Sheriffs' Retirement System of the State of Montana

Actuarial Valuation as of June 30, 2010

Produced by Cheiron

October 2010

CHEIRON Classic Values, Innovative Advice

Table of Contents

October 5, 2010

Public Employees' Retirement Board
100 North Park, Suite 200
Helena, Montana 59620

Dear Members of the Board:

At your request, we have conducted the annual actuarial valuation of the Sheriffs' Retirement System as of June 30, 2010. The results of the valuation are contained in this report. The purpose of the valuation is discussed in the Foreword.

This report contains information on System assets, as well as analyses which combine asset and liability performance and projections. The report also discloses employer contribution levels, and required disclosures under the Governmental Accounting Standards Board Statement No. 25.

Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions on which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief. The results of this report are only applicable for Fiscal Year ending 2010 and rely on future System experience conforming to the underlying assumptions. To the extent that actual System experience deviates from the underlying assumptions, the results would vary accordingly.

We hereby certify that, to the best of our knowledge, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board, and that as Members of the American Academy of Actuaries, we meet the Qualification Standards to render the opinions contained herein.

Sincerely,
Cheiron

Stephen T. McElhaney, FSA
Consulting Actuary

Margaret Tempkin, FSA
Consulting Actuary

1750 Tysons Boulevard, Suite 1100, McLean, VA 22102 Tel: 703.893.1456 Fax: 703.893.2006 www.cheiron.us

FOREWORD

Cheiron has performed the actuarial valuation of the Sheriffs' Retirement System as of June 30, 2010. The purpose of this report is to:

1) **Measure and disclose**, as of the valuation date, the financial condition of the System;

2) **Indicate trends** in the financial progress of the System;

3) **Determine the sufficiency of the statutory contribution rate** paid by the employers for Fiscal Year 2010; and

4) **Provide specific information** and documentation required by the Governmental Accounting Standards Board (GASB).

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

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

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

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

Section IV develops the employer contribution rate determined using actuarial techniques.

Section V includes the required disclosures under GASB Statement number 25.

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

In preparing our report, we relied without audit, on information (some oral and some written) supplied by the staff of the Public Employee Retirement Administration. This information includes, but is not limited to, plan provisions, employee data, and financial information.

The actuarial assumptions reflect our understanding of the likely future experience of the System and the assumptions as a whole represent our best estimate for the future experience of the System. The results of this report are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true cost of the System could vary from our results.

Finally, in preparing this report, we have conformed to generally accepted actuarial principles and practices which are consistent with the Code of Professional Conduct, and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board.

SECTION I
BOARD SUMMARY

General Comments

This is the second valuation of the Sheriffs' Retirement System performed by Cheiron. All results shown for valuations prior to June 30, 2009 were derived from reports prepared by the prior actuary.

As of the June 30, 2009 valuation, the statutory contribution rates were not sufficient to amortize the unfunded actuarial liability. As of June 30, 2010 the statutory contribution rates are still not sufficient to amortize the unfunded actuarial liability. During the year ended June 30, 2010, the System's assets gained 12.65% on a market value basis. However, due to the System's asset-smoothing technique which recognizes only a portion of the gains and losses, the return on the actuarial asset value was a negative 0.92%. This return was below the assumed rate of return of 8.0% and resulted in an actuarial loss on investments of $18.0 million.

The System also experienced an actuarial gain on System liabilities resulting from salary increases different than assumed and members retiring, terminating, becoming disabled and dying at rates different from the actuarial assumptions. Experience deducted $2.0 million from the actuarial liability. This type of activity is normal in the course of System experience. The System will experience actuarial gains and losses over time because we cannot predict exactly how people will behave. When a plan experiences alternating gains and losses that are small compared to the total actuarial liability, then the plan's actuarial assumptions are reasonable. The change in assumptions due to the 2009 experience study caused a loss on System liabilities of $5.5 million, resulting in a total net loss on System liabilities of $3.5 million.

As of the June 30, 2010 actuarial valuation, the System's unfunded actuarial liability was $46.0 million. This is an increase from last year's unfunded actuarial liability of $23.2 million. The funded ratio decreased from 90% at the prior valuation to 81% at June 30, 2010.

Montana Code Annotated (MCA) 19-2-407 requires an analysis of how market performance is affecting the actuarial funding of the Retirement System. The market value at June 30, 2010 was $28.1 million less than actuarial value. If market value were used rather than actuarial value, the funded ratio on the valuation date would be 70%, and the statutory contribution rates are not sufficient to amortize the unfunded actuarial liability.

Since the previous valuation an experience study was performed and several of the actuarial assumptions were changed. A description of the changes in assumptions appears within Appendix B of this report. The following table compares the results at June 30, 2010 using the previous and the revised assumptions.

SECTION I
BOARD SUMMARY

Table I-1
Sheriffs' Retirement System
Summary of Assumption Changes

	Previous Assumptions	New Assumptions
Valuation as of:	**June 30, 2010**	**June 30, 2010**
Actuarial Accrued Liability (AL)	$ 241,224,513	$ 246,733,801
Actuarial Value of Assets (AVA)	200,739,149	200,739,149
Unfunded AL	$ 40,485,364	$ 45,994,652
Funded ratio	83.22%	81.36%
Amortization period for statutory funding rate	Does not amortize	Does not amortize
30-year Level Funding Rate	23.58%	23.39%
Shortfall (surplus) from statutory rate	4.22%	4.03%

SECTION I
BOARD SUMMARY

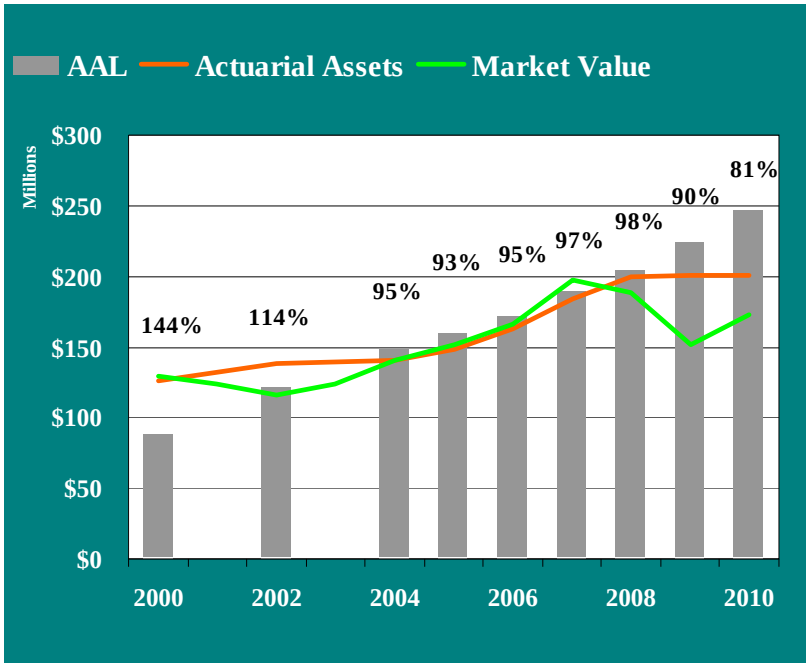
Trends

Assets and Liabilities

The market value of assets (MVA) increased over last year, gaining 12.65% from the value at the prior valuation. The determination of the System's actuarial value of assets reflects only a portion of the amount by which the return was below the assumed rate of 8%.

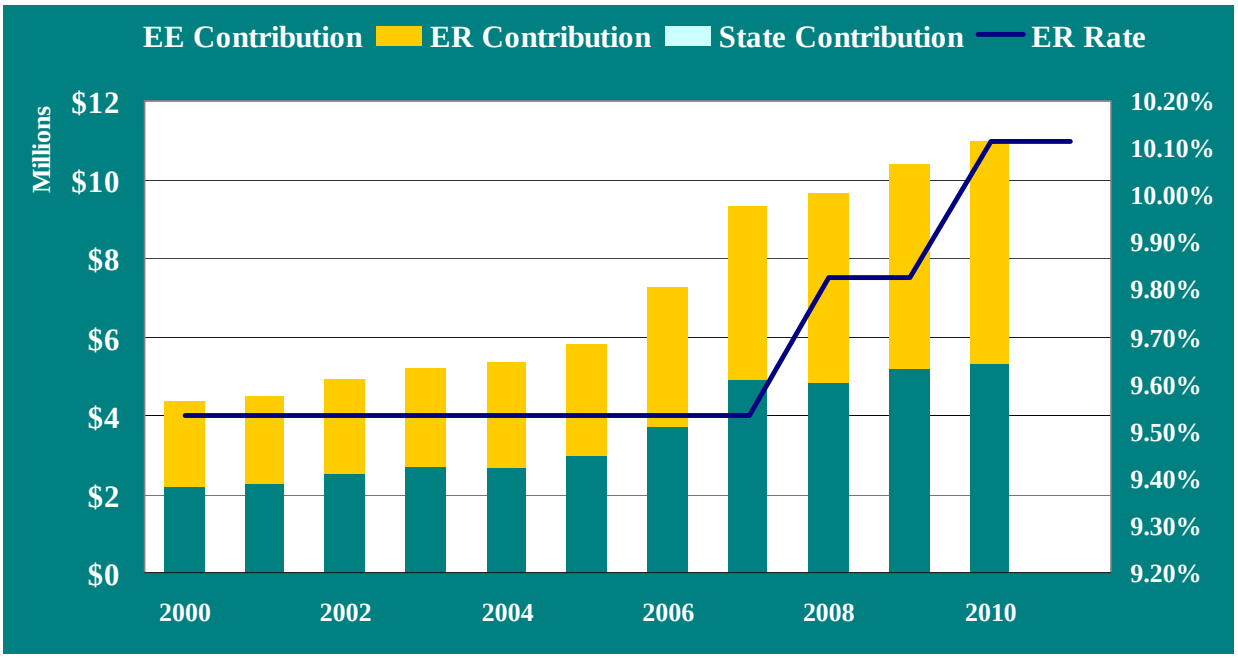
Over the period July 1, 2004 to June 30, 2010 the System's assets returned approximately 6.8% per year measured at actuarial value, compared to a valuation assumption of 8% per year.

For funding purposes, the target amount is represented by the top of the gray bar. We compare the actuarial value of assets to this measure of liability in developing the funded percent. These are the percentages shown in the graph labels.



SECTION I
BOARD SUMMARY

Contribution Rates



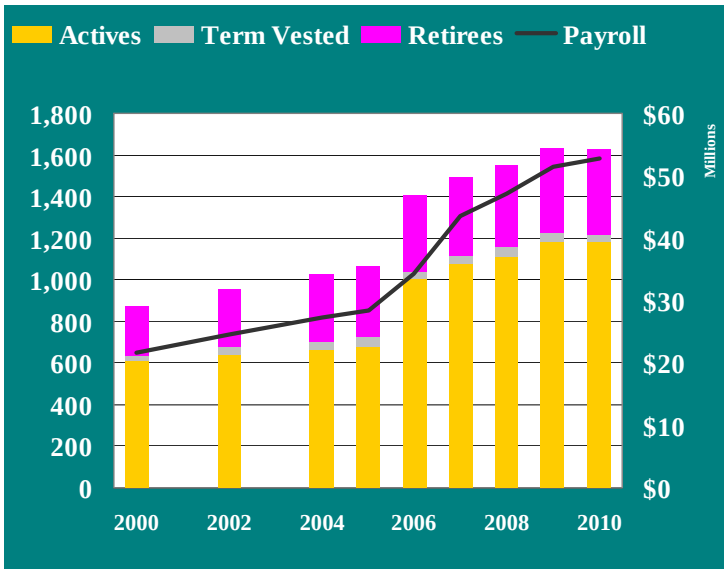
The stacked bars in this graph show the contributions made by members, employers and the State (left hand scale). The black line shows the employer contribution rate as a percent of payroll (right hand scale).

The employer and member contribution rates are set by State law. The actuarial valuation determines the extent to which the statutory contributions will meet the requirements of funding the System.

Participant Trends

The bars show the number of participants in each category and should be read using the left-hand scale. The active-to-inactive ratio has increased from 2.3 actives for each inactive in 2000 to 2.6 actives for each inactive today. This trend indicates a growing employee base.

The black line shows the covered payroll in the System and is read using the right-hand scale.



