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# **IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM**

**Actuarial Valuation Report  
as of June 30, 2011**





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# Cavanaugh Macdonald

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November 15, 2011

Investment Board  
Iowa Public Employees' Retirement System  
7401 Register Drive  
Des Moines, IA 50321

**Re: June 30, 2011 Actuarial Valuation Report**

Dear Board Members:

In this report are submitted the results of the annual valuation of the assets and liabilities of the Iowa Public Employees' Retirement System (System) prepared as of June 30, 2011. The purpose of this report is to provide a summary of the funded status of the System as of June 30, 2011 and to provide the Annual Required Contribution (ARC) and the accounting information under Governmental Accounting Standards Board (GASB) Statement No. 25. While not verifying the data at its source, the actuary performed tests for consistency and reasonableness.

The promised benefits of the System are included in the actuarially calculated contribution rates which are developed using the Entry Age Normal cost method. An asset smoothing method is used for actuarial valuation purposes. Gains and losses are reflected in the unfunded actuarial liability and are amortized as a level percent of payroll over a period set by the Actuarial Amortization Method adopted by the Investment Board. The assumptions recommended by the actuary and adopted by the Investment Board are, in the aggregate, reasonably related to the experience under the System and to reasonable expectations of anticipated experience under the System and meet the parameters for the disclosures under GASB Statement No 25.

While this is not the first valuation report prepared by Cavanaugh Macdonald Consulting, LLC (CMC), it is the first valuation prepared using the CMC valuation software. In order to quantify the impact of the change in valuation software, we replicated the June 30, 2010 actuarial valuation. As discussed more fully in the Executive Summary, during the replication, an issue was discovered. In response to this, the Board took action in November, 2011 and adopted a recommended assumption change as proposed by the System's actuary.

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Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

Some actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the System. Other actuarial computations presented in this report under GASB Statement No. 25 are for purposes of fulfilling financial accounting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this report have been made on a basis consistent with our understanding of the plan provisions described in Appendix B of this report, and of GASB Statement No. 25. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonable based on the actual experience of the System. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

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

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

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

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

Brent A. Banister, PhD, FSA, EA, FCA, MAAA  
Senior Actuary



**INTRODUCTION**

This report presents the results of the June 30, 2011 actuarial valuation of the Iowa Public Employees’ Retirement System (IPERS). The primary purposes of performing the valuation are as follows:

- to determine the actuarial contribution rates for the Regular Membership and the Special Service Groups (Group 1 includes sheriffs and deputies, Group 2 includes all other public safety members) in accordance with the Contribution Rate Funding Policy,
- to evaluate the funded status of the System and disclose various asset and liability measures as of June 30, 2011,
- to determine the experience of the System since the last valuation, and
- to analyze and report on trends in System contributions, assets, and liabilities over the past several years.

While this is not the first valuation report prepared by Cavanaugh Macdonald Consulting, LLC (CMC), it is the first valuation prepared using the CMC valuation software. As part of the assignment of the contract from Milliman to CMC in October of 2010, permission was granted to use Milliman’s proprietary valuation software for the June 30, 2010 valuation. In order to quantify the impact of the change in valuation software, we replicated the June 30, 2010 actuarial valuation. With the exception noted below, the replication results were well within acceptable limits.

During the replication process, a coding error was discovered in Milliman’s valuation software. The error, which failed to project future mortality improvements for certain Regular Membership Groups, understated the liabilities and costs. The Special Service Groups were not impacted.

The coding error actually occurred in the 2005-09 Experience Study and resulted in the recommendation and adoption of post-retirement mortality assumptions that represented a more dramatic change in mortality than intended. After revisiting the experience study results, we recommended that the Board adopt new mortality assumptions for the Regular Membership. The Board took action in November, 2011 and adopted the recommended assumptions. The result of this action was an increase in both the actuarial liability and the normal cost rate for the Regular Membership Group.

The impact of the software changes, assumption changes, and actual experience is summarized in the table below:

	Normal Cost			Actuarial Liability (\$M)		
	Regular	SS1	SS2	Regular	SS1	SS2
6/30/10 Valuation	9.87%	16.25%	15.80%	\$25,081	\$448	\$940
Actual Experience	-0.02%	+0.07%	-0.02%	+1,154	+25	+89
Change in Actuarial Software	+0.07%	+0.27%	+0.30%	+100	+3	0
Change in Mortality Assumption	+0.24%	0.00%	0.00%	+417	0	0
6/30/11 Valuation	10.16%	16.59%	16.08%	\$26,752	\$476	\$1,029

The actuarial valuation results provide a “snapshot” view of the System’s financial condition on June 30, 2011. The results reflect net favorable experience for the past plan year as demonstrated by an unfunded actuarial liability (UAL) that was slightly lower than expected. The UAL on June 30, 2011 for all membership groups covered by IPERS (Regular Members and both Special Service Groups) is \$5.682 billion as compared to an expected UAL of \$5.765 billion. The favorable experience was the combination of a experience gain of \$66 million on the actuarial value of assets and an experience gain of about \$17 million on System liabilities.



## SECTION I – EXECUTIVE SUMMARY

The statutory contribution rate for Regular Members has been set by statute in the past. Effective with this valuation, legislation gives IPERS the authority to implement actuarially determined contribution rates for the Regular Membership Group, subject to a change of no more than 1% in a year. In the valuation, future increases in contribution rates are reflected for purposes of analyzing the long term funding of the System. As indicated previously, certain calculations are performed for purposes of reporting under Governmental Accounting Standards. For this purpose, future increases in the contribution rate are not reflected, i.e. the contribution rate for FY2013 of 14.45% is used.

The summary of the 2011 valuation results, which set the contribution rates for FY2013, are shown below. Further detail on the valuation results can be found in the following sections of this Executive Summary.

Contribution Rate for FY2013			
	Regular Membership	Special Service Group 1*	Special Service Group 2**
1. Normal Cost Rate	10.16%	16.59%	16.08%
2. Amortization of UAL over 30 years	<u>4.61%</u>	<u>3.21%</u>	<u>1.03%</u>
3. Total Contribution Rate	14.77%	19.80%	17.11%
4. Statutory Contribution Rate	14.45%	19.80%	17.11%
5. Shortfall (3) – (4)	0.32%	0.00%	0.00%
6. Years to Amortize (based on (4))	34	30	30
7. Employee Contribution Rate	5.78%	9.90%	6.84%
8. Employer Contribution Rate (4) - (7)	8.67%	9.90%	10.27%
9 Unfunded Actuarial Liability (\$M)	\$5,565	\$57	\$59
10. Funded Ratio	79.2%	87.9%	94.2%
* Includes Sheriffs and Deputies			
** Includes all other public safety members			

### ***EXPERIENCE FOR THE LAST PLAN YEAR***

Numerous factors contributed to the change in the Systems' assets, liabilities and remaining amortization period for the unfunded actuarial liability between June 30, 2010 and June 30, 2011. The components are examined in the following discussion.

### **ASSETS**

As of June 30, 2011, the System (all membership groups) had total assets of \$22.8 billion, when measured on a market value basis, **excluding the Favorable Experience Dividend (FED) Reserve Account**. This was an increase of \$3.2 billion from the prior year.





