114
60-64	55 \$42,067	190 \$50,368	171 \$50,710	102 \$57,368	106 \$53,301	459 \$55,334	303 \$58,642	510 \$61,056	464 \$65,678	242 \$73,978	222 \$80,677	390 \$82,022	3,214 \$63,671
65 & Over	16 \$55,299	51 \$54,173	59 \$46,239	42 \$61,655	29 \$47,829	218 \$53,219	135 \$57,986	114 \$63,372	99 \$64,408	58 \$89,466	57 \$103,198	179 \$96,209	1,057 \$67,810
<b>Total</b>	<b>3,942 \$43,874</b>	<b>4,775 \$44,236</b>	<b>3,991 \$46,836</b>	<b>1,711 \$50,036</b>	<b>1,450 \$51,803</b>	<b>6,146 \$51,958</b>	<b>3,710 \$56,978</b>	<b>4,793 \$59,991</b>	<b>3,718 \$64,411</b>	<b>1,682 \$70,943</b>	<b>1,097 \$76,578</b>	<b>701 \$82,744</b>	<b>37,716 \$54,378</b>

**Distribution of Active Members by Age and by Years of Service  
Hybrid Plan Members, General Employees  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total Count & Avg. Comp.
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	
Under 25	76 \$31,487	154 \$33,549	75 \$37,395	6 \$43,028	1 \$28,951	1 \$36,024	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	313 \$34,145
25-29	232 \$40,204	596 \$40,148	412 \$42,465	141 \$44,143	83 \$46,079	120 \$42,399	1 \$50,944	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,585 \$41,602
30-34	244 \$44,433	591 \$42,687	431 \$44,549	186 \$47,554	169 \$49,179	568 \$49,387	54 \$46,118	2 \$47,233	0 \$0	0 \$0	0 \$0	0 \$0	2,245 \$45,908
35-39	1,527 \$44,555	553 \$42,745	473 \$46,461	191 \$48,674	155 \$50,143	725 \$50,976	407 \$54,397	163 \$51,964	2 \$37,278	0 \$0	0 \$0	0 \$0	4,196 \$47,274
40-44	133 \$41,087	434 \$42,949	398 \$46,624	168 \$44,847	133 \$53,499	622 \$49,580	434 \$55,531	686 \$58,474	158 \$56,107	0 \$0	0 \$0	0 \$0	3,166 \$50,925
45-49	159 \$37,924	453 \$42,420	415 \$44,605	168 \$49,183	125 \$46,814	613 \$47,859	408 \$54,212	818 \$57,101	700 \$60,521	120 \$56,026	1 \$61,014	0 \$0	3,980 \$51,554
50-54	128 \$40,222	349 \$42,082	319 \$45,105	161 \$49,956	128 \$50,691	644 \$47,566	402 \$52,061	692 \$56,425	720 \$60,714	502 \$66,824	135 \$64,443	2 \$52,109	4,182 \$53,904
55-59	105 \$42,899	290 \$47,540	221 \$47,993	141 \$50,643	131 \$57,298	572 \$50,232	398 \$52,576	607 \$54,682	577 \$61,183	422 \$69,477	464 \$71,600	109 \$64,526	4,037 \$57,288
60-64	36 \$41,665	153 \$49,052	137 \$48,885	81 \$55,223	92 \$52,569	366 \$52,821	213 \$54,656	344 \$55,206	307 \$60,401	171 \$70,041	159 \$74,087	235 \$75,021	2,294 \$58,808
65 & Over	8 \$39,785	40 \$52,377	52 \$46,479	31 \$57,921	22 \$42,732	181 \$51,312	98 \$52,155	82 \$57,025	71 \$54,246	29 \$77,234	26 \$90,631	94 \$83,937	734 \$58,554
<b>Total</b>	<b>2,648 \$42,886</b>	<b>3,613 \$42,594</b>	<b>2,933 \$45,228</b>	<b>1,274 \$48,566</b>	<b>1,039 \$50,698</b>	<b>4,412 \$49,478</b>	<b>2,415 \$53,626</b>	<b>3,394 \$56,362</b>	<b>2,535 \$60,243</b>	<b>1,244 \$67,367</b>	<b>785 \$71,490</b>	<b>440 \$74,222</b>	<b>26,732 \$51,588</b>