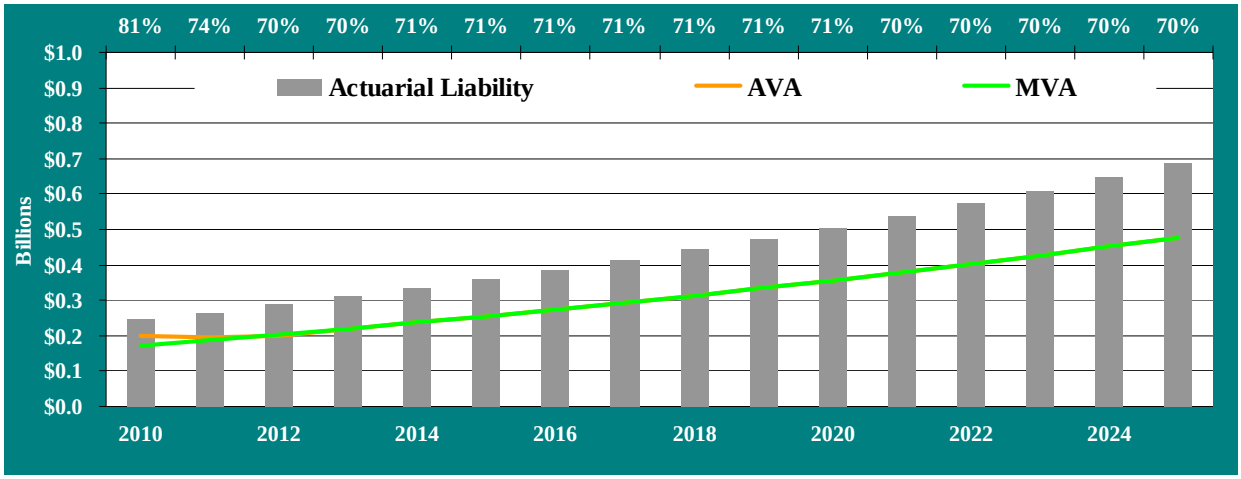
SECTION I
BOARD SUMMARY

Future Outlook

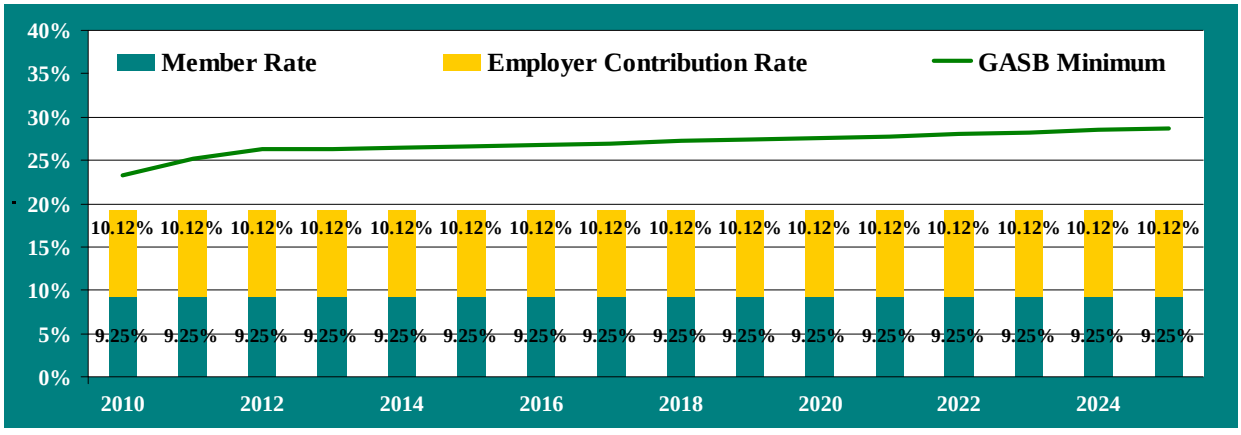
Base Line Projections

These graphs show the expected progress of the System over the next fifteen years assuming the System's assets earn 7.75% on their *market value*, and that contributions continue to be made at the current statutory rates.

The chart below shows the funded status of the plan is expected to decrease substantially over the next two years as excluded investment losses are recognized by the smoothing method. The funded status is then expected to remain relatively constant over the remainder of the fifteen years. The projections indicate that the statutory contribution rates will need to be increased to maintain the current level of benefits.



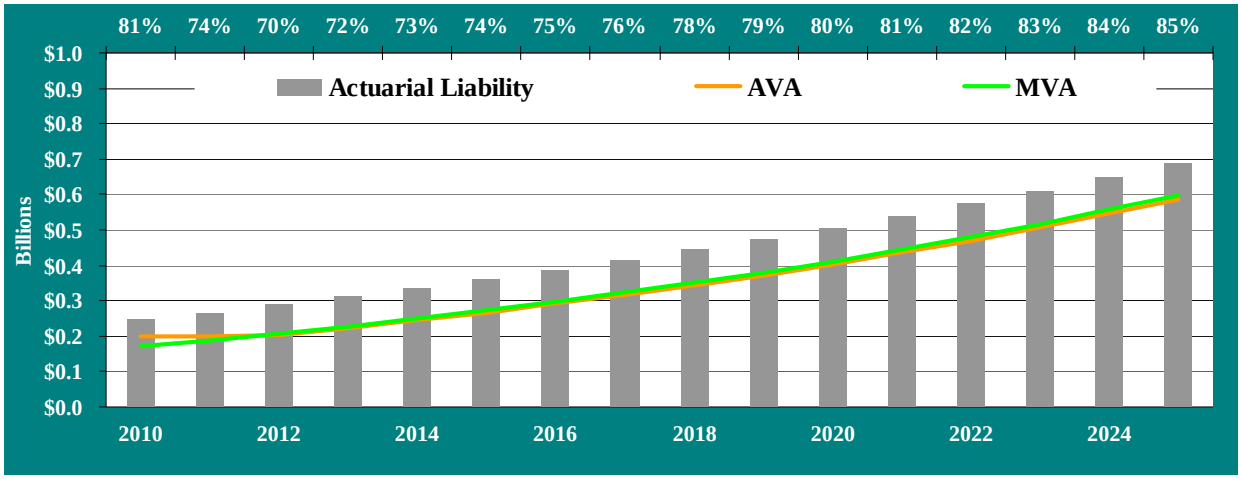
The chart below shows that the total contribution computed on a GASB Minimum basis is expected to increase to nearly 30% over the next several years.



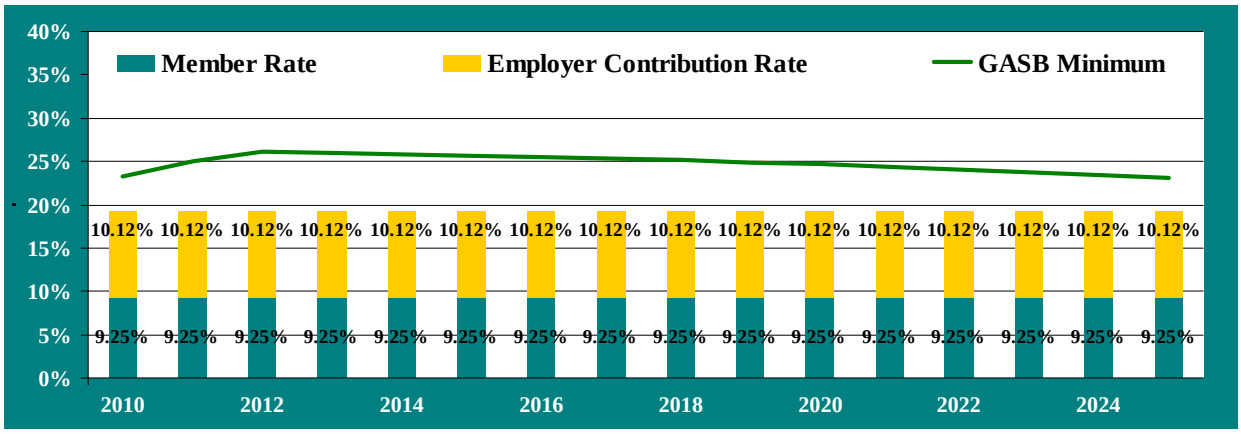
SECTION I
BOARD SUMMARY

Projections With Asset Returns of 9.25%

The future funding status of this System will be largely driven by the investment earnings. Relatively minor changes in market returns can have significant effects on the System's status. These two charts below show what the next fifteen years would look like with a 9.25% annual return in each year (i.e. 1.5% greater than the assumed rate of return).



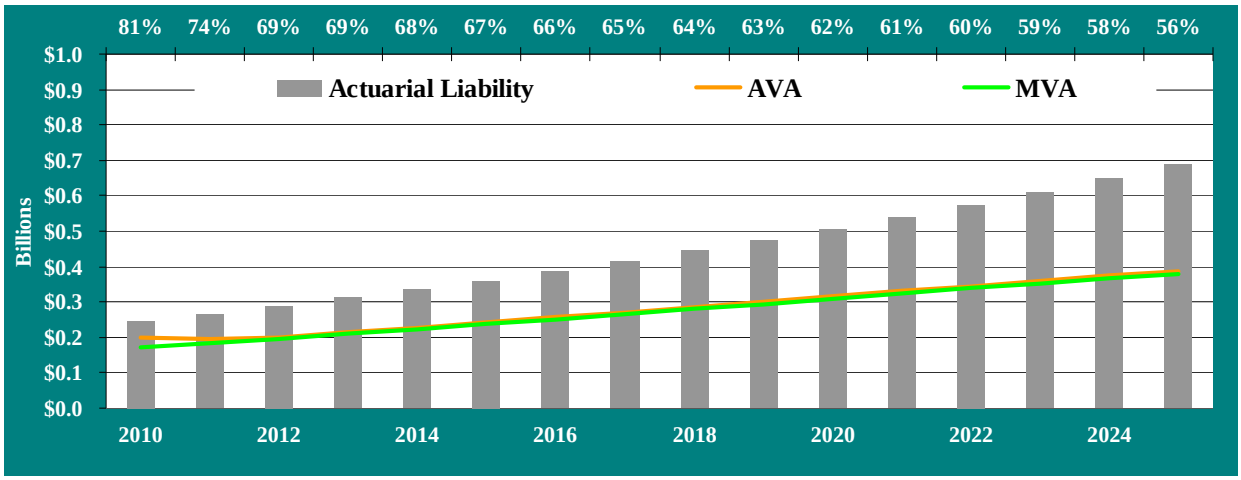
Compared to the baseline projections, the funded status begins to improve after a decrease over the next two years, reaching the 2010 funded status again in 2021. The GASB Minimum contribution drops below 25% by the end of the fifteen-year period.



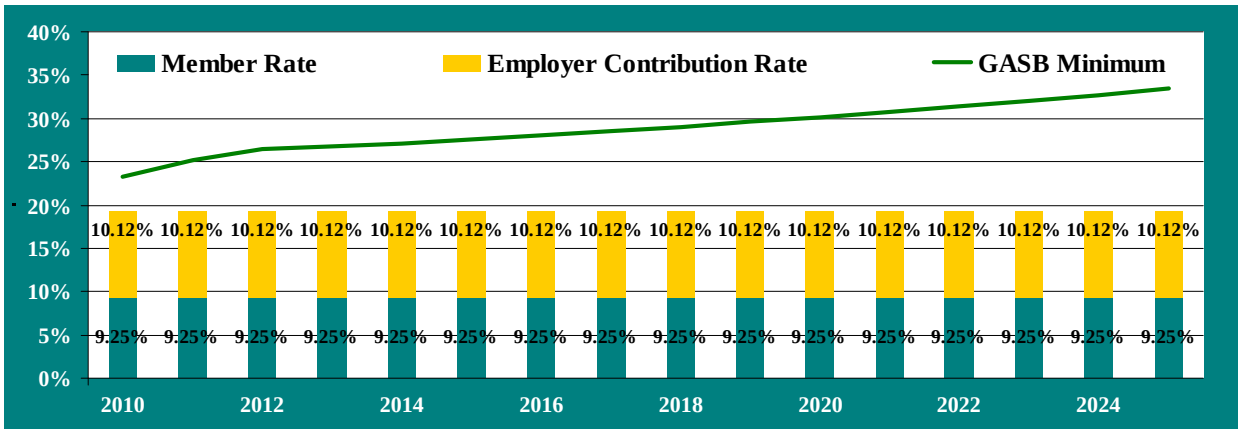
SECTION I
BOARD SUMMARY

Projections With Asset Returns of 6.25%

To further demonstrate how the future funding of this System will be driven by investment earnings, we show the anticipated System funding projections if the invested assets earn 6.25% per year over the entire fifteen-year period (i.e., 1.5% less than the assumed rate of return).