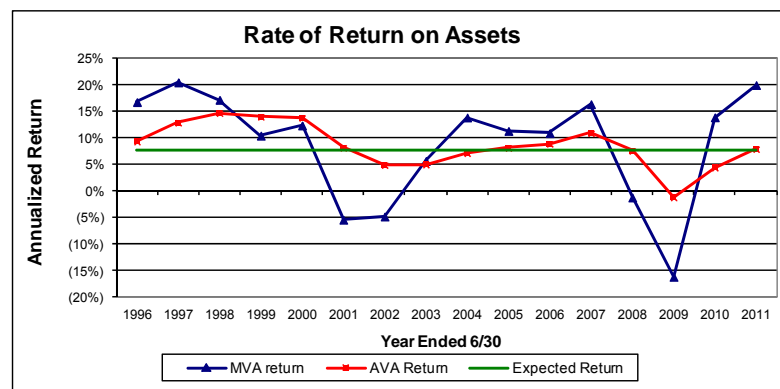
## SECTION I – EXECUTIVE SUMMARY

The market value of assets is not used directly in the calculation of the unfunded actuarial liability (UAL) and actuarial contribution rates. An asset valuation method, which smoothes the effect of market fluctuations, is used to determine the value of assets used in the valuation. This amount, called the “actuarial value of assets”, is equal to the expected asset value, based on the actuarial value in the prior year and the assumed rate of return of 7.5%, plus 25% of the difference between the actual market value and the expected asset value. The resulting value must be no less than 80% of market value and no more than 120% of market value (referred to as a “corridor”). The corridor did not apply this year. The actuarial value of assets as of June 30, 2011 was \$22.6 billion, an increase of \$1.1 billion from the value in the prior year. The components of change in the asset values are shown in the following table:

	Market Value (\$M)	Actuarial Value (\$M)
<b>Net Assets, June 30, 2010</b>	\$ 19,539	\$ 21,537
• Employer and Member Contributions	+ 789	+ 789
• Benefit Payments and Refunds	- 1,410	- 1,410
• Expected Investment Income, net of expenses (Based on 7.5% assumption)	+ 1,444	+ 1,593
• Actuarial Gain/Loss on Investment Return	+ 2,410	+ 66
<b>Net Assets, June 30, 2011 Before FED Transfer</b>	\$ 22,772	\$ 22,575
• FED Transfer Payable January 15, 2012	- 0	- 0
<b>Net Assets, June 30, 2011 After FED Transfer</b>	\$ 22,772	\$ 22,575
• Application of Corridor	- 0	- 0
<b>Final Net Assets, June 30, 2011</b>	\$ 22,772	\$ 22,575

On a market value basis, the time-weighted rate of return was 19.91% as reported by IPERS. The dollar-weighted rate of return, net of investment and administrative expenses, measured on the actuarial value of assets was approximately 7.8%.

Please see Exhibits 2 and 3 in Section II of this report for a summary of the market and actuarial value of assets by group (Regular, Special Service 1 and Special Service 2) as of June 30, 2011.



*Rates of return on the actuarial value of assets are much smoother than market value returns, illustrating the advantage of using an asset smoothing method.*

In last year’s valuation, there was \$2 billion in deferred (unrecognized) investment loss. With the favorable investment experience during FY2011 the deferred loss has been eliminated and a small deferred gain of about \$200 million now exists. The deferred gain will be recognized in the smoothing method in future years.



## SECTION I – EXECUTIVE SUMMARY

### LIABILITIES

The actuarial liability is that portion of the present value of future benefits that will not be paid by future normal costs. The difference between this liability and the actuarial value of assets at the same date is called the unfunded actuarial liability (UAL). The dollar amount of unfunded actuarial liability is reduced if the contributions to the System exceed the normal cost for the year plus interest on the prior year's UAL.

The unfunded actuarial liability by group is shown as of June 30, 2011 in the following table:

<i>(\$Millions)</i>	<b>Regular Membership</b>	<b>Special Service 1</b>	<b>Special Service 2</b>	<b>Total*</b>
Actuarial Liability	\$26,752	\$476	\$1,029	\$28,257
Actuarial Value of Assets	21,187	418	970	22,575
Unfunded Actuarial Liability	5,565	57	59	5,682
Funded Ratio	79.2%	87.9%	94.2%	79.9%

\*Totals may not add due to rounding.

See Exhibit 7 in Section III of the report for the detailed development of the unfunded actuarial liability for each group.

Changes in the UAL occur for various reasons. The net change in the UAL from June 30, 2010 to June 30, 2011 was \$751 million. The components of this net change are shown in the table below (in millions):

<b>Unfunded Actuarial Liability, June 30, 2010 (\$M)</b>	\$ 4,931
• Expected increase from amortization method	96
• Expected increase from contributions below actuarial rate	218
• Investment experience	(66)
• Liability experience (including transfers)	(17)
• Change in actuarial valuation software	103
• Change in assumption/correction of mortality improvements	417
<b>Unfunded Actuarial Liability <u>before</u> FED transfer, June 30, 2011</b>	\$ 5,682
• FED Transfer	0
<b>Unfunded Actuarial Liability <u>after</u> FED transfer, June 30, 2011</b>	\$ 5,682

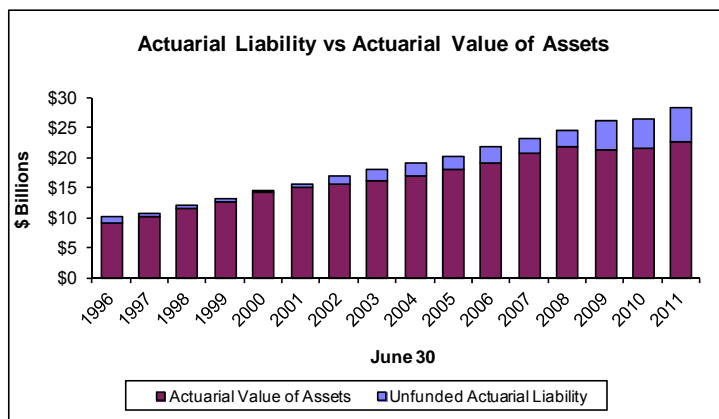
As seen above, various components impacted the UAL. The two most significant factors were (1) the increase in the UAL due to the mortality assumption and software coding correction described earlier (\$417 million), and (2) the increase due to contributions less than the full actuarial rate (\$218 million). Without the strong investment return in FY2011, the UAL would have increased significantly due to the deferred investment loss that still existed in the 2010 valuation.