**Distribution of Active Members by Age and by Years of Service  
Hybrid Plan Members, Teachers  
As of 06/30/2009**

Attained Age	Years of Credited Service												Total	
	0	1	2	3	4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over		
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.		
Under 25	180 \$41,811	87 \$42,672	1 \$41,089	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	268 \$42,088
25-29	275 \$42,667	357 \$43,727	334 \$46,005	104 \$47,457	78 \$49,821	61 \$51,459	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,209 \$45,219
30-34	152 \$47,915	192 \$49,197	197 \$48,884	100 \$50,956	97 \$49,826	506 \$53,590	34 \$55,171	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,278 \$51,080
35-39	446 \$46,823	184 \$51,369	157 \$55,058	54 \$52,282	68 \$56,655	354 \$57,273	463 \$59,416	56 \$64,135	0 \$0	0 \$0	0 \$0	0 \$0	0 \$0	1,782 \$54,451
40-44	73 \$52,280	105 \$51,553	101 \$54,617	41 \$56,324	47 \$61,064	222 \$61,047	249 \$62,278	453 \$64,788	35 \$65,801	0 \$0	0 \$0	0 \$0	0 \$0	1,326 \$60,812
45-49	60 \$46,457	67 \$56,321	94 \$56,042	44 \$54,979	38 \$56,850	162 \$60,812	134 \$66,494	251 \$67,718	416 \$70,140	12 \$70,201	0 \$0	0 \$0	0 \$0	1,278 \$64,309
50-54	49 \$48,583	66 \$56,119	77 \$52,887	37 \$64,894	34 \$58,547	156 \$62,933	140 \$66,251	191 \$72,126	267 \$72,612	165 \$77,974	32 \$78,894	0 \$0	0 \$0	1,214 \$67,706
55-59	32 \$49,961	56 \$62,411	56 \$61,535	25 \$63,279	28 \$56,664	143 \$62,268	148 \$67,308	250 \$71,336	280 \$76,577	161 \$80,360	186 \$84,439	21 \$78,863	21 \$78,863	1,386 \$72,258
60-64	19 \$42,829	37 \$55,810	34 \$58,066	21 \$65,638	14 \$58,109	93 \$65,223	90 \$68,074	166 \$73,179	157 \$75,995	71 \$83,459	63 \$97,308	155 \$92,637	155 \$92,637	920 \$75,794
65 & Over	8 \$70,812	11 \$60,705	7 \$44,456	11 \$72,178	7 \$63,849	37 \$62,551	37 \$73,431	32 \$79,637	28 \$90,176	29 \$101,697	31 \$113,737	85 \$109,780	85 \$109,780	323 \$88,846
Total	1,294 \$45,896	1,162 \$49,345	1,058 \$51,294	437 \$54,321	411 \$54,598	1,734 \$58,268	1,295 \$63,230	1,399 \$68,795	1,183 \$73,344	438 \$81,098	312 \$89,380	261 \$97,112	261 \$97,112	10,984 \$61,167