Under this scenario the funded status continues to deteriorate throughout the projection and the GASB Minimum contribution continues to increase reaching nearly 35% of pay by the end of the fifteen year period.



SECTION I
BOARD SUMMARY

Table I-2
Sheriffs' Retirement System
Summary of Principal System Results

Valuation as of:	June 30, 2009	June 30, 2010	% Change
Participant Counts			
Active Members	1,185	1,181	(0.3%)
Disabled Members*	35	35	0.0%
Retirees and Beneficiaries*	371	380	2.4%
Terminated Vested Members	41	36	(12.2%)
Terminated Non-Vested Members	155	157	1.3%
Total**	1,787	1,789	0.1%
Annual Salaries of Active Members	$ 52,670,929	$ 54,488,112	3.5%
Average Annual Salary	$ 44,448	$ 46,137	3.8%
Annual Retirement Allowances for Retired Members and Beneficiaries	$ 7,921,009	$ 8,486,982	7.1%
Assets and Liabilities			
Actuarial Accrued Liability (AAL)	$ 223,893,395	$ 246,733,801	10.2%
Actuarial Value of Assets (AVA)	200,690,401	200,739,149	0.0%
Unfunded AAL	$ 23,202,994	$ 45,994,652	98.2%
Funded Ratio (AVA/AAL)	89.64%	81.36%	
Present Value of Accrued Benefits (PVAB)	$ 186,702,806	$ 203,744,269	9.1%
Market Value of Assets	151,457,615	172,635,424	14.0%
Unfunded PVAB	$ 35,245,191	$ 31,108,845	(11.7%)
Accrued Benefit Funding Ratio	81.12%	84.73%	
Ratio of Actuarial Value to Market Value	132.51%	116.28%	
Contributions as a Percentage of Payroll			
Statutory Funding Rate	19.360%	19.360%	
Normal Cost Rate	19.410%	19.020%	
Available for Amortization of UAL	(0.050%)	0.340%	
Period to Amortize	Does not amortize years	Does not amortize	
Projected 30-year Level Funding Rate	21.890%	23.390%	
Projected Shortfall (Surplus)	2.530%	4.030%	

* Based on PERA categorization for the annual report. For actuarial valuation purposes, 52 members in 2009 and 53 members in 2010 were valued as disabled members with offsetting reductions to the number of retired members.

** A reconciliation between participant counts used in the valuation and counts used in the annual report appears at the beginning of Appendix A.

SECTION II
ASSETS

Pension Plan assets play a key role in the financial operation of the System and in the decisions the Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely impact upon benefit levels, State contributions, and the ultimate security of participants' benefits.

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

- **Disclosure** of System assets at June 30, 2009 and June 30, 2010;
- Statement of the **changes** in market values during the year;
- Development of the **Actuarial Value of Assets**;
- An assessment of **investment performance**; and
- A projection of the System's expected **cashflows** for the next ten years.

Disclosure

The market value of assets represents a "snap-shot" or "cash-out" values which provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace.

The actuarial values are market values which have been smoothed and are used for evaluating the System's ongoing liability to meet its obligations.

The actuarial value of assets is the current market value, adjusted by a four-year smoothing of gains and losses on a market value basis. Each year's gain or loss is determined difference between the actual market return and the expected market return using the assumed rate of investment return.

SECTION II
ASSETS

Table II-1
Changes in Market Values

Value of Assets – June 30, 2009		**$ 151,457,615**
Additions		
Member Contributions	$ 5,324,649	
Employer Contributions	5,636,945	
State Contributions	0	
Investment Return	19,377,533	
Other	11,725	
Total Additions	**$ 30,350,852**	
Deductions		
Benefit Payments	$ 9,076,167	
Administrative Expenses	96,876	
Total Deductions	**$ 9,173,043**	
Value of Assets – June 30, 2010		**$ 172,635,424**

SECTION II
ASSETS

Actuarial Value of Assets

The actuarial value of assets represents a "smoothed" value developed by the actuary to reduce the volatility which could develop from short-term fluctuations in the market value of assets. For this System, the actuarial value has been calculated by taking the market value of assets less 75% of the investment gain (loss) during the preceding year, less 50% of the investment gain (loss) during the second preceding year, and less 25% of the investment gain (loss) during the third preceding year. The tables below illustrate the calculation of actuarial value of assets for the June 30, 2010 valuation.

Table II-2
Market Value Gain/(Loss)

Value of Assets – June 30, 2009	$ 151,457,615
Employer Contributions	$ 10,973,319
Benefit Payments	(9,076,167)
Expected Return at 8.0%	12,191,035
Expected Value at June 30, 2010	$ 165,545,802
Actual Value at June 30, 2010	$ 172,635,424
Investment Gain/(Loss)	$ 7,089,622

Table II-3
Develop Excluded Gain/(Loss)

	Total Gain/(Loss)	Excluded Portion
Exclude 75% of 2010 Gain/(Loss)	$ 7,089,622	$ 5,317,216
Exclude 50% of 2009 Gain/(Loss)	$ (54,095,382)	$ (27,047,691)
Exclude 25% of 2008 Gain/(Loss)	$ (25,493,000)	$ (6,373,250)
Total Excluded Gain/(Loss) for AVA Calculation		$ (28,103,725)

SECTION II
ASSETS

Table II-4 Actuarial Value of Assets	
Market Value of Assets – June 30, 2010	$ 172,635,424
Total Gain/(Loss) excluded	(28,103,725)
Actuarial Value of Assets – June 30, 2010	$ 200,739,149

Investment Performance

The market value of assets (MVA) returned 12.65% during 2010, which is greater than the assumed 8% return. A return of (0.92%) on the actuarial value of assets (AVA) is primarily the result of the asset smoothing method being utilized for the calculation of the actuarial value of assets. Since only 25% of the gain or loss from the performance of the System is recognized in a given year, in periods of very good performance, the AVA can lag significantly behind the MVA. In a period of negative returns, the AVA does not decline as rapidly as the MVA.

Table II-5
Annual Rates of Return

Year Ending June 30,	Market Value	Actuarial Value
2005	8.11%	5.58%
2006	8.94%	9.35%
2007	17.87%	11.88%
2008	(4.86%)	7.56%
2009	(20.53%)	(0.15%)
2010	12.65%	(0.92%)

SECTION II
ASSETS

Table II-6
Projection of System's Benefit Payments and Contributions

Year Beginning July 1,	Expected Benefit Payments	Expected Contributions*
2010	$ 10,710,921	$ 11,251,512
2011	10,768,672	11,701,572
2012	11,688,555	12,169,635
2013	12,582,363	12,656,420
2014	13,661,840	13,162,677
2015	14,704,303	13,689,184
2016	15,901,681	14,236,752
2017	17,337,655	14,806,222
2018	18,732,449	15,398,471
2019	20,147,828	16,014,409

* Expected contributions include Employer Contributions and Member Contributions. For illustration purposes, we have assumed that all contribution rates will remain level and that payroll will increase at the actuarially assumed rate of 4.00% per year.

Expected benefit payments are projected for the closed group valued at June 30, 2010. Projecting any farther than ten years using a closed-group would not yield reliable predictions due to the omission of new hires.

SECTION III
LIABILITIES

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

- **Disclosure** of System liabilities at June 30, 2009 and June 30, 2010;
- Statement of **changes** in these liabilities during the year;
- Details on the source of actuarial gains and losses between this valuation and the last; and
- Development of actuarial unfunded liability on a market value basis as required under MCA 12-2-407.

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them.

- **Present Value of Benefits:** Used for analyzing the financial outlook of the System, this represents the amount of money needed today to fully pay off all future benefits and expenses of the System, assuming participants continue to accrue benefits.

- **Actuarial Accrued Liability:** Used for funding calculations and GASB disclosures, this liability is calculated taking the Present Value of Benefits and subtracting the present value of future Member Contributions and future Employer Normal Costs under an acceptable actuarial funding method. This method is referred to as the **Entry Age Normal** (EAN) funding method.

- **Present Value of Accrued Liabilities:** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fully pay off the current accrued obligations of the System, assuming no future accruals of benefits. These liabilities are also required for accounting purposes (FASB ASC Topic No. 960) and used to assess whether the System can meet its current benefit commitments.

The following table discloses each of these liabilities for the current and prior valuations. With respect to each disclosure, a subtraction of the appropriate value of System assets yields, for each respective type, a **net surplus** or an **unfunded liability**.

SECTION III
LIABILITIES

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

	June 30, 2009	June 30, 2010
Present Value of Benefits		
Active Participant Benefits	$ 209,220,148	$ 220,128,556
Retiree and Inactive Benefits	108,298,106	119,469,169
Present Value of Benefits (PVB)	**$ 317,518,254**	**$ 339,597,725**
Market Value of Assets (MVA)	$ 151,457,615	$ 172,635,424
Future Member Contributions	44,460,576	45,722,228
Future Employer Contributions	48,644,535	50,024,915
Funding Shortfall/(Surplus)	72,955,528	71,215,158
Total Resources	**$ 317,518,254**	**$ 339,597,725**
Actuarial Accrued Liability		
Present Value of Benefits (PVB)	$ 317,518,254	$ 339,597,725
Present Value of Future Normal Costs (PVFNC)	93,625,000	92,863,924
Actuarial Accrued Liability (AAL=PVB–PVFNC)	**223,893,254**	**246,733,801**
Actuarial Value of Assets (AVA)	200,690,401	200,739,149
Net (Surplus)/Unfunded (AAL – AVA)	**$ 23,202,853**	**$ 45,994,652**
Present Value of Accrued Liability		
Present Value of Benefits (PVB)	$ 317,518,254	$ 339,597,725
Present Value of Future Benefit Accruals (PVFBA)	130,815,448	135,853,456
Present Value of Accrued Liability (PVAB=PVB–PVFBA)	**186,702,806**	**203,744,269**
Market Value of Assets (MVA)	151,457,615	172,635,424
Net Unfunded (PVAB – MVA)	**$ 35,245,191**	**$ 31,108,845**

SECTION III
LIABILITIES

Changes in Liabilities

Each of the Liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New hires since the last valuation
- Benefits accrued since the last valuation
- System amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and also due to changes in System assets resulting from:

- Employer contributions different than expected
- Investment earnings different than expected
- A change in the method used to measure System assets

In each valuation, we report on those elements of change which are of particular significance, potentially affecting the long-term financial outlook of the System. Below we present key changes in liabilities since the last valuation.

Table III-2

(In Thousands)	Present Value of Benefits	Actuarial Accrued Liability	Present Value of Accrued Liability
Liabilities June 30, 2009	$ 317,518,254	$ 223,893,395	$ 186,702,806
Liabilities June 30, 2010	339,597,725	246,733,801	203,744,269
Liability Increase (Decrease)	22,079,471	22,840,406	17,041,463
Change Due to:			
Actuarial (Gain)/Loss	NC*	(1,988,287)	NC*
Assumption Changes	7,089,829	5,509,288	8,480,945
Benefits Accumulated and Other Sources	14,989,642	19,319,405	8,560,518

* NC = not calculated.