Actuarial gains (losses), which result from actual experience that is more (less) favorable than anticipated based on the actuarial assumptions, are reflected in the UAL and are measured as the difference between the expected unfunded actuarial liability and the actual unfunded actuarial liability, taking into account any changes due to actuarial assumptions and methods, different valuation software or benefit provision changes. Overall, the System experienced a net actuarial gain of \$83 million. The net actuarial gain may be explained by considering the separate experience of assets and liabilities. As noted earlier, there was a \$66 million gain, measured on the actuarial value of assets. There was a small liability gain of \$17 million which arises from



## SECTION I – EXECUTIVE SUMMARY

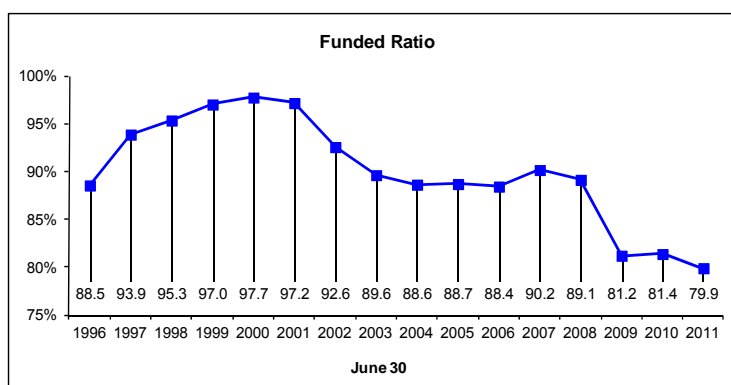
demographic experience more favorable than anticipated by the actuarial assumptions. The liability gain was largely the results of salary increases that were slightly lower than the expected amounts, offset by a liability loss from more retirements than expected.



*The dollar amount of the UAL has grown over the past several years due to numerous factors, the most significant of which are the investment loss of 2008 and contributions below the actuarial contribution rate.*

An evaluation of the unfunded actuarial liability on a pure dollar basis may not provide a complete analysis since only the difference between the assets and liabilities (which are both very large numbers) is reflected. Another way to evaluate the unfunded actuarial liability and the progress made in its funding is to track the funded ratio, the ratio of the actuarial value of assets to the actuarial liability. The funded status information is shown below (in millions).

	6/30/07	6/30/08	6/30/09	6/30/10	6/30/11
Funded Ratio	90.2%	89.1%	81.2%	81.4%	79.9%
Unfunded Actuarial Liability (\$M)	\$2,266	\$2,665	\$4,895	\$4,931	\$5,682



*Negative investment experience in FY09 caused a significant drop in the funded ratio, which had been stable at around 90% since 2003. The funded ratio stabilized in 2010 due to a strong investment return in FY10 coupled with changes in the actuarial assumptions and benefit reductions. The decline in 2011 is due to an increase in the actuarial liability due to the adoption of a new mortality assumption.*



**SECTION I – EXECUTIVE SUMMARY**

**CONTRIBUTION RATE**

Under the Entry Age Normal cost method, the actuarial contribution rate consists of two components:

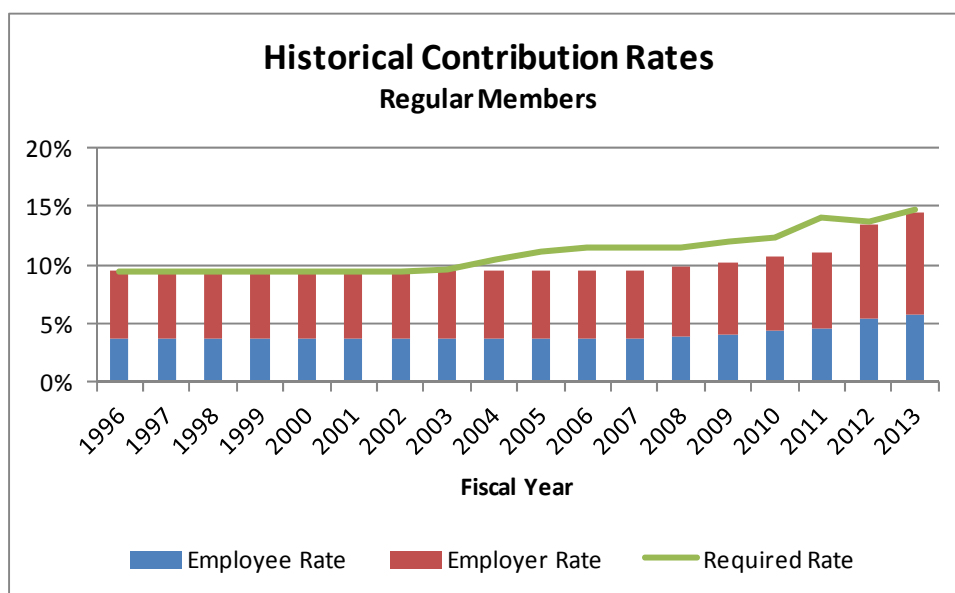
- a "normal cost" for the portion of projected liabilities allocated by the actuarial cost method to service of members during the year following the valuation date, and
- an "unfunded actuarial liability contribution" for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets on hand.

This valuation calculates the actuarially determined contribution rates effective July 1, 2012 for the year ending June 30, 2013. The Regular Members contribute according to the Schedule shown later in this section of the report. The remaining 5% of the active members, the Special Service Groups, contribute at an actuarially determined rate which changes each year.

See Exhibits 10 and 11 in Section IV for development of these rates which are summarized in the following table:

<b>Contribution Rate for FY 2013</b>	<b>Regular Membership</b>	<b>Special Service 1</b>	<b>Special Service 2</b>
1. Total Actuarial Contribution Rate	14.77%	19.80%	17.11%
2. Employee Contribution Rate	<u>5.78%</u>	<u>9.90%</u>	<u>6.84%</u>
3. Employer Contribution Rate (1) – (2)	8.99%	9.90%	10.27%
4. Employer Statutory Contribution Rate	<u>8.67%</u>	<u>9.90%</u>	<u>10.27%</u>
5. Shortfall (3) – (4)	0.32%	0.00%	0.00%

In 2006 and 2010, legislation was passed that increased the statutory contribution rate for Regular Members. A historical summary of the actual and required rates is shown in the graph below:

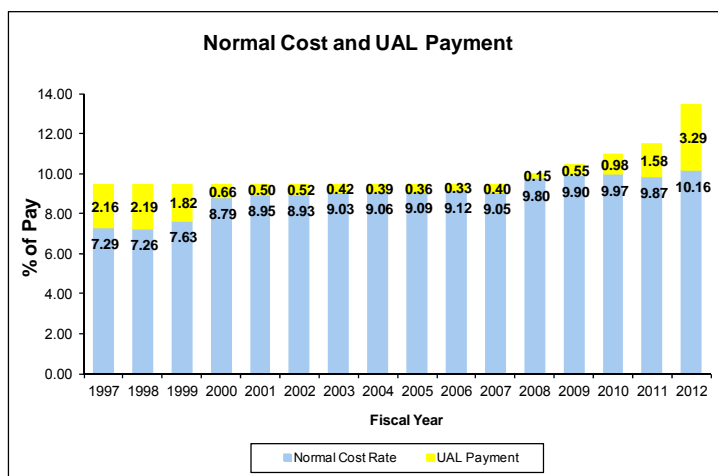


Due to the limitation on the increase in the statutory contribution rate, the rate for fiscal year ending June 30, 2013 is 14.45% (13.45% for FY2012 plus 1.0%). This rate is still less than the actuarial contribution rate for the Regular Membership, indicating that the UAL cannot be amortized in 30 years at the current contribution