**Summary of Pensions in Force by Type of Retirement**

Employee Group	Contributory		Noncontributory		Hybrid	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
All Employees	23,404	\$ 2,019	10,013	\$ 1,421	1,011	\$ 1,602
	<u>Service</u>		<u>Service</u>		<u>Service</u>	
Total	22,757	\$ 2,047	9,247	\$ 1,482	939	\$ 1,653
General Employees - male	5,869	1,859	3,150	1,369	267	1,793
General Employees - female	7,569	1,357	3,312	1,093	396	1,318
Teachers - male	1,805	2,645	956	2,194	73	2,288
Teachers - female	4,720	2,458	1,829	2,009	203	1,894
Police and Firefighters	2,794	3,232	-	-	-	-
	<u>Ordinary Disability</u>		<u>Ordinary Disability</u>		<u>Ordinary Disability</u>	
Total	299	\$ 760	637	\$ 721	66	\$ 918
General Employees - male	110	768	309	713	30	879
General Employees - female	105	593	254	613	24	859
Teachers - male	8	1,203	30	1,210	6	970
Teachers - female	38	1,005	44	1,071	6	1,299
Police and Firefighters	38	859	-	-	-	-
	<u>Accidental Disability</u>		<u>Accidental Disability</u>		<u>Accidental Disability</u>	
Total	348	\$ 1,273	129	\$ 506	6	\$ 1,056
General Employees - male	135	1,229	77	528	4	1,012
General Employees - female	77	1,089	47	452	2	1,144
Teachers - male	2	2,273	1	487	-	-
Teachers - female	4	2,413	4	724	-	-
Police and Firefighters	130	1,378	-	-	-	-



**Summary of Pensions in Force by Age and Type****General Employees**

Age	Type of Pension			
	Total	Service	Ordinary Disability	Accidental Disability
Total	21,737	20,563	832	342
	Contributory			
Total	13,865	13,438	215	212
30-39	1	1	-	-
40-44	1	1	-	-
45-49	22	11	4	7
50-54	57	36	10	11
55-59	532	499	21	12
60-64	1,237	1,182	29	26
65-69	1,731	1,679	24	28
70-74	2,161	2,100	29	32
75-79	2,761	2,700	31	30
80-84	2,757	2,692	24	41
85-89	1,790	1,745	31	14
90-94	670	650	9	11
95-99	130	127	3	-
100 & over	15	15	-	-
	Noncontributory			
Total	7,149	6,462	563	124
30-39	2	-	2	-
40-44	7	-	4	3
45-49	35	-	30	5
50-54	88	3	61	24
55-59	489	334	139	16
60-64	1,554	1,368	164	22
65-69	2,365	2,225	109	31
70-74	1,482	1,428	44	10
75-79	765	752	7	6
80-84	295	288	3	4
85-89	62	59	-	3
90-94	5	5	-	-
95-99	-	-	-	-
100 & over	-	-	-	-
	Hybrid			
Total	723	663	54	6
30-39	-	-	-	-
40-44	3	-	3	-
45-49	6	1	5	-
50-54	10	1	6	3
55-59	159	138	20	1
60-64	351	333	16	2
65-69	144	141	3	-
70-74	37	36	1	-
75-79	10	10	-	-
80-84	2	2	-	-
85-89	1	1	-	-
90-94	-	-	-	-
95-99	-	-	-	-
100 & over	-	-	-	-

**Summary of Pensions in Force by Age and Type**

**Teachers**

Age	Type of Pension			
	Total	Service	Ordinary Disability	Accidental Disability
Total	9,730	9,586	132	12
	<b>Contributory</b>			
Total	6,577	6,525	46	6
30-39	-	-	-	-
40-44	-	-	-	-
45-49	-	-	-	-
50-54	6	4	2	-
55-59	181	179	2	-
60-64	964	955	9	-
65-69	1,173	1,162	10	1
70-74	1,299	1,293	6	-
75-79	1,377	1,371	3	3
80-84	841	832	7	2
85-89	444	441	3	-
90-94	187	185	2	-
95-99	77	75	2	-
100 & over	28	28	-	-
	<b>Noncontributory</b>			
Total	2,864	2,785	74	5
30-39	-	-	-	-
40-44	2	-	2	-
45-49	4	-	4	-
50-54	6	-	4	2
55-59	139	119	20	-
60-64	856	828	26	2
65-69	1,059	1,043	16	-
70-74	501	499	2	-
75-79	201	200	-	1
80-84	71	71	-	-
85-89	24	24	-	-
90-94	-	-	-	-
95-99	1	1	-	-
100 & over	-	-	-	-
	<b>Hybrid</b>			
Total	289	276	12	1
30-39	-	-	-	-
40-44	-	-	-	-
45-49	-	-	-	-
50-54	3	-	3	-
55-59	78	73	5	-
60-64	148	143	4	1
65-69	46	46	-	-
70-74	11	11	-	-
75-79	1	1	-	-
80-84	2	2	-	-
85-89	-	-	-	-
90-94	-	-	-	-
95-99	-	-	-	-
100 & over	-	-	-	-