SECTION III
LIABILITIES

Table III-3
Summary of Actuarial Gains and Losses as of June 30, 2010

Actuarial Liabilities as of July 1, 2009	$ 223,893,395
Normal Cost	10,043,688
Actual Benefit Payments	(9,076,167)
Expected Earnings	18,351,884
Expected Actuarial Liability as of July 1, 2010	$ 243,212,800
Actual Liability as of July 1, 2010 (before assumption changes)	$ 241,224,513
Liability (Gain)/Loss	$ (1,988,287)
Sources of Liability (Gain)/Loss	
Salary (Gain)/Loss	$ (347,961)
New Participant (Gain)/Loss	452,048
Active Retirements (Gain)/Loss	(1,655,705)
Active Terminations (Gain)/Loss	611,933
Active Deaths (Gain)/Loss	192,139
Active Disability (Gain)/Loss	264,470
Inactive Decrements (Gain)/Loss	(1,505,211)
Actual Liability as of July 1, 2010 (after assumption changes)	$ 246,733,801
Liability (Gain)/Loss due to assumption changes	$ 5,509,288
Actuarial Value of Assets as of July 1, 2009	$ 200,690,401
Net Cash Flow	1,897,152
Expected Earnings	16,129,658
Expected Actuarial Value of Assets as of July 1, 2010	$ 218,717,211
Actual Actuarial Value of Assets as of July 1, 2010	$ 200,739,149
Investment (Gain)/Loss	$ 17,978,062
Total Liability (Gain)/Loss	3,521,001
Total Actuarial (Gain)/Loss	$ 21,499,063

SECTION III
LIABILITIES

Table III-4 shows the actuarial liabilities as of the prior and current valuation dates. The unfunded actuarial liability is the difference between the actuarial liability and the actuarial value of assets. The funded ratio is the ratio of the actuarial value of assets to the actuarial liability.

Table III-4
Actuarial Liabilities for Funding

	June 30, 2009	June 30, 2010
1. Actuarial Liabilities		
Retiree and Inactive Benefits	$ 108,298,106	$ 119,469,169
Active Member Benefits	115,595,289	127,264,632
Total Actuarial Liability	**$ 223,893,395**	**$ 246,733,801**
2. Actuarial Value of Assets	$ 200,690,401	$ 200,739,149
3. Unfunded Actuarial Liability	$ 23,202,994	$ 45,994,652
4. Funded Ratio	89.64%	81.36%

Montana Code Annotated (MCA) 19-2-407 requires an analysis of how market performance is affecting the actuarial funding of the System. Table III-5 presented below shows the same information as in Table III-4 above, but using market value of assets rather than actuarial value of assets.

Table III-5
Actuarial Liabilities on Market Value Basis (MCA 19-2-407)

	June 30, 2009	June 30, 2010
1. Actuarial Liabilities		
Retiree and Inactive Benefits	$ 108,298,106	$ 119,469,169
Active Member Benefits	115,595,289	127,264,632
Total Actuarial Liability	**$ 223,893,395**	**$ 246,733,801**
2. Market Value of Assets	$ 151,457,615	$ 172,635,424
3. Unfunded Actuarial Liability	$ 72,435,780	$ 74,098,377
4. Funded Ratio	67.65%	69.97%

SECTION IV
CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the Plan. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

For this System, the funding method employed is the **Entry Age Actuarial Cost Method**. Under this method, there are two components to the total contribution: the **normal cost rate** and the **unfunded actuarial liability rate** (UAL rate). The normal cost rate is determined by taking the value, as of entry age into the plan, of each member's projected future benefits. This value is then divided by the value, also at entry age, of each member's expected future salary. The normal cost rate is multiplied by current salary to determine each member's normal cost rate. Finally, the total normal cost rate is reduced by the member contribution to produce the employer normal cost rate. The difference between the EAN actuarial liability and the actuarial value of assets is the unfunded actuarial liability.

For purposes of determining the adequacy of the statutory funding rate, the UAL rate is calculated by subtracting the normal cost rate from the statutory rate. A calculation is then made to determine the period over which the UAL rate will amortize the unfunded actuarial liability. A second UAL rate is calculated based upon a 30-year amortization of the UAL, which is the maximum amortization period permitted under GASB Statement No. 25, but which should not necessarily be construed as a recommended contribution level. All UAL payments are determined as a level percentage of pay, assuming that total pay increases by the annual inflation rate of 4.00%.

SECTION IV
CONTRIBUTIONS

The tables below present and compare the contribution rates for the System for this valuation and the prior one.

Table IV-1
Statutory Basis

	June 30, 2009	June 30, 2010
Statutory Funding Rates		
Members	9.245%	9.245%
Employers[1]	10.115%	10.115%
Total	19.360%	19.360%
Normal Cost Rate	19.410%	19.020%[2]
Funding Rate Available for Amortization	(0.050%)	0.340%
Unfunded Actuarial Liability (Surplus)	23,202,994	45,994,652
Years to Amortize	Does not amortize	Does not amortize

[1] Rates shown are for the fiscal year following the valuation date.

[2] The normal cost rate is projected to be 17.36% for members eligible after July 1, 2010. It is expected that the average normal cost rate will decrease over the next generation of active plan members.

Table IV-2
Years to Amortize Unfunded Actuarial Liability
Under Alternate Assumptions

	June 30, 2009	June 30, 2010
Years to Amortize		
Using Market Value of Assets	Does not amortize	Does not amortize
Excluding additional contributions under HB131		
Using Actuarial Value of Assets	Does not amortize	Does not amortize
Using Market Value of Assets	Does not amortize	Does not amortize

SECTION IV
CONTRIBUTIONS

Table IV-3
Calculated Contribution Basis

	June 30, 2009	June 30, 2010
Normal Cost Rate	19.410%	19.020%
Educational Fund	0.000%	0.000%
Amortization Payment (30-years)	2.480%	4.370%
Total Calculated Contribution Rate	21.890%	23.390%
Less Statutory Rate	19.360%	19.360%
Shortfall (Surplus) in Statutory Rate	2.530%	4.030%

Table IV-4
Calculated Contribution on Market Value (MCA 19-2-407)

	June 30, 2009	June 30, 2010
Normal Cost Rate	19.410%	19.020%
Educational Fund	0.000%	0.000%
Amortization Payment (30-years)	7.730%	7.040%
Total Calculated Contribution Rate	27.140%	26.060%
Less Statutory Rate	19.360%	19.360%
Shortfall (Surplus) in Statutory Rate	7.780%	6.700%

As the statutory rate continues to lag the rate needed to sustain a 30 year amortization and as the remaining unrecognized losses are amortized in future valuations, we have projected the following results for the next 5 valuations (assuming all assumptions are met, including 7.75% return):

Table IV-5
Projected Calculated Contribution Rates

Valuation Year	Rate
2011	25.13%
2012	26.31%
2013	26.31%
2014	26.47%
2015	26.63%

SECTION V
ACCOUNTING STATEMENT INFORMATION

Account Standard Codification Topic No. 960 of the Financial Accounting Standards Board requires the System to disclose certain information regarding its funded status. Statement No. 25 of the Governmental Accounting Standards Board (GASB) establishes standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in notes to financial statements and supplementary information.

The FASB ASC Topic No. 960 disclosures provide a quasi "snap shot" view of how the System's assets compare to its liabilities if contributions stopped and accrued benefit claims had to be satisfied. However, due to potential legal requirements and the possibility that alternative interest rates would have to be used to determine the liabilities, these values may not be a good indication of the amount of money it would take to buy the benefits for all members if the System were to terminate.

The GASB-25 actuarial accrued liability is the same as the actuarial liability amount calculated for funding purposes.

Both the present value of accrued benefits (FASB ASC Topic No. 960) and the actuarial accrued liability (GASB-25) are determined assuming that the System is on-going and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 7.75% per annum.

FASB ASC Topic No. 960 specifies that a comparison of the present value of accrued (accumulated) benefits with the market value of the assets as of the valuation date must be provided. GASB Statement No. 25 requires the actuarial accrued liability be compared with the actuarial value of assets for funding purposes. The relevant amounts as of June 30, 2010 are exhibited in Table V-1.

Tables V-2 through V-5 are exhibits to be used with the State CAFR report. Table V-2 is the Note to Required Supplementary Information, Table V-3 is a history of gains and losses in Accrued Liability, Table V-4 is the Schedule of Funding Progress, and V-5 is the Solvency Test which shows the portion of Accrued Liability covered by Assets.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-1
Accounting Statement Information

	June 30, 2009	June 30, 2010
A. FASB ASC Topic No. 960 Basis		
1. Present Value of Benefits Accrued and Vested to Date		
a. Members Currently Receiving Payments	$ 106,352,354	$ 117,421,970
b. Former Vested Members	1,945,752	2,047,199
c. Active Members	78,404,700	84,275,100
2. Total Present Value of Accrued Benefits (1 (a) + 1(b) + 1(c))	$ 186,702,806	$ 203,744,269
3. Assets at Market Value	151,457,615	172,635,424
4. Unfunded Present Value of Accrued Benefits (2 – 3)	$ 35,245,191	$ 31,108,845
5. Ratio of Assets to Present Value of Accrued Benefits (3 / 2)	81.12%	84.73%
B. GASB No. 25 Basis		
1. Actuarial Accrued Liabilities for retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	$ 108,298,106	$ 119,469,169
2. Actuarial Accrued Liabilities for current employees	115,595,289	127,264,632
3. Total Actuarial Accrued Liability (1 + 2)	$ 223,893,395	$ 246,733,801
4. Net Actuarial Assets available for benefits	200,690,401	200,739,149
5. Unfunded Actuarial Accrued Liability (3 – 4)	$ 23,202,994	$ 45,994,652

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-2
NOTE TO REQUIRED SUPPLEMENTARY INFORMATION

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

Valuation date	June 30, 2010
Actuarial cost method	Entry age
Amortization method	Open
Remaining amortization period for Annual Required Contribution	30 years
Asset valuation method	4-Year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.75%
General wage growth*	4.00%
Merit salary increases	0.0% - 7.3%
*Includes inflation at	3.00%

The actuarial assumptions used have been recommended based on the most recent review of the System's experience (completed in 2010) and adopted by the Retirement Board.

The rate of employer contributions to the System is composed of the normal cost and amortization of the unfunded actuarial accrued liability. The normal cost is a level percent of payroll cost which will pay for projected benefits at retirement for each participant. The actuarial accrued liability is that portion of the present value of projected benefits that will not be paid by future normal costs. The difference between this liability and the funds accumulated as of the same date is the unfunded actuarial accrued liability.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-3
ANALYSIS OF FINANCIAL EXPERIENCE*

Gain and Loss in Accrued Liability During Years Ended June 30
Resulting from Differences Between Assumed Experience and Actual Experience

Type of Activity	*Gain (or Loss) for Year ending June 30, (expressed in thousands)* 2005	2006	2007	2008	2009	2010
Investment Income on Actuarial Assets	$ (3,471)	$ 1,934	$ 6,268	$ (891)	$(16,326)	$(17,978)
Combined Liability Experience	342	1,305	(3,242)	509	(2,366)	1,988
(Loss)/Gain During Year from Financial Experience	$ (3,129)	$ 3,239	$ 3,026	$ (382)	$(18,692)	$(15,990)
Non-Recurring Items	0	(1,159)	0	0	0	(5,509)
Composite Gain (or Loss) During Year	$ (3,129)	$ 2,080	$ 3,026	$ (382)	$(18,692)	$(21,499)

Table V-4
SCHEDULE OF FUNDING PROGRESS*
(expressed in thousands)

Valuation Date June 30,	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Funded Ratio	Unfunded AAL (UAAL)	Covered Payroll	UAAL as a Percentage of Covered Payroll
2010	$ 200,739	$ 246,734	81	$ 45,995	$ 54,681	84
2009	200,690	223,893	90	23,203	51,457	45
2008	199,453	204,549	98	5,096	47,196	11
2007	183,894	189,036	97	5,142	43,611	12
2006	163,003	171,841	95	8,838	34,242	26
2005	148,458	159,347	93	10,889	28,423	38

* Years prior to 2009 were taken from reports prepared by prior actuary.

SECTION V
ACCOUNTING STATEMENT INFORMATION

Table V-5
SOLVENCY TEST*
Aggregate Accrued Liabilities for
(expressed in thousands)

Valuation Date June 30,	Active Member Contributions (1)	Retirants & Beneficiaries (2)	Active Member Employer Financed Contributions (3)	Actuarial Value of Reported Assets	Portion of Accrued Liabilities Covered by Reported Assets (1)	(2)	(3)
2010	$ 39,841	117,422	$ 89,470	$ 200,739	100	100	49
2009	36,225	106,352	81,316	200,690	100	100	71
2008	31,220	102,967	70,362	199,453	100	100	93
2007	27,651	97,660	63,725	183,894	100	100	92
2006	24,936	89,353	57,552	163,003	100	100	85
2005	22,810	82,386	54,151	148,458	100	100	80

* Years prior to 2009 were taken from reports prepared by prior actuary.