## SECTION I – EXECUTIVE SUMMARY

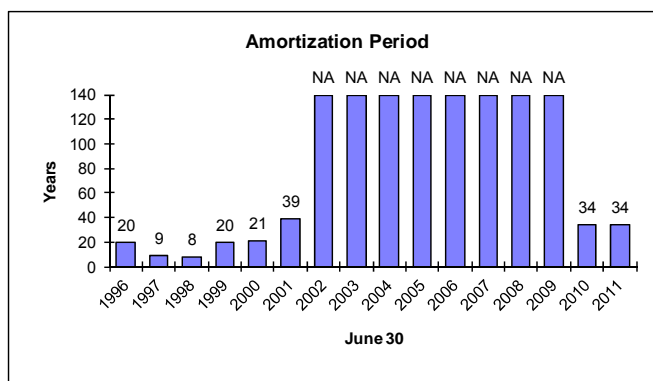
rate. The actuarial contribution rates in future years will vary from year to year and will be heavily dependent on future investment experience.



*This graph shows the normal cost rate and the contribution rate available to fund the UAL based on the statutory contribution rate payable in that fiscal year.*

*For a number of years, only a small portion of the total contribution rate was available to pay down the UAL. With recent contribution increases, that portion has increased, although it has still not reached the level necessary to amortize the UAL in 30 years.*

The actuarial contribution rate is determined based on the snapshot of the System taken on the valuation date, June 30, 2011, and applies only for the fiscal year beginning July 1, 2012. The actuarial contribution rate in future years will change each year as the deferred actuarial investment experience is recognized and other experience (both investment and demographic) impacts the System. The contribution rate may change by no more than 1.0% per year. Based on the current year’s valuation results, the statutory contribution rate is expected to converge with the actuarial contribution rate if all assumptions are met in future years.



*Based on the statutory contribution rate, the period to amortize the UAL was infinite in the 2002 to 2009 valuations. Due to the increase in the contribution rate in FY12 and FY13, more funds are available to finance the UAL and the years to amortize is finite. Future investment experience will have a significant impact on the System’s funding and the years to amortize the UAL.*

## SUMMARY

The investment return on the market value of assets for FY2011 was 19.91%. Due to this strong return, the actuarial value of assets is now less than the market value of assets and there is a small deferred investment gain. The System’s funded ratio declined slightly from 81.4% in last year’s valuation to 79.9% this year.

As mentioned above, the System utilizes an asset smoothing method in the valuation process. While this is a common procedure for public retirement systems, it is important to identify the potential impact of the deferred investment experience. The asset smoothing method impacts only the timing of when the actual market experience is recognized in the valuation process. Despite a return of 19.91% on the market value of assets, the return on the actuarial value of assets was only 7.8%. This is due to the impact of the remaining deferred investment experience from FY09. However, the elimination of \$2 billion in deferred investment losses represents a significant improvement in the outlook for the System’s long term funding.



The key valuation results from the June 30, 2011 actuarial valuation are shown below, using both actuarial and market value of assets.

<b><u>Total System</u></b>	\$(M)	
	<u>Actuarial Value</u>	<u>Market Value</u>
<b>Actuarial Contribution Rate</b>		
<b><u>Regular Members</u></b>		
Normal Cost	10.16%	10.16%
UAL Contribution	<u>4.61%</u>	<u>4.45%</u>
Total Contribution	14.77%	14.61%
UAL	\$ 5,565	\$ 5,387
Funded Ratio	79.2%	79.9%
<b><u>Special Service Group 1</u></b>		
Normal Cost	16.59%	16.59%
UAL Contribution	<u>3.21%</u>	<u>2.95%</u>
Total Contribution	19.80%	19.54%
UAL	\$ 57	\$ 53
Funded Ratio	87.9%	88.9%
<b><u>Special Service Group 2</u></b>		
Normal Cost	16.08%	16.08%
UAL Contribution	<u>1.03%</u>	<u>0.78%</u>
Total Contribution	17.11%	16.86%
UAL	\$ 59	\$ 45
Funded Ratio	94.2%	95.6%

The actuarial contribution rate determined in this year's valuation for Regular Members, which used an open 30 year amortization period, is 14.77% of payroll, as compared to the statutory FYE 2013 contribution rate of 14.45%. This rate is determined based on the snapshot of the System taken on the valuation date, June 30, 2011, and applies only for the fiscal year beginning July 1, 2012. The actuarial contribution rate in future years will change each year as the deferred actuarial investment experience is recognized and as other experience (both investment and demographic) impacts the System. While the statutory contribution rate can vary each year, the annual change is limited to 1.0%.

The long-term financial health of this retirement system is heavily dependent on two key items: (1) future investment returns and (2) contributions to the System. Given the System's current funded status, the deferred investment gains, and the difference between the actuarial contribution rate and the statutory contribution rate, the System's funded ratio is expected to improve over the long term, assuming all actuarial assumptions are met.

We conclude this executive summary by presenting comparative statistics and actuarial information on both the June 30, 2011 and June 30, 2010 valuations. All figures shown include the Regular Membership and the two Special Service Groups.



**SUMMARY OF HISTORICAL CHANGE  
IN  
IPERS UNFUNDED ACTUARIAL LIABILITY**

(\$Millions)	<u>FY99</u>	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>	<u>FY03</u>	<u>FY04</u>	<u>FY05</u>	<u>FY06</u>	<u>FY07</u>	<u>FY08</u>	<u>FY09</u>	<u>FY10</u>	<u>FY11</u>
<b>Unfunded Actuarial Liability (BOY<sup>1</sup>)</b>	555	390	327	441	1,255	1,867	2,176	2,289	2,507	2,266	2,665	4,895	4,931
• <b>Expected Change</b>													
– <b>From Amortization Method</b>	(37)	(32)	(22)	3	24	36	42	22	49	44	52	95	96
– <b>Contributions less than Actuarial Rate</b>					61	87	103	125	118	127	140	248	218
• <b>Investment Experience</b>	(730)	(781)	(81)	409	402	75	(89)	(235)	(622)	5	1,903	666	(66)
• <b>Liability and Other Experience</b>	(211)	515	217	258	125	82	57	242	187	214	135	(185)	(17)
• <b>Benefit Enhancements</b>	0	142	0	3	0	29	0	0	0	6	0	(674)	0
• <b>Change in Assumptions/Methods</b>	587	0	0	141	0	0	0	64	27	3	0	(114)	417
• <b>Change in Actuarial Software</b>	0	0	0	0	0	0	0	0	0	0	0	0	103
• <b>FED Transfer</b>	226	93	0	0	0	0	0	0	0	0	0	0	0
<b>Unfunded Actuarial Liability (EOY<sup>2</sup>)</b>	390	327	441	1,255	1,867	2,176	2,289	2,507	2,266	2,665	4,895	4,931	5,682
<b>Amortization Years-Regular Members</b>	20	21	39	*	*	*	*	*	*	*	*	34	34