**Summary of Pensions in Force by Age and Type****Police and Firefighters**

Age	Type of Pension			
	Total	Service	Ordinary Disability	Accidental Disability
Total	2,962	2,794	38	130
30-39	3	-	1	2
40-44	4	-	3	1
45-49	43	34	4	5
50-54	191	180	2	9
55-59	548	518	8	22
60-64	803	771	5	27
65-69	596	562	4	30
70-74	358	345	2	11
75-79	181	167	3	11
80-84	119	117	-	2
85-89	90	76	6	8
90-94	25	23	-	2
95-99	1	1	-	-
100 & over	-	-	-	-

**Noncontributory Service Pensions in Force**  
**by Years of Service**

Years of Service	Total		General Employees		Teachers	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	9,247	\$ 1,481	6,462	\$ 1,227	2,785	\$ 2,071
Less than 5	5	710	3	842	2	512
5-9	9	719	6	319	3	1,518
10-14	2,090	486	1,810	460	280	660
15-19	1,223	781	998	735	225	988
20-24	1,094	988	826	920	268	1,197
25-29	961	1,593	670	1,429	291	1,968
30-34	2,495	2,192	1,322	1,991	1,173	2,417
35 and over	1,370	2,660	827	2,434	543	3,004

**Noncontributory Service Pensions in Force**  
**by Years Since Retirement**

Years Since Retirement	Total		General Employees		Teachers	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	9,247	\$ 1,482	6,462	\$ 1,228	2,785	\$ 2,073
Less than 5	3,685	1,409	2,680	1,215	1,005	1,928
5-9	3,323	1,544	2,243	1,242	1,080	2,170
10-14	1,787	1,532	1,250	1,251	537	2,188
15-19	404	1,481	258	1,195	146	1,988
20 & Over	48	990	31	670	17	1,574

**Contributory Service Pensions in Force**  
**by Years of Service**

Years of Service	Total		General Employees		Teachers		Police and Firefighters	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	21,891	\$ 1,972	13,438	\$ 1,576	6,525	\$ 2,510	1,928	\$ 2,904
Less than 5	66	1,019	55	972	9	1,237	2	1,336
5-9	999	304	797	309	195	263	7	749
10-14	1,812	584	1,538	571	239	606	35	986
15-19	2,239	968	1,829	921	356	1,139	54	1,445
20-24	2,920	1,414	2,188	1,280	621	1,723	111	2,335
25-29	6,518	2,273	3,046	1,790	1,753	2,364	1,719	3,036
30-34	5,102	2,678	2,529	2,376	2,573	2,974	-	-
35 and over	2,235	3,112	1,456	2,786	779	3,720	-	-

**Contributory Service Pensions in Force  
by Years Since Retirement**

Years Since Retirement	Total		General Employees		Teachers		Police and Firefighters	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	22,757	\$ 2,047	13,438	\$ 1,576	6,525	\$ 2,510	2,794	\$ 3,232
Less than 5	2,481	2,838	1,293	2,163	643	3,281	545	3,917
5-9	3,566	2,648	1,774	2,045	1,112	3,124	680	3,446
10-14	4,444	2,451	2,460	1,969	1,311	2,876	673	3,382
15-19	4,252	1,968	2,531	1,514	1,319	2,538	402	2,956
20-24	4,086	1,543	2,617	1,265	1,221	1,947	248	2,481
25-29	2,538	1,248	1,875	1,090	564	1,593	99	2,283
30-34	1,035	1,064	681	865	226	1,295	128	1,716
35 and over	355	768	207	672	129	832	19	1,384