APPENDIX A
MEMBERSHIP INFORMATION

Reconciliation of Participant Counts

	Active	Disabled	Retirees and Beneficiaries	Terminated Vested Members	Terminated Non-Vested Members	Total
Participant counts used for valuation	1,181	53	362	36	157	1,789
Disabled members having attained normal retirement age		(18)	18			0
Beneficiaries of Disabled Members						0
Beneficiaries with less than one year of certain payments remaining			-			0
Other Adjustments						0
Participant counts shown in Annual Financial Report	1,181	35	380	36	157	1,789

This chart is presented for informational purposes only. The counts shown in the valuation line were used for preparation of the liabilities disclosed within this report. The counts disclosed for the Annual Financial Report and the Board Summary (page 8) match the CAFR reports at the request of the Board. The differences between the counts have no material effect upon the liability calculation.

The salaries used in the tables and charts which follow are different than the salaries used for the Board Summary on page 8. For this Appendix A, the valuation projected salaries to be paid for the following fiscal year, whereas for the Board Summary, salaries are as of the valuation date.

The benefits for retirees and beneficiaries used for the tables and charts which follow are different than the benefits used for the Board Summary on page 8. For this Appendix A, the valuation projected benefits to be paid for the following fiscal year (including GABA where applicable), whereas for the Board Summary, annual benefits are as of the valuation date.

APPENDIX A
MEMBERSHIP INFORMATION

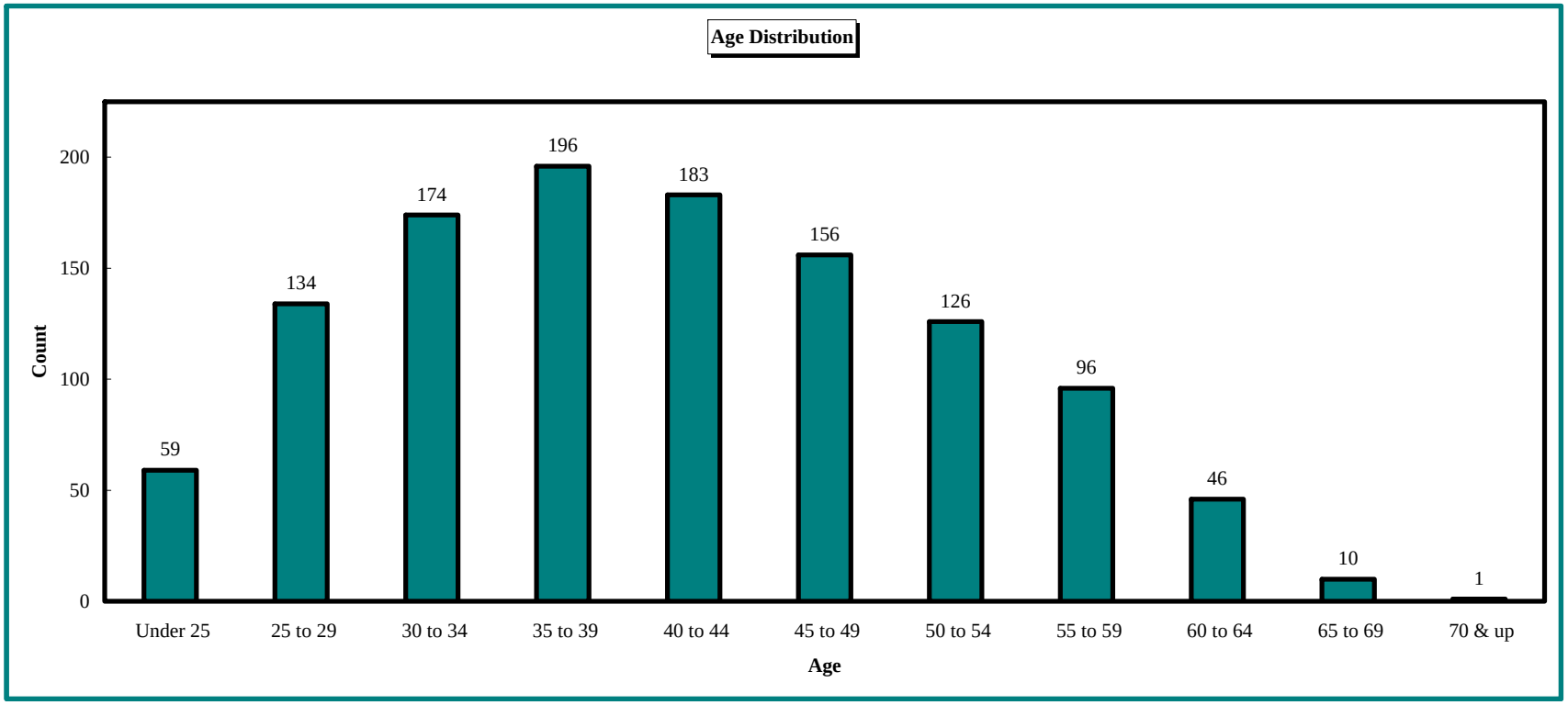
Sheriffs' Retirement System Distribution of Active Members by Age and Service as of June 30, 2010

COUNTS BY AGE/SERVICE

	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	19	40	0	0	0	0	0	0	0	0	59
25 to 29	23	103	8	0	0	0	0	0	0	0	134
30 to 34	12	105	47	10	0	0	0	0	0	0	174
35 to 39	27	81	50	33	5	0	0	0	0	0	196
40 to 44	12	62	45	41	17	6	0	0	0	0	183
45 to 49	7	49	31	28	26	13	2	0	0	0	156
50 to 54	8	35	26	20	20	9	4	4	0	0	126
55 to 59	7	28	15	14	11	6	4	10	1	0	96
60 to 64	5	10	5	5	7	7	5	1	1	0	46
65 to 69	0	2	3	1	0	1	2	0	1	0	10
70 & up	0	0	0	0	0	0	0	0	1	0	1
Total	120	515	230	152	86	42	17	15	4	0	1,181

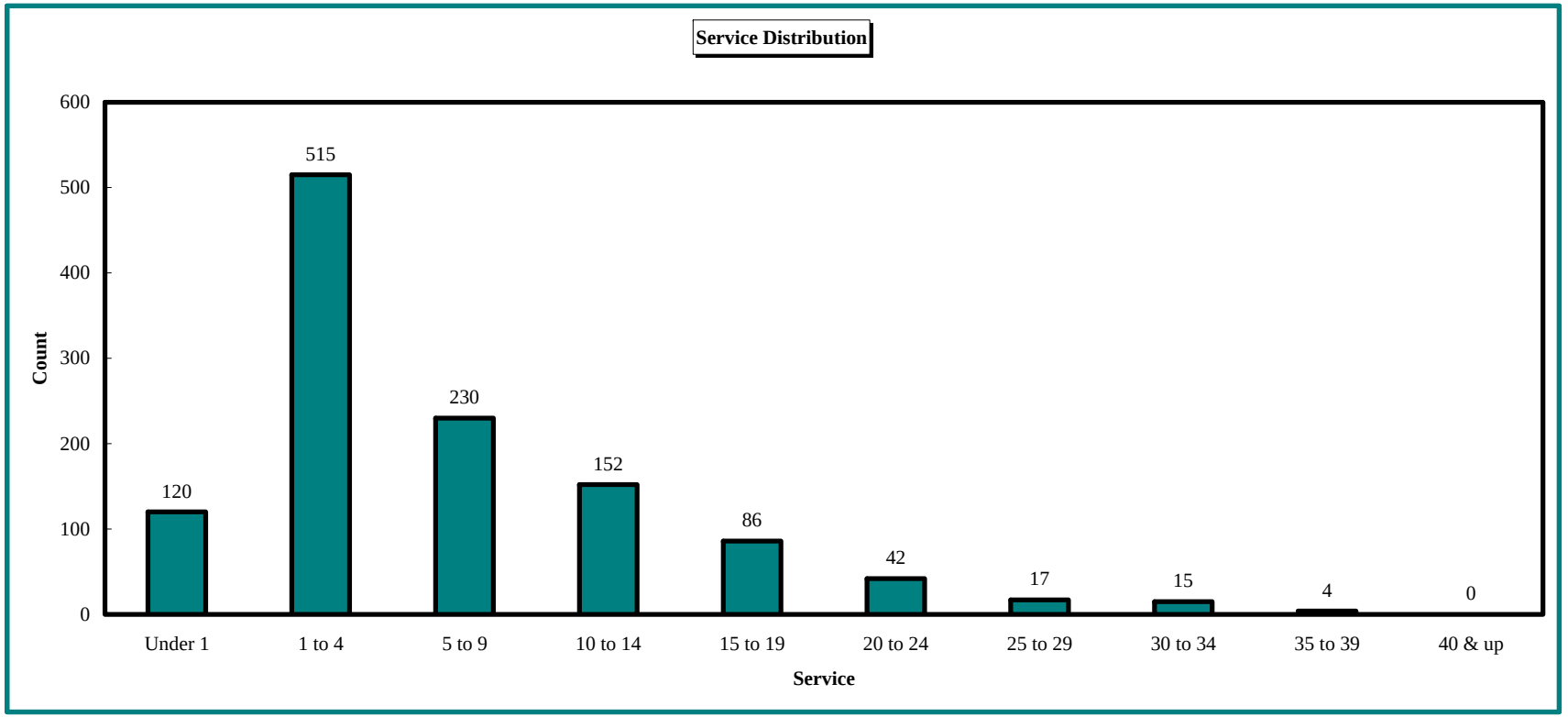
APPENDIX A
MEMBERSHIP INFORMATION

Sheriffs' Retirement System Distribution of Active Members by Age as of June 30, 2010



APPENDIX A
MEMBERSHIP INFORMATION

Sheriffs' Retirement System Distribution of Active Members by Service as of June 30, 2010



APPENDIX A
MEMBERSHIP INFORMATION

Sheriffs' Retirement System Distribution of Active Members by Age and Service as of June 30, 2010