\*Infinite

1 = Beginning of Year

2 = End of Year



**IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM  
PRINCIPAL RESULTS**

	June 30, 2011	June 30, 2010	% Chg
<b>SYSTEM MEMBERSHIP</b>			
1. Active Membership			
- Number of Members (excluding Retired/Reemployed)	164,436	165,626	(0.7)
- Projected Payroll for Upcoming Fiscal Year	\$6,706M	\$6,820M	(1.7)
- Average Salary	\$40,782	\$40,635	0.4
2. Inactive Membership			
- Number Not in Pay Status	65,965	65,571	0.6
- Number of Retirees/Beneficiaries	98,312	93,513	5.1
- Average Annual Benefit	\$13,939	\$13,139	6.1
<b>ASSETS AND LIABILITIES</b>			
1. Net Assets (excluding FED reserve)			
- Market Value	\$22,772M	\$19,539M	16.5
- Actuarial Value	22,575M	21,537M	4.8
2. Projected Liabilities			
- Retired Members	\$13,252M	\$11,770M	12.6
- Inactive Members	588M	552M	6.5
- Active Members	20,375M	19,879M	2.5
- Total Liability	34,215M	32,200M	6.3
3. Actuarial Liability	\$28,257M	\$26,468M	6.8
4. Unfunded Actuarial Liability	\$5,682M	\$4,931M	15.2
5. Funded Ratio			
a. Actuarial Value Assets/Actuarial Liability	79.89%	81.37%	(1.8)
b. Market Value Assets/Actuarial Liability	80.59%	73.82%	9.2
<b>SYSTEM CONTRIBUTIONS</b>			
Statutory Contribution Rate, Regular Members*	14.45%	13.45%	7.4
Employer Contribution Rate	8.67%	8.07%	7.4
Employee Contribution Rate	5.78%	5.38%	7.4
Total Actuarial Contribution Rate	14.77%	13.71%	7.7
Shortfall	0.32%	0.26%	23.1

M = (\$)Millions

\* Contribution rates for Special Service Group 1 are 9.90% for employers, 9.90% for employees

Contribution rates for Special Service Group 2 are 10.27% for employers, 6.84% for employees





**SECTION II**  
**SYSTEM ASSETS**



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In this section, the values assigned to the assets held by the System are presented. These assets are valued on two different bases: the market value and the actuarial value.

**Market Value of Net Assets**

For certain accounting statement purposes, System assets are valued at current market prices. These values represent the "snapshot" of the fair value of System assets as of the valuation date.

**Actuarial Value of Net Assets**

The market value of assets may not necessarily be the best measure of the System's ongoing ability to meet its obligations.

To arrive at a suitable value for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens volatility in the market value while still indirectly recognizing market value. The specific technique follows:

- Step 1:** Determine the expected value of plan assets at the current valuation date using the actuarial assumption for investment return on the prior actuarial value of assets and the actual receipts and disbursements of the fund for the previous 12 months.
- Step 2:** Subtract the expected value determined in Step 1 from the total market value of the Fund at the current valuation date.
- Step 3:** Multiply the difference between market and expected values determined in Step 2 by 25%.
- Step 4:** Add the expected value of Step 1 and the product of Step 3 to determine the actuarial value of assets.
- Step 5:** Verify the preliminary actuarial value of assets in Step 4 is not more than 120% of the market value of assets, nor less than 80% of the market value. If it is, adjust the actuarial value of assets so it falls within the 80% - 120% corridor.



## EXHIBIT 1

## ANALYSIS OF NET ASSETS AT MARKET VALUES

(\$ Millions)

	June 30, 2011		June 30, 2010	
	<u>Amount</u>	<u>% of Total</u>	<u>Amount</u>	<u>% of Total</u>
Cash & Equivalents	\$ 204	0.9%	\$ 209	1.1%
Capital Assets, Receivables and Payables	(1,187)	(5.1)	(764)	(3.8)
Domestic Equity	6,297	27.3	5,286	26.6
International Equity	3,474	15.1	2,667	13.4
Fixed Income	8,011	34.7	7,918	39.8
Real Estate	1,774	7.7	1,545	7.8
Real Assets	970	4.2	0	0.0
Private Equity/Debt	2,853	12.4	2,521	12.7
Securities Lending Collateral Pool	686	2.9	496	2.4
TOTAL NET ASSETS	\$ 23,082	100.0%	\$ 19,878	100.0%
FED Reserve (Before current year transfer)	(310)		(339)	
Current Year FED Transfer Payable	0		0	
Net Retirement System Assets	\$ 22,772		\$ 19,539	



## EXHIBIT 2

**SUMMARY OF FUND ACTIVITY**  
 (Market Value)

	<b>Regular Membership</b>	<b>Special Service Group 1*</b>	<b>Special Service Group 2**</b>	<b>FED Reserve</b>	<b>Total</b>
<b>NET RETIREMENT SYSTEM ASSETS ON JUNE 30, 2010</b>	\$18,375,944,888	\$353,287,674	\$809,738,861	\$339,109,205	\$19,878,080,628
<b>REVENUE</b>					
Employer contributions	430,330,067	7,994,058	29,711,050	0	468,035,175
Member contributions	278,650,585	7,994,058	19,827,274	0	306,471,917
Service purchase	14,290,644	112,084	444,079	0	14,846,807
Investment income	3,667,451,317	71,557,326	165,611,299	59,892,280	3,964,512,222
<b>Total Revenue</b>	<b>\$4,390,722,613</b>	<b>\$87,657,526</b>	<b>\$215,593,702</b>	<b>\$59,882,280</b>	<b>\$4,753,856,121</b>
<b>DISBURSEMENTS</b>					
Benefit payments	1,316,978,068	17,162,772	34,294,975	88,569,816	1,457,005,631
Member and employer refunds	36,234,850	835,569	4,144,298	0	41,214,717
Administrative expenses	9,303,261	66,824	280,174	0	9,650,259
Investment expenses	38,791,250	756,873	1,751,699	633,385	41,933,207
<b>Total Expenses</b>	<b>\$1,401,307,429</b>	<b>\$18,822,038</b>	<b>\$40,471,146</b>	<b>\$89,203,201</b>	<b>\$1,549,803,814</b>
<b>PRELIMINARY NET ASSETS ON JUNE 30, 2011</b>	\$21,365,360,072	\$422,123,162	\$984,861,417	\$309,788,284	\$23,082,132,935
<b>TRANSFERS</b>					
Membership changes	345,542	731,817	(1,077,359)	0	0
FED Reserve	0	0	0	0	0
<b>ADJUSTED NET ASSETS ON JUNE 30, 2011</b>	\$21,365,705,614	\$422,854,979	\$983,784,058	\$309,788,284	\$23,082,132,935