**Pensions in Force by Payment Option**

**General Employees**

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	21,737	\$ 1,426	20,563	\$ 1,465	832	\$ 684	342	\$ 930	-	\$ -
Contributory										
Total	13,865	\$ 1,556	13,438	\$ 1,576	215	\$ 682	212	\$ 1,178	-	\$ -
Maximum	1,652	1,508	1,607	1,525	26	878	19	939	-	-
Option 1	985	1,063	928	1,074	32	746	25	1,064	-	-
Option 2	662	1,792	628	1,823	14	1,079	20	1,330	-	-
Option 3	319	2,235	309	2,268	7	800	3	2,174	-	-
Option 4	5,617	1,804	5,459	1,828	70	717	88	1,227	-	-
Option 5	4,630	1,298	4,507	1,312	66	441	57	1,126	-	-
Noncontributory										
Total	7,149	\$ 1,171	6,462	\$ 1,228	563	\$ 667	124	\$ 499	-	\$ -
Maximum	3,977	1,209	3,699	1,250	218	704	60	521	-	-
Option A	1,303	1,251	1,201	1,296	79	790	23	496	-	-
Option B	1,427	971	1,166	1,059	226	594	35	471	-	-
Option C	442	1,240	396	1,312	40	646	6	452	-	-
Hybrid										
Total	723	\$ 1,458	663	\$ 1,509	54	\$ 870	6	\$ 1,056	-	\$ -
Maximum	278	1,354	267	1,365	8	1,101	3	1,126	-	-
Option 1	61	1,391	58	1,421	3	811	-	-	-	-
Option 2	173	1,476	141	1,631	29	773	3	986	-	-
Option 3	111	1,591	104	1,620	7	1,148	-	-	-	-
Option 4	68	1,747	64	1,807	4	780	-	-	-	-
Option 5	32	1,312	29	1,374	3	715	-	-	-	-



**Pensions in Force by Payment Option**

**Teachers**

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	9,730	\$ 2,350	9,586	\$ 2,368	132	\$ 1,097	12	\$ 1,603	-	\$ -
Contributory										
Total	6,577	\$ 2,500	6,525	\$ 2,510	46	\$ 1,040	6	\$ 2,366	-	\$ -
Maximum	932	2,721	923	2,736	9	1,206	-	-	-	-
Option 1	362	1,862	355	1,885	6	768	1	379	-	-
Option 2	223	2,512	222	2,516	1	1,615	-	-	-	-
Option 3	131	3,330	128	3,366	2	2,173	1	1,046	-	-
Option 4	2,428	2,833	2,412	2,843	14	1,096	2	2,544	-	-
Option 5	2,501	2,141	2,485	2,147	14	789	2	3,842	-	-
Noncontributory										
Total	2,864	\$ 2,046	2,785	\$ 2,073	74	\$ 1,127	5	\$ 677	-	\$ -
Maximum	1,893	2,098	1,843	2,124	46	1,202	4	759	-	-
Option A	453	2,110	447	2,123	6	1,132	-	-	-	-
Option B	345	1,729	323	1,781	21	992	1	347	-	-
Option C	173	1,938	172	1,946	1	480	-	-	-	-
Hybrid										
Total	289	\$ 1,961	276	\$ 1,998	12	\$ 1,134	1	\$ 1,653	-	\$ -
Maximum	138	1,843	133	1,868	5	1,186	-	-	-	-
Option 1	24	1,590	24	1,590	-	-	-	-	-	-
Option 2	52	1,715	49	1,746	2	991	1	1,653	-	-
Option 3	36	2,388	35	2,427	1	1,023	-	-	-	-
Option 4	20	2,772	18	2,982	2	886	-	-	-	-
Option 5	19	2,299	17	2,398	2	1,452	-	-	-	-