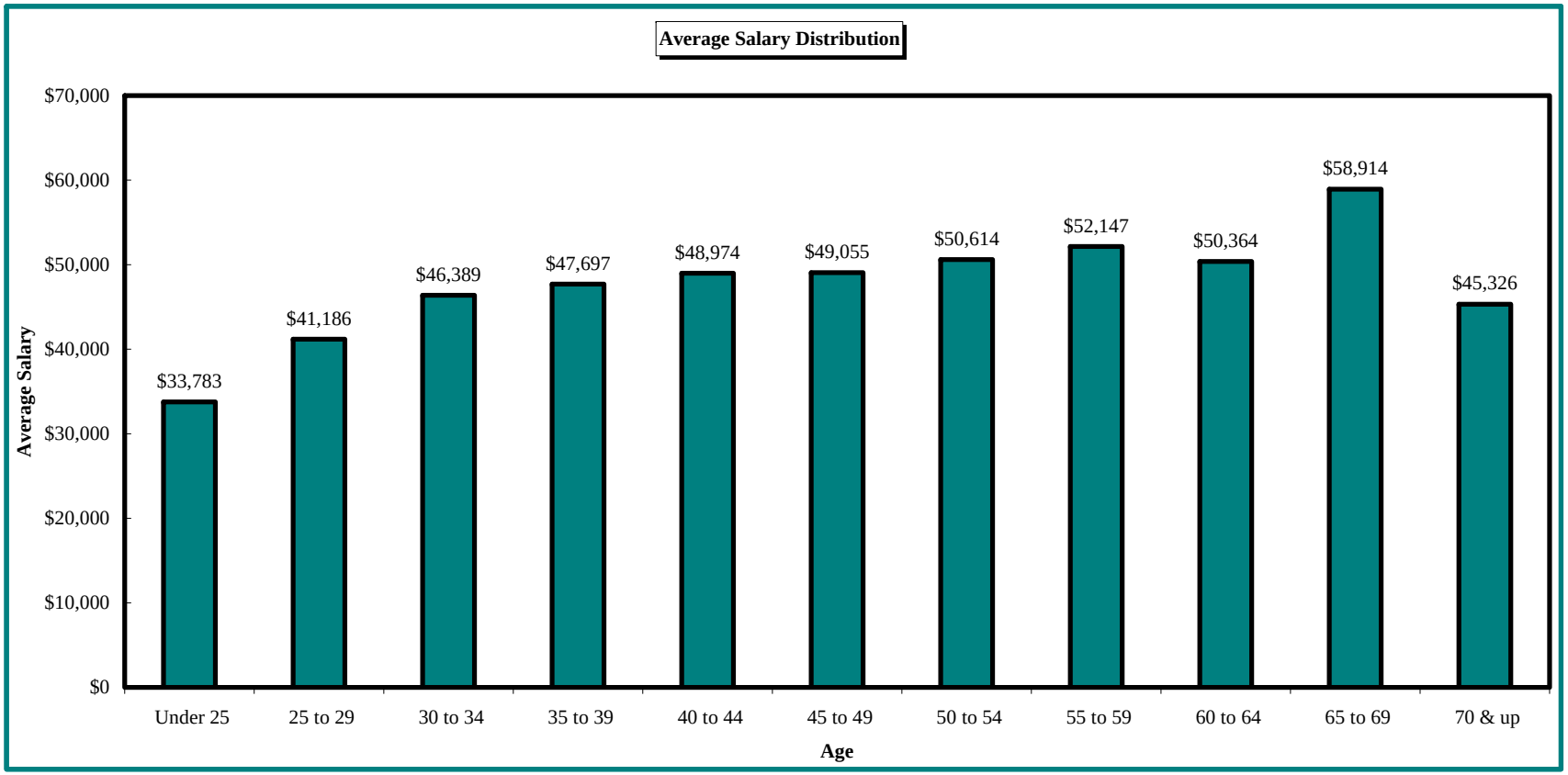
AVERAGE SALARY BY AGE/SERVICE

	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	Total
Under 25	$33,184	$34,067	$0	$0	$0	$0	$0	$0	$0	$0	$33,783
25 to 29	$36,321	$41,565	$50,284	$0	$0	$0	$0	$0	$0	$0	$41,186
30 to 34	$39,236	$43,537	$53,012	$53,803	$0	$0	$0	$0	$0	$0	$46,389
35 to 39	$39,069	$43,663	$51,042	$57,373	$62,329	$0	$0	$0	$0	$0	$47,697
40 to 44	$32,485	$41,076	$51,643	$55,097	$64,197	$58,572	$0	$0	$0	$0	$48,974
45 to 49	$34,875	$39,861	$50,979	$49,311	$61,777	$57,906	$67,599	$0	$0	$0	$49,055
50 to 54	$39,133	$38,236	$46,143	$59,288	$63,816	$56,957	$55,761	$82,152	$0	$0	$50,614
55 to 59	$31,346	$42,889	$49,112	$53,082	$60,171	$61,537	$76,536	$68,134	$87,397	$0	$52,147
60 to 64	$36,401	$32,419	$51,764	$55,290	$55,211	$58,888	$65,585	$78,951	$69,696	$0	$50,364
65 to 69	$0	$44,977	$44,367	$49,211	$0	$57,673	$91,913	$0	$75,372	$0	$58,914
70 & up	$0	$0	$0	$0	$0	$0	$0	$0	$45,326	$0	$45,326
Total	$36,167	$41,175	$50,776	$54,774	$62,022	$58,475	$69,184	$72,593	$69,448	$0	$47,317

The salary shown in the above chart was used for valuation purposes and assumes pay increases for the year.

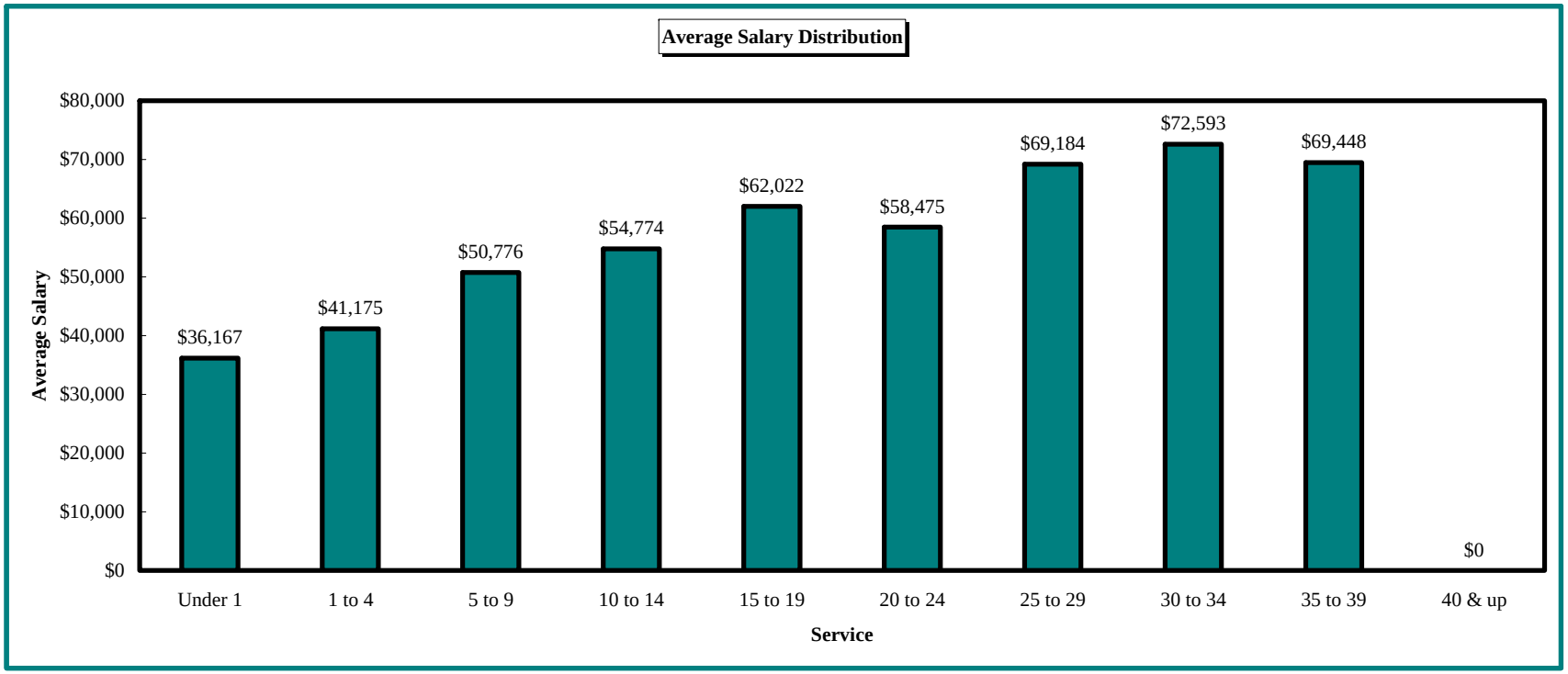
APPENDIX A
MEMBERSHIP INFORMATION

Sheriffs' Retirement System Distribution of Active Members by Age as of June 30, 2010



APPENDIX A
MEMBERSHIP INFORMATION

Sheriffs' Retirement System Distribution of Active Members by Service as of June 30, 2010



APPENDIX A
MEMBERSHIP INFORMATION

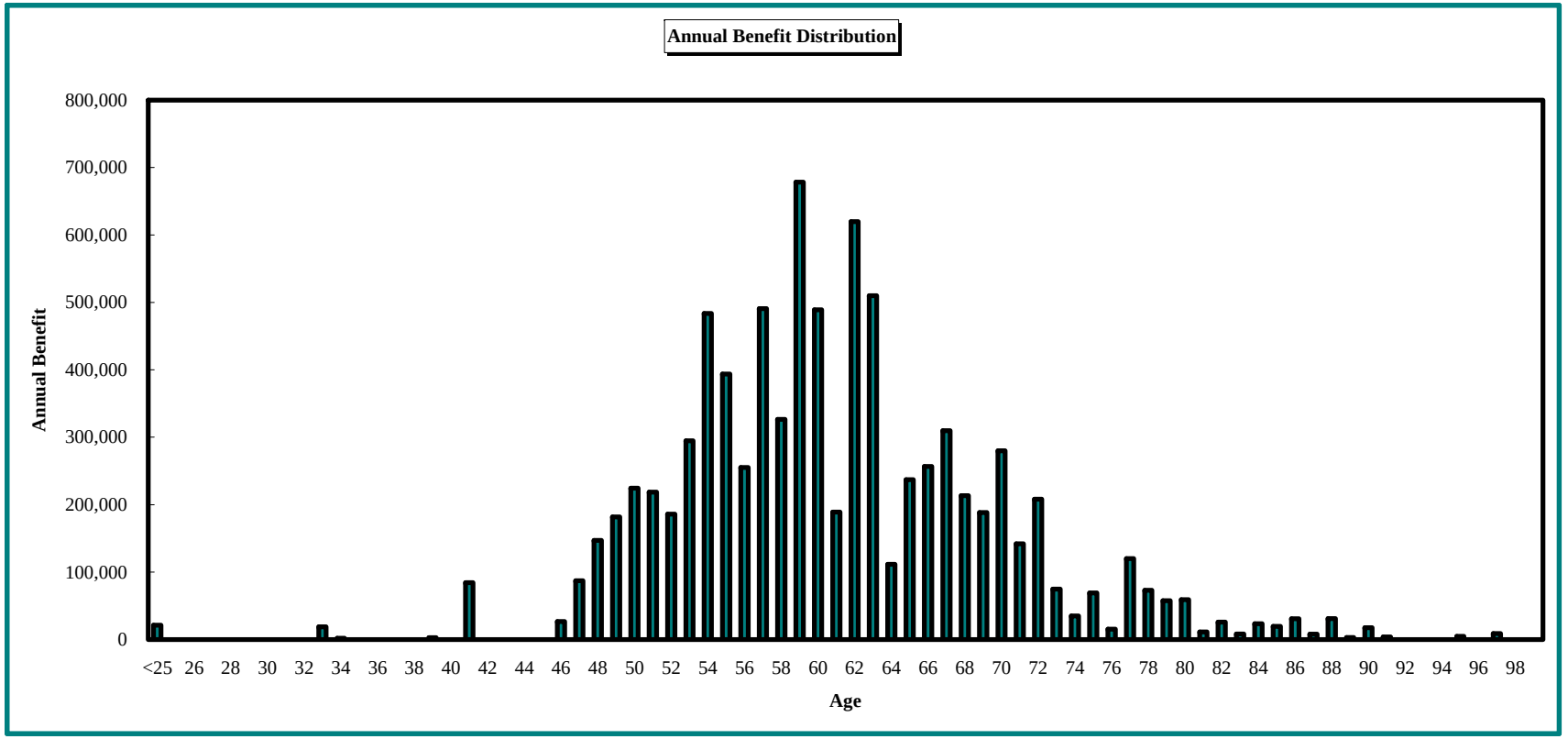
Sheriffs' Retirement System Distribution of Retired Members, Survivors, and Disabled Members as of June 30, 2010

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	2	$21,429	73	5	$74,708
25	0	$0	74	3	$34,831
26	0	$0	75	5	$69,298
27	0	$0	76	1	$15,380
28	0	$0	77	7	$119,885
29	0	$0	78	6	$73,057
30	0	$0	79	7	$57,631
31	0	$0	80	5	$59,241
32	0	$0	81	1	$11,205
33	1	$18,775	82	2	$25,629
34	1	$1,832	83	1	$8,188
35	0	$0	84	2	$23,270
36	0	$0	85	1	$19,509
37	0	$0	86	3	$30,698
38	0	$0	87	1	$7,867
39	1	$2,525	88	1	$30,905
40	0	$0	89	1	$2,861
41	4	$84,127	90	1	$17,553
42	0	$0	91	1	$3,864
43	0	$0	92	0	$0
44	0	$0	93	0	$0
45	0	$0	94	0	$0
46	1	$26,647	95	1	$4,595
47	4	$87,205	96	0	$0
48	5	$146,865	97	1	$8,775
49	8	$181,705	98	0	$0
50	12	$224,438	99	0	$0
51	9	$218,547	100	0	$0
52	9	$185,932	101	0	$0
53	10	$294,700	102	0	$0
54	23	$483,783	103	0	$0
55	18	$393,910	104	0	$0
56	10	$255,102	105	0	$0
57	20	$490,624	106	0	$0
58	17	$326,508	107	0	$0
59	25	$678,229	108	0	$0
60	24	$489,111	109	0	$0
61	11	$189,047	110	0	$0
62	23	$619,627	111	0	$0
63	26	$509,924	112	0	$0
64	7	$111,533	113	0	$0
65	15	$237,187	114	0	$0
66	10	$256,539	115	0	$0
67	14	$309,800	116	0	$0
68	9	$213,439	117	0	$0
69	6	$188,467	118	0	$0
70	12	$279,966	119	0	$0
71	9	$142,030	120	0	$0
72	13	$208,038			
			Totals	415	$8,576,542

The chart above reflects the counts and benefits used for valuation purposes as a result of data processing. The benefit amounts shown have been projected using a half year cola assumption.