\* Includes Sheriffs and Deputies

\*\* Includes all other public safety members



## EXHIBIT 3

## ACTUARIAL VALUE OF NET ASSETS

	Regular Membership	Special Service Group 1*	Special Service Group 2**	Total
1. Actuarial Value of Assets as of June 30, 2010	\$20,260,943,904	\$388,636,933	\$887,877,723	\$21,537,458,560
2. Actual Receipts/Disbursements				
a. Contributions	723,271,296	16,100,200	49,982,403	789,353,899
b. Benefit Payments and Refunds	1,353,212,918	17,998,341	38,439,273	1,409,650,532
c. Net Change	(629,941,622)	(1,898,141)	11,543,130	(620,296,633)
3. Expected Value of Assets as of June 30, 2011 [(1) x 1.075] + [(2c) x (1.075) <sup>5</sup> ]	21,127,377,322	415,816,668	966,436,724	22,509,630,714
4. Preliminary Market Value of Assets as of June 30, 2011	21,365,360,072	422,123,162	984,861,417	22,772,344,651
5. Difference Between Market and Expected Values (4) - (3)	237,982,750	6,306,494	18,424,693	262,713,937
6. Preliminary Actuarial Value of Assets as of June 30, 2011 (3) + [(5) x 25%]	21,186,873,010	417,393,292	971,042,897	22,575,309,199
7. Transfers				
a. Membership changes	342,553	725,485	(1,068,038)	0
b. FED Reserve	0	0	0	0
8. Initial Actuarial Value of Assets as of June 30, 2011	\$21,187,215,563	\$418,118,777	\$969,974,859	\$22,575,309,199
9. Determination of Corridor				
a. 80% of Market Value of Assets	17,092,564,491	338,283,983	787,027,246	18,217,875,720
b. 120% of Market Value of Assets	25,638,846,737	507,425,975	1,180,540,870	27,326,813,582
10. Final Actuarial Value of Assets as of June 30, 2011 (8), but not less than (9a), nor greater than (9b)	21,187,215,563	418,118,777	969,974,859	22,575,309,199

\* Includes Sheriffs and Deputies

\*\* Includes all other public safety members



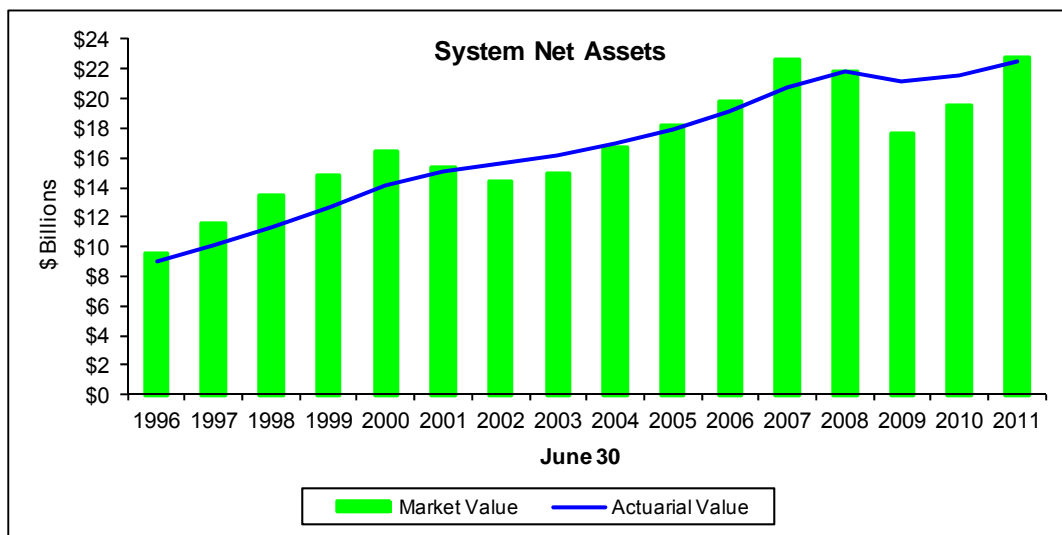
## EXHIBIT 4

## HISTORICAL COMPARISON (ACTUARIAL AND MARKET)

Value as of <u>June 30</u>	Actuarial Value <u>of Net Assets (AVA)</u>	Market Value <u>of Net Assets (MVA)</u>	<u>AVA/MVA</u>
1996	\$8,975,396,251	\$9,587,104,982	94%
1997	10,112,976,077	11,533,968,923	88%
1998 *	11,352,674,142	13,463,899,832	84%
1999 *	12,664,031,437	14,814,311,451	85%
2000 *	14,145,141,535	16,473,516,141	86%
2001	15,112,424,729	15,357,519,356	98%
2002	15,613,114,099	14,387,799,637	109%
2003	16,120,476,011	14,915,941,546	108%
2004	16,951,942,539	16,726,227,853	101%
2005	17,951,490,071	18,224,067,613	99%
2006	19,144,036,519	19,847,676,903	96%
2007	20,759,628,415	22,624,387,015	92%
2008	21,857,423,183	21,844,112,206	100%
2009	21,123,979,941	17,603,316,618	120%
2010	21,537,458,560	19,538,971,423	110%
2011	22,575,309,199	22,772,344,651	99%

Values are for combined regular membership and Special Service Groups, but exclude the Favorable Experience Dividend Reserve Account.

\*Reflects reduction for transfers to the Favorable Experience Dividend Reserve Account.





## EXHIBIT 5

## SUMMARY OF FAVORABLE EXPERIENCE DIVIDEND RESERVE

Market Value of FED Reserve as of June 30, 2011	\$	309,788,284
Transfer to FED Payable on January 15, 2012 Based on June 30, 2011 Valuation Results	\$	0
Total Value of FED Reserve as of June 30, 2011	\$	309,788,284

Payments to retirees from the FED Reserve Account are not a guaranteed benefit. The System Administration determines each year whether payments will be made and the percentage multiplier factor to be used for each year of retirement, up to the maximum 3% allowed by law. Factors considered by the Administration in this determination include, but are not limited to, the current value of the FED Reserve Account, past year payments from the reserve, the likelihood of future credits to and payments from the reserve, and distributions paid as a dividend under 97B.49F(1).

Based on the June 30, 2011 balance in the FED reserve and assuming (1) a 7.5% rate of return on the market value of assets in the future and (2) all other assumptions are exactly met, the FED reserve is projected to be depleted after making payments through the dates shown below.

Estimated Potential Payments (in millions) from the FED on January 31:

	<u>Maximum*</u>	<u>Expected**</u>
2012	\$295.1	\$105.2
2013	30.1 ***	118.4
2014	-	124.5 ***
2015	-	-
2016	-	-
2017	-	-
2018	-	-
2019	-	-

\* Based on the maximum payment of 3% for each year since retirement.

\*\* Based on 1.07% for each year since retirement.

\*\*\* Payment is equal to the remaining FED reserve balance.





**SECTION III**  
**SYSTEM LIABILITIES**



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## SECTION III

## SYSTEM LIABILITIES

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to the period in which benefits are earned, rather than to the period of benefit distribution. There are several methods used to allocate the cost of benefits to members' working lifetimes. These mathematical techniques are called actuarial cost methods.