**Pensions in Force by Payment Option**

**Police and Firefighters**

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	2,962	\$ 3,120	2,794	\$ 3,232	38	\$ 859	130	\$ 1,378	-	\$ -
Maximum	79	2,560	55	3,144	3	830	21	1,278	-	-
Option 1	29	2,914	22	3,108	-	-	7	2,305	-	-
Option 2	85	3,202	74	3,457	7	1,337	4	1,747	-	-
Option 3	20	3,443	17	3,805	2	1,110	1	1,951	-	-
Option 4	1,605	3,437	1,557	3,501	12	1,002	36	1,453	-	-
Option 5	1,144	2,708	1,069	2,822	14	467	61	1,227	-	-

**Pensions in Force by Payment Option**

**General Employees - New Retirees**

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	727	\$ 1,414	689	\$ 1,445	34	\$ 776	4	\$ 1,369	-	\$ -
Contributory										
Total	161	\$ 2,162	159	\$ 2,171	1	\$ 1,479	1	\$ 1,541	-	\$ -
Maximum	27	2,235	27	2,235	-	-	-	-	-	-
Option 1	5	1,101	5	1,101	-	-	-	-	-	-
Option 2	25	2,667	24	2,717	1	1,479	-	-	-	-
Option 3	7	2,838	7	2,838	-	-	-	-	-	-
Option 4	70	2,178	69	2,187	-	-	1	1,541	-	-
Option 5	27	1,602	27	1,602	-	-	-	-	-	-
Noncontributory										
Total	371	\$ 1,093	348	\$ 1,120	21	\$ 638	2	\$ 1,229	-	\$ -
Maximum	165	1,047	157	1,066	7	647	1	910	-	-
Option A	99	1,156	96	1,157	2	905	1	1,547	-	-
Option B	94	1,040	82	1,106	12	588	-	-	-	-
Option C	13	1,583	13	1,583	-	-	-	-	-	-
Hybrid										
Total	195	\$ 1,405	182	\$ 1,434	12	\$ 960	1	\$ 1,479	-	\$ -
Maximum	75	1,390	72	1,400	2	960	1	1,479	-	-
Option 1	16	1,668	15	1,697	1	1,244	-	-	-	-
Option 2	45	1,485	42	1,510	3	1,133	-	-	-	-
Option 3	33	1,290	30	1,322	3	971	-	-	-	-
Option 4	18	1,414	16	1,501	2	717	-	-	-	-
Option 5	8	1,028	7	1,088	1	611	-	-	-	-

**Pensions in Force by Payment Option**

**Teachers - New Retirees**

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	165	\$ 2,044	161	\$ 2,064	4	\$ 1,207	-	\$ -	-	\$ -
	Contributory									
Total	38	\$ 3,145	37	\$ 3,167	1	\$ 2,304	-	\$ -	-	\$ -
Maximum	10	3,121	9	3,212	1	2,304	-	-	-	-
Option 1	4	3,073	4	3,073	-	-	-	-	-	-
Option 2	1	1,095	1	1,095	-	-	-	-	-	-
Option 3	3	5,657	3	5,657	-	-	-	-	-	-
Option 4	14	2,995	14	2,995	-	-	-	-	-	-
Option 5	6	2,666	6	2,666	-	-	-	-	-	-
	Noncontributory									
Total	81	\$ 1,719	79	\$ 1,743	2	\$ 780	-	\$ -	-	\$ -
Maximum	50	1,814	50	1,814	-	-	-	-	-	-
Option A	12	2,122	12	2,122	-	-	-	-	-	-
Option B	14	1,290	12	1,375	2	780	-	-	-	-
Option C	5	1,009	5	1,009	-	-	-	-	-	-
	Hybrid									
Total	46	\$ 1,705	45	\$ 1,721	1	\$ 965	-	\$ -	-	\$ -
Maximum	22	1,619	22	1,619	-	-	-	-	-	-
Option 1	5	1,070	5	1,070	-	-	-	-	-	-
Option 2	9	1,775	9	1,775	-	-	-	-	-	-
Option 3	2	3,156	2	3,156	-	-	-	-	-	-
Option 4	5	2,259	5	2,259	-	-	-	-	-	-
Option 5	3	1,291	2	1,454	1	965	-	-	-	-