APPENDIX A
MEMBERSHIP INFORMATION

Sheriffs' Retirement System Distribution of Retired Members, Survivors, and Disabled Members as of June 30, 2010



APPENDIX A
MEMBERSHIP INFORMATION

Sheriffs' Retirement System Distribution of Vested Members as of June 30, 2010

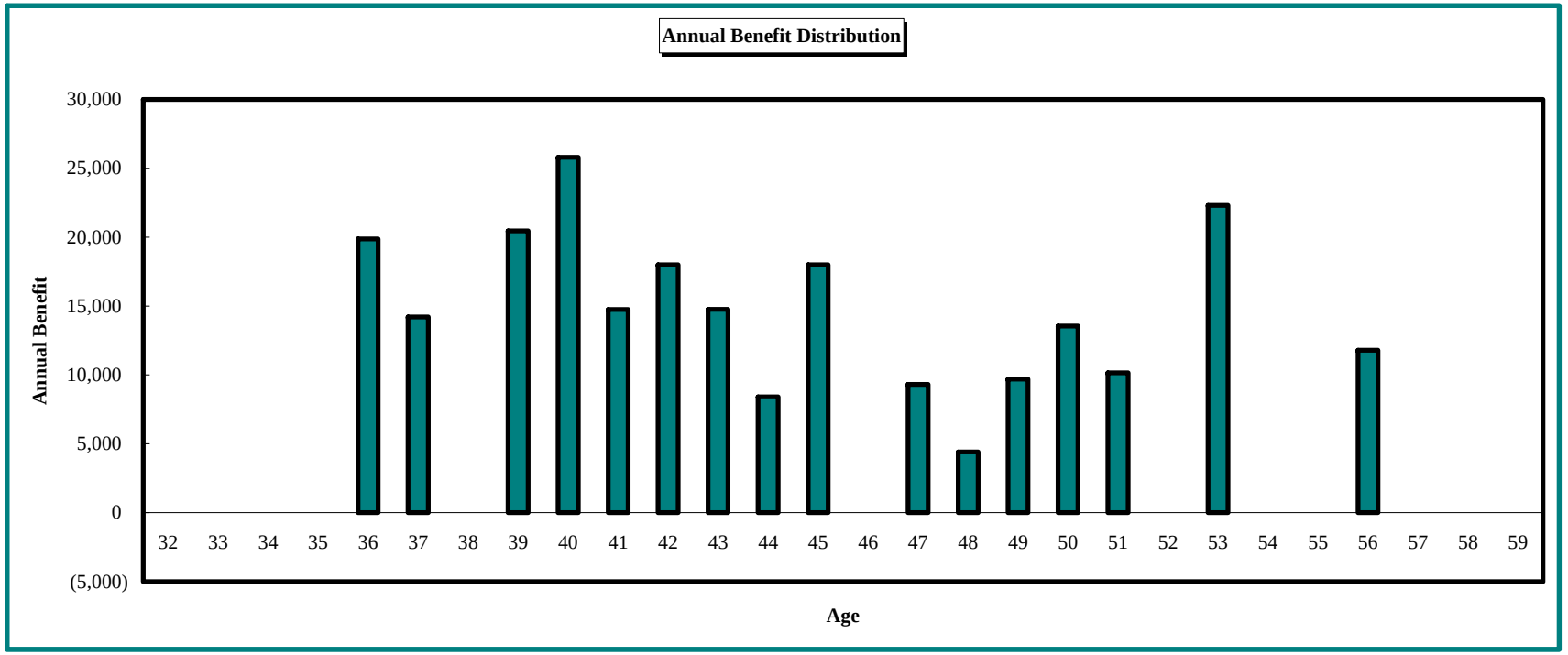
Age	Count	Annual Benefit	Account Balance*	Age	Count	Annual Benefit	Account Balance*
<25	0	$0	$0	73	0	$0	$0
25	0	$0	$0	74	0	$0	$0
26	0	$0	$0	75	0	$0	$0
27	0	$0	$0	76	0	$0	$0
28	0	$0	$0	77	0	$0	$0
29	0	$0	$0	78	0	$0	$0
30	0	$0	$0	79	0	$0	$0
31	0	$0	$0	80	0	$0	$0
32	0	$0	$0	81	0	$0	$0
33	0	$0	$0	82	0	$0	$0
34	0	$0	$0	83	0	$0	$0
35	1	$0	$152,599	84	0	$0	$0
36	4	$19,863	$222,860	85	0	$0	$0
37	4	$14,219	$193,458	86	0	$0	$0
38	1	$0	$96,191	87	0	$0	$0
39	3	$20,455	$90,463	88	0	$0	$0
40	2	$25,797	$0	89	0	$0	$0
41	1	$14,744	$0	90	0	$0	$0
42	2	$18,005	$0	91	0	$0	$0
43	4	$14,769	$65,233	92	0	$0	$0
44	1	$8,413	$0	93	0	$0	$0
45	2	$18,008	$0	94	0	$0	$0
46	1	$0	$60,907	95	0	$0	$0
47	1	$9,310	$0	96	0	$0	$0
48	1	$4,413	$0	97	0	$0	$0
49	1	$9,696	$0	98	0	$0	$0
50	1	$13,545	$0	99	0	$0	$0
51	1	$10,152	$0	100	0	$0	$0
52	0	$0	$0	101	0	$0	$0
53	2	$22,312	$0	102	0	$0	$0
54	0	$0	$0	103	0	$0	$0
55	0	$0	$0	104	0	$0	$0
56	3	$11,795	$88,268	105	0	$0	$0
57	0	$0	$0	106	0	$0	$0
58	0	$0	$0	107	0	$0	$0
59	0	$0	$0	108	0	$0	$0
60	0	$0	$0	109	0	$0	$0
61	0	$0	$0	110	0	$0	$0
62	0	$0	$0	111	0	$0	$0
63	0	$0	$0	112	0	$0	$0
64	0	$0	$0	113	0	$0	$0
65	0	$0	$0	114	0	$0	$0
66	0	$0	$0	115	0	$0	$0
67	0	$0	$0	116	0	$0	$0
68	0	$0	$0	117	0	$0	$0
69	0	$0	$0	118	0	$0	$0
70	0	$0	$0	119	0	$0	$0
71	0	$0	$0	120	0	$0	$0
72	0	$0	$0				
				Totals	36	$235,496	$969,978

* projected to the greater of age 60 or current age, unless member has 20 yos

The chart above reflects the counts and benefits used for valuation purposes as a result of data processing.

APPENDIX A
MEMBERSHIP INFORMATION

Sheriffs' Retirement System Distribution of Vested Members as of June 30, 2010



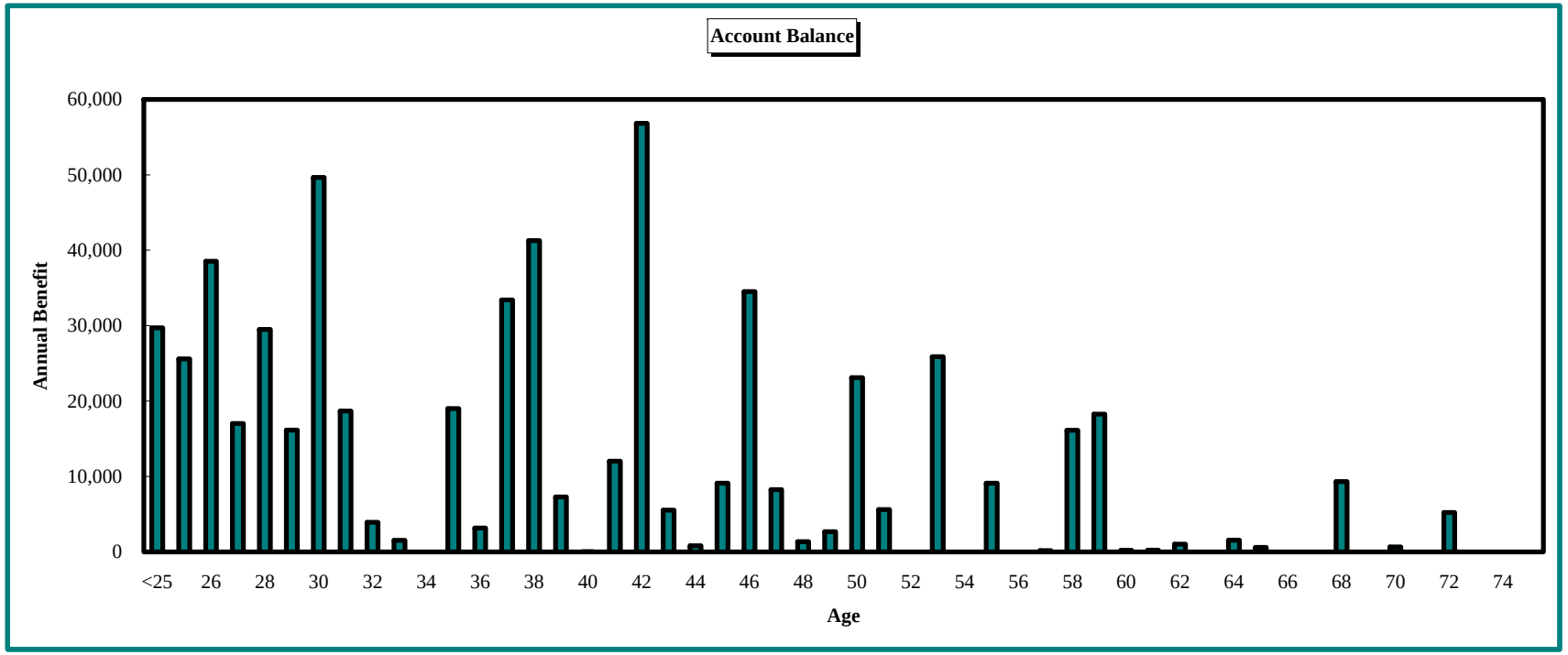
APPENDIX A
MEMBERSHIP INFORMATION

Sheriffs' Retirement System Distribution of Non-Vested Members as of June 30, 2010

Age	Count	Account Balance	Age	Count	Account Balance
<25	17	$29,716	73	0	$0
25	6	$25,577	74	0	$0
26	8	$38,522	75	0	$0
27	6	$17,040	76	0	$0
28	7	$29,489	77	0	$0
29	7	$16,150	78	0	$0
30	5	$49,657	79	0	$0
31	7	$18,674	80	0	$0
32	3	$3,942	81	0	$0
33	3	$1,529	82	0	$0
34	0	$0	83	0	$0
35	4	$19,026	84	0	$0
36	4	$3,161	85	0	$0
37	8	$33,407	86	0	$0
38	11	$41,288	87	0	$0
39	5	$7,288	88	0	$0
40	1	$25	89	0	$0
41	3	$12,033	90	0	$0
42	7	$56,820	91	0	$0
43	5	$5,535	92	0	$0
44	2	$806	93	0	$0
45	3	$9,104	94	0	$0
46	4	$34,528	95	0	$0
47	3	$8,253	96	0	$0
48	2	$1,379	97	0	$0
49	1	$2,685	98	0	$0
50	2	$23,119	99	0	$0
51	2	$5,634	100	0	$0
52	0	$0	101	0	$0
53	4	$25,888	102	0	$0
54	0	$0	103	0	$0
55	3	$9,098	104	0	$0
56	0	$0	105	0	$0
57	1	$174	106	0	$0
58	2	$16,144	107	0	$0
59	3	$18,284	108	0	$0
60	1	$202	109	0	$0
61	1	$238	110	0	$0
62	1	$1,029	111	0	$0
63	0	$0	112	0	$0
64	1	$1,568	113	0	$0
65	1	$603	114	0	$0
66	0	$0	115	0	$0
67	0	$0	116	0	$0
68	1	$9,322	117	0	$0
69	0	$0	118	0	$0
70	1	$660	119	0	$0
71	0	$0	120	0	$0
72	1	$5,240			
			Totals	157	$582,837

APPENDIX A
MEMBERSHIP INFORMATION

Sheriffs' Retirement System Distribution of Non-Vested Members as of June 30, 2010



APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

A. Long-Term Assumptions Used to Determine Plan Costs and Liabilities

1. Demographic Assumptions

a. Healthy Retirees, Beneficiaries and Non-Retired Members

RP-2000 Combined Healthy Male and Female Mortality Tables projected to 2015 with scale AA.