The method used for this valuation is referred to as the "entry age normal" actuarial cost method. In general, under this method, a contribution that is a level percent of rates of pay is determined for each member, which if paid from date of hire to retirement date, will finance all future benefit payments. The level percent of pay that is developed is called the "**normal cost**". The sum of the individual normal cost dollar amounts is divided by covered payroll to determine the normal cost rate for the System.

The actuarial liability is that portion of the present value of future benefits (PVFB) that will not be paid by the normal costs in future years. The difference between this liability and the actuarial value of assets as of the same date is referred to as the **unfunded actuarial liability (UAL)**. If contributions exceed the normal cost for the year, after allowing for interest on the previous balance of the UAL, this liability will be reduced. Benefit changes, experience gains and losses, and changes in actuarial assumptions or procedures will also have an effect on the total actuarial liability and on the portion of it that is unfunded.

The UAL is projected to the following year to reflect the time lag from the valuation date to the date the contribution rates are effective and is then amortized according to the Actuarial Amortization Method adopted by the Investment Board.

Effective with the June 30, 2008 valuation, a transfer of assets is performed as of June 30th for all employees whose membership group changed since the prior valuation. The purpose behind the transfer is to better match the assets and liabilities for each membership group by having both the assets and liabilities for each member reside in their current membership group. When employees move between membership groups, an asset transfer for valuation purposes is made based on the funded ratio of their former group prior to the transfer. The asset transfer calculation is determined by multiplying the actuarial liability of the employee transferring by the funded ratio of their former group just prior to the transfer. The asset values after the transfers and the liabilities for the employees reside in their current membership group and are used to prepare the final valuation results.

A summary of the number of employees who transferred is shown below:

<b>From</b>	<b>To</b>		
	<b>Regular</b>	<b>SS1</b>	<b>SS2</b>
Regular		10	140
SS1	3		14
SS2	101	25	

The impact on the UAL from the transfer is shown below:

<b>Regular</b>	<b>SS1</b>	<b>SS2</b>
\$(914,180)	\$159,850	\$984,929



## EXHIBIT 6

**PRESENT VALUE OF FUTURE BENEFITS  
as of June 30, 2011**

The actuarial present value of future benefits represents the current value of benefits expected to ultimately be earned by the current members of the System as of the valuation date.

	Regular Membership	Special Service Group 1*	Special Service Group 2**	Total
Present Value of Future Benefits:				
Active Members				
Retirement benefits	\$17,407,578,147	\$368,078,490	\$909,744,430	\$18,685,401,067
Death benefits	196,897,097	4,863,653	23,096,256	224,857,006
Termination benefits	813,515,476	31,615,681	135,562,229	980,693,386
Disability benefits	425,611,410	11,094,321	47,232,389	483,938,120
Inactive Members				
Vested members	521,931,998	7,153,477	23,301,694	552,387,169
Nonvested members	34,796,003	133,469	862,411	35,791,883
Retired Members and Beneficiaries	12,698,425,109	185,018,412	368,833,144	13,252,276,665
<b>Total Present Value of Future Benefits</b>	<b>\$32,098,755,240</b>	<b>\$607,957,503</b>	<b>\$1,508,632,553</b>	<b>\$34,215,345,296</b>

\* Includes Sheriffs and Deputies

\*\* Includes all other public safety members



## EXHIBIT 7

**UNFUNDED ACTUARIAL LIABILITY**  
as of June 30, 2011

	<b>Regular Membership</b>	<b>Special Service Group 1*</b>	<b>Special Service Group 2**</b>	<b>Total</b>
1. Present Value of Future Benefits	\$32,098,755,240	\$607,957,503	\$1,508,632,553	\$34,215,345,296
2. Present Value of Future Normal Costs	<u>5,346,600,605</u>	<u>132,398,484</u>	<u>479,266,093</u>	<u>5,958,265,182</u>
3. Actuarial Liability (1) - (2)	\$26,752,154,635	\$475,559,019	\$1,029,366,460	\$28,257,080,114
4. Actuarial Value of Net Assets	<u>21,187,215,563</u>	<u>418,118,777</u>	<u>969,974,859</u>	<u>22,575,309,199</u>
5. Unfunded Actuarial Liability (3) - (4)	\$5,564,939,072	\$57,440,242	\$59,391,601	\$5,681,770,915
6. Funded Ratio (4) / (3)	79.2%	87.9%	94.2%	79.9%

\* Includes Sheriffs and Deputies

\*\* Includes all other public safety members



## EXHIBIT 8

**CALCULATION OF ACTUARIAL (GAIN)/LOSS AND ANY TRANSFER  
TO THE FAVORABLE EXPERIENCE DIVIDEND RESERVE  
Based on the June 30, 2011 Actuarial Valuation**

The Favorable Experience Dividend (FED) reserve account was created by legislation in 1998. The main purpose of the account is to help offset the negative impact of postretirement inflation for members who retired after June 30, 1990. The law provided that a portion of the favorable actuarial experience, if any, in subsequent years would be transferred to the FED reserve. Legislation passed in 2000 capped the FED reserve at ten years of expected payouts at the maximum level. Further legislation in 2006 prohibited further transfers to the FED until the System has no remaining UAL. The System has a UAL so no transfer is to be made this year.

1. June 30, 2010 Unfunded Actuarial Liability	\$	4,930,961,090
2. Normal Cost as of June 30, 2010		694,154,970
3. Employer and Employee Contributions*		774,507,092
4. Change due to membership transfers		230,599
5. Increase due to changing to CMC actuarial valuation software		103,873,045
6. Change due to new post-retirement mortality assumption		416,784,415
7. Expected Unfunded Actuarial Liability as of June 30, 2011 [(1)+(2)] * 1.075 - [(3) * (1.075) <sup>-5</sup> ] + (4) + (5) + (6)		5,764,861,779
8. Actual Unfunded Actuarial Liability as of June 30, 2011		5,681,770,915
9. (Gain)/loss (8) - (7)		(83,090,864)
10. Portion of gain to transfer to FED		N/A
11. Amount of Actuarial Value of Assets to transfer to FED	\$	0
12. Market value of FED transfer	\$	0

\* Does not include service purchases



**SECTION IV**  
**SYSTEM CONTRIBUTIONS**



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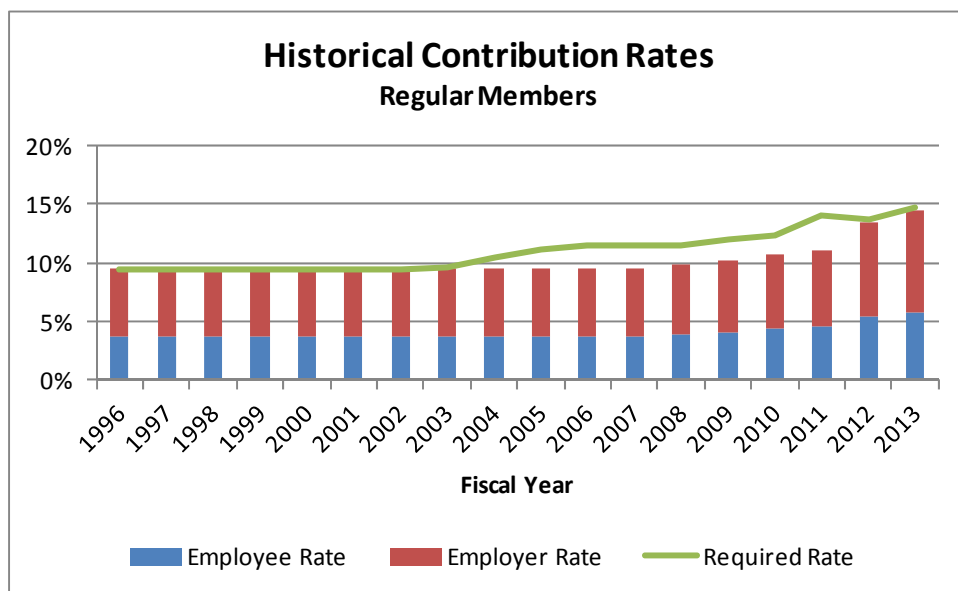