**Pensions in Force by Payment Option**

**Police and Firefighters - New Retirees**

Type of Option	Total		Service		Ordinary Disability		Accidental Disability		Other	
	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension	Number	Average Monthly Pension
Total	67	\$ 4,119	67	\$ 4,119	-	\$ -	-	\$ -	-	\$ -
Maximum	6	5,142	6	5,142	-	-	-	-	-	-
Option 1	1	-	1	4,485	-	-	-	-	-	-
Option 2	8	3,094	8	3,094	-	-	-	-	-	-
Option 3	-	-	-	-	-	-	-	-	-	-
Option 4	43	4,303	43	4,303	-	-	-	-	-	-
Option 5	9	3,428	9	3,428	-	-	-	-	-	-

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**SECTION N**

**DEFINITION OF ACTUARIAL TERMS**

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### Definition of Actuarial Terms

1. *Actuarial Accrued Liability* – for benefits payable in the future to present members, it will equal the present value of benefits payable in the future to them less the present value of future normal costs.
2. *Actuarial Assumptions* – assumptions as to future experience under the ERS. Current actuarial assumptions are detailed in Table 21 of the current annual valuation report. Assumptions include future fund earnings rate, rates of future salary increases, and rates of death (both before and after retirement), disability, retirement, and withdrawal.
3. *Actuarial Gain or Actuarial Loss* - a measure of the difference between actual experience and assumed experience of the ERS. Through the actuarial assumptions, rates of decrements, rates of salary increases, and rates of fund earnings have been forecasted. To the extent that actual experience differs from that assumed, actuarial liabilities emerge which may be the same as forecasted, or they may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., the ERS's assets earn more than projected, salaries do not increase as fast as assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results that produce actuarial liabilities which are larger than projected. Actuarial gains will shorten the time required for funding of the actuarial balance sheet deficiency while actuarial losses will lengthen the funding period.
4. *Actuarial Liabilities* - the actuarially determined present value of future benefits to be provided by the ERS. There are separate actuarially determined present values for retired members and non-retired members (either active or inactive). When applied to active members, it takes into account benefits which will be earned through future service and future salary increases.
5. *Actuarial Value of Present Assets* - the value of present ERS assets for valuation purposes. This value is calculated under a four-year phase-in of the excess (shortfall) between expected and actual income return.
6. *Actuarially Determined* - values which have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the law.
7. *Decrements* - those types of activities by members of the ERS which cause them no longer to be members, i.e., death, retirement, disability, and withdrawal. It is a general term referring to any or all of these membership-terminating events.

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8. *Defined Benefits* - in a retirement plan, benefits which are defined by a specific formula applied to specific member compensation and/or specific years of service. The amount of the benefit is not a function of contributions or actual earnings on those contributions.
  9. *Defined Contributions* - in a retirement plan, periodic contributions to the plan which are defined as a specific percent of compensation.
  10. *Experience Study* - a periodic review and analysis of the actual experience of the ERS which may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified as deemed appropriate by the Actuary.
  11. *Funding Period* - the number of years in the future that will be required to fund (i.e., pay off or eliminate) the unfunded actuarial accrued liability, based on the actuarial assumptions and assuming no future actuarial gains or losses.
  12. *Future Benefits* - benefits specified in the law which will become payable at some time in the future when the member satisfies the requirement to receive such benefits.
  13. *Future Contributions* - contributions to be made by the member or the employers in the future.
  14. *Normal Cost* - the actuarial cost to fund the benefits provided by the ERS were the funding to begin at date of hire.
  15. *Present Value* - the actuarially determined lump sum value as of the valuation date of a series of payments to be made in the future, where the lump sum value is equal to the sum of the discounted value of each future payment. The discounted value of each payment is the product of (a) the amount of the payment, (b) the probability that the payment will be made (based on the current actuarial assumptions as to future experience), and (c) the time value of money (based on the current assumed interest rate).
  16. *Unfunded Actuarial Accrued Liability* - that portion of the actuarial accrued liability (including the present value of benefits presently being paid to retired members) that exceeds the value of current assets.