Sample Rates of Healthy Mortality		
Age	**Male**	**Female**
50	0.163%	0.130%
55	0.241%	0.241%
60	0.530%	0.469%
65	1.031%	0.900%
70	1.770%	1.553%
75	3.062%	2.492%
80	5.536%	4.129%
85	9.968%	7.076%
90	17.271%	12.588%

10% of all member deaths are assumed to be duty-related.

b. Disabled Inactive Mortality

RP-2000 Combined Healthy Male and Female Mortality Tables with no projections.

Sample Rates of Disabled Inactive Mortality		
Age	**Male**	**Female**
50	0.241%	0.168%
55	0.362%	0.272%
60	0.675%	0.506%
65	1.274%	0.971%
70	2.221%	1.674%
75	3.783%	2.811%
80	6.437%	4.588%
85	11.076%	7.745%
90	18.341%	13.168%

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

c. Rates of Active Disability

Sample Rates of Active Disability	
Age	Male
22	0.00%
27	0.10%
32	0.10%
37	0.10%
42	0.40%
47	0.40%
52	0.40%
57	0.40%
62	0.00%

75% of disabilities are assumed to be duty-related. All disabilities are assumed to be permanent and without recovery.

d. Termination of Employment (Prior to Normal Retirement Eligibility)

Service	Rate
0	20%
1	15%
2	12%
3	10%
4	10%
5-9	5%
10-14	3%
15 & over	1%

e. Probability of Electing a Refund of Member Contributions Upon Termination

Probability of Electing Refund		
Age at Term.	Non-Vested	Vested
Under 35	100%	70%
35-39	100%	60%
40-44	100%	50%
45-49	100%	40%
50 & Over	100%	0%

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

f. Retirement

Annual Retirement Rates	
Age	**20 years or more**
<50	10.00%
50 – 54	10.00%
55 – 59	15.00%
60 – 64	20.00%
65 & over	100.00%

Vested terminations are assumed to retire at their earliest unreduced eligibility.

g. Merit/Seniority Salary Increase (in addition to across-the-board increase)

Service based table plus an annual inflation rate of 4.00% (rates shown below exclude amount for inflation).

Service	Annual Increase
1	7.3%
2	5.6%
3	4.4%
4	3.5%
5	2.8%
6	2.2%
7	1.7%
8	1.3%
9	1.0%
10	0.7%
11-15	0.4%
16-20	0.2%
21 & over	0.0%

h. Family Composition

Female spouses are assumed to be three years younger than males.

100% of non-retired employees are assumed married for both male and female employees.

Actual marital characteristics are used for pensioners.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

i. Vested Benefits for Terminated Members

Vested benefits for members who terminated during the years ending June 30, 2009 and later were estimated based upon compensation and service information in the census data. For members who terminated prior to June 30, 2008, vested benefits valued were the same as had been calculated by the prior actuary for the June 30, 2008 actuarial valuation.

2. Economic Assumptions

a. Rate of Investment Return: 7.75%
b. Rate of Wage Inflation: 4.00%
c. Interest on Member Contributions: 3.5%
d. Rate of Increase in Total Payroll (for Amortization): 4.00%

3. Changes Since Last Valuation

The demographic and economic assumptions were updated to reflect the 2009 experience study. The prior assumptions are listed below for those assumptions where changes were made:

a. Demographic Assumptions

i. Healthy Retirees, Beneficiaries and Non-Retired Members

Male: Male UP-1994 Mortality Table set back one year
Female: Female UP-1994 Mortality Table

Sample Rates of Healthy Mortality

Age	Male	Female
50	0.250%	0.154%
55	0.428%	0.247%
60	0.762%	0.477%
65	1.391%	0.929%
70	2.336%	1.476%
75	3.661%	2.439%
80	6.007%	4.236%
85	9.636%	7.284%
90	14.995%	12.502%

70% of active employee deaths are assumed to be duty related.

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

ii. Beneficiaries

Male: Male UP-1994 Mortality Table set back one year
Female: Female UP-1994 Mortality Table set back one year

Sample Rates of Beneficiary Mortality		
Age	**Male**	**Female**
50	0.250%	0.141%
55	0.428%	0.224%
60	0.762%	0.415%
65	1.391%	0.819%
70	2.336%	1.367%
75	3.661%	2.192%
80	6.007%	3.802%
85	9.636%	6.557%
90	14.995%	11.247%

iii. Disabled Inactive Mortality

Male: Male UP-1994 Mortality Table set forward three years
Female: Female UP-1994 Mortality Table set forward two years

Sample Rates of Disabled Inactive Mortality		
Age	**Male**	**Female**
50	0.385%	0.186%
55	0.677%	0.314%
60	1.234%	0.627%
65	2.135%	1.157%
70	3.355%	1.775%
75	5.399%	3.050%
80	8.872%	5.285%
85	13.654%	9.035%
90	21.333%	15.266%

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

iv. Rates of Active Disability

Sample Rates of Active Disability		
Age	**Male**	**Female**
22	0.00%	0.00%
27	0.10%	0.10%
32	0.10%	0.10%
37	0.10%	0.10%
42	0.40%	0.40%
47	0.40%	0.40%
52	0.40%	0.40%
57	0.40%	0.40%
62	0.00%	0.00%

10% of disabilities are assumed to be duty-related. All disabilities are assumed to be permanent and without recovery.

v. Termination of Employment (Prior to Normal Retirement Eligibility)

Service	Rate
0	15%
1	13%
2	9%
3	6%
4	6%
5-9	5%
10-14	3%
15 & over	1%

vi. Probability of Electing a Refund of Member Contributions Upon Termination

Probability of Electing Refund		
Age at Term.	**Non-Vested**	**Vested**
Under 35	100%	70%
35-39	100%	60%
40-44	100%	40%
45-49	100%	40%
50 & Over	100%	0%

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

vii. Retirement

Annual Retirement Rates	
Age	**20 years or more**
<50	12.00%
50 – 54	20.00%
55	35.00%
56	15.00%
57	15.00%
58	20.00%
59	40.00%
60	40.00%
61	40.00%
62	40.00%
63	40.00%
64	40.00%
65 & over	100.00%

Vested terminations are assumed to retire at their earliest unreduced eligibility.

viii. Merit/Seniority Salary Increase (in addition to across-the-board increase)

Service based table plus an annual inflation rate of 4.25% (rates shown below exclude amount for inflation).

b. Economic Assumptions

i.	Rate of Investment Return:	8.00%
ii.	Rate of Wage Inflation:	4.25%
iii.	Interest on Member Contributions:	5.00%
iv.	Rate of Increase in Total Payroll (for Amortization):	4.25%

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Funding Method

The Entry Age Normal Actuarial Cost method is used to determine costs. Under this funding method, a normal cost is determined as a level percent of pay individually for each active employee.

The actuarial accrued liability is that portion of the present value of projected benefits that will not be paid by future normal costs. The difference between this liability and funds accumulated as of the same date is referred to as the unfunded actuarial liability.

The portion of the actuarial accrued liability in excess of plan assets is amortized to develop an additional cost or savings which is added to each year's employer normal cost. Under this cost method, actuarial gains and losses are directly reflected in the size of the unfunded actuarial liability.

2. Actuarial Value of Assets

For purposes of determining the unfunded actuarial accrued liability, we use an actuarial value of assets. The asset adjustment method dampens the volatility in asset values that could occur because of fluctuations in market conditions. Use of an asset smoothing method is consistent with the long-term nature of the actuarial valuation process.

The actuarial value of assets is the current market value, adjusted by a four-year smoothing of gains and losses on a market value basis. Each year's gain or loss is determined as the difference between the actual market return and the expected market return using the assumed rate of investment return.

3. Amortization Method

The unfunded actuarial accrued liability is amortized as a level percentage of future payroll.

4. Changes Since Last Valuation

Previously, the unfunded actuarial accrued liability was amortized by an increasing percentage of pay represented as the difference between a level statutory contribution rate and a decreasing normal cost rate.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

1. Membership

The Plan is a multiple-employer cost sharing plan that covers persons employed as sheriffs, investigators (effective 7/1/1993), and detention officers (effective 7/1/2005).

2. Member Contributions

Members contribute 9.245% of their compensation. Interest is credited at rates determined by the Board.

Member contributions are made through an "employer pick-up" arrangement which results in deferral of taxes on the contributions.

Employers contributed 9.535% of each member's compensation, the rate increased to 9.825% on July 1, 2007 and 10.115% on July 1, 2009. These increased contributions as of 2007 and 2009 will terminate if an actuarial valuation shows that the period required to amortize the system's unfunded liabilities is less than 25 years, and that the termination of those increases would not cause the amortization to increase beyond 25 years.

3. Service Credit

Service used to determine the amount of retirement benefit. One month of service credit is earned for each month where the member worked 160 hours. This includes certain transferred and purchased service.

4. Membership Credit

Service used to determine eligibility for vesting, retirement or other SRS benefits. One month of membership service is earned for any month member contributions are made to SRS, regardless of the number of hours worked.

Additionally, eligible active and inactive members may purchase some types of service that will count as membership service.

5. Highest Average Compensation

Highest Average Compensation is the average of any 36 consecutive months (or shorter period of total service) of compensation paid to the member. Compensation generally means total compensation paid, excluding maintenance, allowances and expenses.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

6. Normal Retirement

Eligibility: 20 years of membership service.

Benefit: 2.5% of highest average compensation times years of service credit.

7. Early Retirement

Eligibility: Age 50 with 5 years of membership service.

Benefit: Normal retirement benefit calculated using highest average compensation and service at early retirement, and reduced to the actuarial equivalent commencing at the earliest of age 60 or the attainment of 20 years of service credit.

8. Disability Benefit

Eligibility: Any active member.

Benefit: (i) For duty-related disability, f (a) If less than 20 years of membership service: 50% of highest average compensation and (b) If 20 years or more of membership service: 2.5% of highest average compensation multiplied by years of service credit.

(ii) For non-duty-related disability, the actuarial equivalent of the accrued normal retirement benefit on a retirement age after completing 20 years of membership service, or age 60.

9. Survivor's Benefit

Eligibility: Active or retired member.

Benefit: For duty-related deaths, a monthly survivor benefit to the designated beneficiary equal to the greater of (i) at least 50% of highest average compensation or (ii) 2.5% of highest average compensation multiplied by years of service credit.

For non-duty-related deaths, a refund of the member's accumulated contributions.

A beneficiary may elect to receive the payment as an annuity that is the actuarial equivalent of the amount of benefit.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

For retired members without a contingent annuitant, a payment will be made equal to the accumulated contributions reduced by any retirement benefits already paid.

10. Vesting

Eligibility: Five years of membership service.

Benefit: Accrued normal retirement benefit, payable at normal or early retirement date. In lieu of a pension, a member may receive a refund of accumulated contributions. Upon receipt of a refund of contributions a member's vested right to a monthly benefit shall be forfeited.

11. Withdrawal of Employee Contributions

Eligibility: Terminates service and is not eligible for other benefits.

Benefit: Accumulated member contributions.

12. Form of Payment

The normal form of payment is a life annuity.

Optional benefits: (i) Option 2, a joint and 100% survivor benefit, (ii) Option 3, a joint and 50% survivor benefit, and (iii) Option 4, a life annuity with a period certain.

13. Post Retirement Benefit Increases

For retired members who have been retired at least 12 months, a Guaranteed Annual Benefit Adjustment (GABA) will be made each year equal to (i) 3% for members hired before July 1, 2007 and (ii) 1.5% for members hired on or after July 1, 2007.

14. Changes Since Last Valuation

None.