## SECTION IV – SYSTEM CONTRIBUTIONS

Under the funding method described in Appendix C, the contribution rate consists of two elements: (1) the normal cost rate and (2) the contribution rate to amortize the unfunded actuarial liability as a level percent of payroll. The unfunded actuarial liability represents the difference between the portion of the present value of future benefits allocated to service credited prior to the valuation date by the actuarial cost method and the actuarial value of assets as of that date.

In 2006 and 2010 legislation was passed that increased the statutory contribution rate for Regular Members. A historical summary of the actual and required rates is shown in the table below:



The impact of the software changes, assumption changes, and actual experience is summarized in the table below:

	Normal Cost			Actuarial Liability (\$M)		
	Regular	SS1	SS2	Regular	SS1	SS2
6/30/10 Valuation	9.87%	16.25%	15.80%	\$25,081	\$448	\$940
Actual Experience	-0.02%	+0.07%	-0.02%	+1,154	+25	+89
Change in Actuarial Software	+0.07%	+0.27%	+0.30%	+100	+3	0
Change in Mortality Assumption	+0.24%	0.00%	0.00%	+417	0	0
6/30/11 Valuation	10.16%	16.59%	16.08%	\$26,752	\$476	\$1,029

Effective with the June 30, 2008 valuation, a transfer of assets is performed on June 30th for all split service members (those members with service in more than one membership group) whose membership group changed since the prior valuation. In addition, IPERS also transfers assets for certain split service members who have not changed groups since the last valuation. As a result, all assets and liabilities for each member reside in their current membership group. When members move between membership groups, an asset transfer for valuation purposes is made based on the funded ratio of their former group prior to the transfer. The asset transfer calculation is determined by multiplying the actuarial liability of the members transferring by the funded ratio of their former group just prior to the transfer. The asset values after the transfers and the liabilities for the members reside in their current membership group and are used to prepare the final valuation results.



**EXHIBIT 9**  
**ACTUARIAL BALANCE SHEET**  
**as of June 30, 2011**

	<b>Regular Membership</b>	<b>Special Service Group 1*</b>	<b>Special Service Group 2**</b>	<b>Total</b>
<b><u>ASSETS</u></b>				
Actuarial value of assets	\$21,187,215,563	\$418,118,777	\$969,974,859	\$22,575,309,199
Present value of future normal costs	5,346,600,605	132,398,484	479,266,093	5,958,265,182
Present value of future contributions to amortize unfunded actuarial liability	<u>5,564,939,072</u>	<u>57,440,242</u>	<u>59,391,601</u>	<u>5,681,770,915</u>
<b>Total Net Assets</b>	<b>\$32,098,755,240</b>	<b>\$607,957,503</b>	<b>\$1,508,632,553</b>	<b>\$34,215,345,296</b>
<b><u>LIABILITIES</u></b>				
Present Value of Future Benefits:				
Retired Members and Beneficiaries	\$12,698,425,109	\$185,018,412	\$368,833,144	\$13,252,276,665
Active Members	18,843,602,130	415,652,145	1,115,635,304	20,374,889,579
Inactive Members	<u>556,728,001</u>	<u>7,286,946</u>	<u>24,164,105</u>	<u>588,179,052</u>
<b>Total Liabilities</b>	<b>\$32,098,755,240</b>	<b>\$607,957,503</b>	<b>\$1,508,632,553</b>	<b>\$34,215,345,296</b>

\* Includes Sheriffs and Deputies

\*\* Includes all other public safety members



## EXHIBIT 10

### ANALYSIS OF CONTRIBUTION RATE FOR REGULAR MEMBERSHIP

The actuarial cost method used to determine the required level of annual contributions by the employees and the employers to support the expected benefits is the Entry Age Normal Cost Method. Under this method, the total cost is comprised of the normal cost rate and the unfunded actuarial liability payment. The payment to amortize the unfunded actuarial liability is determined as a level percentage of payroll, based on the Actuarial Amortization Method adopted by the Investment Board. For the June 30, 2011 actuarial valuation the amortization period is an open 30 year period.

The contribution rate developed in this exhibit is based on the June 30, 2011 actuarial valuation and applies to the fiscal year beginning July 1, 2012 and ending June 30, 2013. The statutory contribution rate for that period is 14.45% (one percent more than the FY2012 contribution rate).

	<b>Regular Membership</b>
1. FYE 2012 Contribution Rate	13.45%
2. Normal Cost Rate	10.16%
3. Contribution Rate Applied to Fund the UAL for FYE 2012 (1) - (2)	3.29%
4. Unfunded Actuarial Liability(UAL)/Surplus on June 30, 2011	\$ 5,564,939,072
5. Expected Payroll for FYE 2012	\$ 6,439,924,631
6. Projected UAL on June 30, 2012 [(4) x 1.075] - [(3) x (5) x 1.075 <sup>-5</sup> ]	\$ 5,762,634,361
7. Amortization Period to Fund the UAL/Surplus	30 years
8. Amortization Factor (Level % of Pay)	19.33574
9. UAL Contribution Adjusted to Mid-year of FYE 2013 [(6) / (8)] x (1.075) <sup>-5</sup>	\$ 309,004,283
10. Expected Payroll for FYE 2013 (5) x 1.04	\$ 6,697,521,616
11. UAL Contribution Rate for FYE 2013 (9) / (10)	4.61%
12. Actuarial Contribution Rate for FYE 2013 (2) + (11)	14.77%
13. Statutory Contribution Rate for FYE 2013	14.45%
Employer Contribution Rate	8.67%
Employee Contribution Rate	5.78%
14. Amortization Period Necessary to Finance UAL as a Level Percent of Payroll with Contribution Rate of 14.45%	34 years



## EXHIBIT 11

### CALCULATION OF CONTRIBUTION RATES FOR SPECIAL SERVICE GROUPS

The actuarial cost method used to determine the actuarial contribution rate to be paid by the employees and the employers to support the expected benefits is the Entry Age Normal Cost Method. Under this method, the total cost is comprised of the normal cost rate plus the unfunded actuarial liability payment. The payment to amortize the unfunded actuarial liability is determined as a level percentage of payroll, based on the Actuarial Amortization Method adopted by the Investment Board. For the June 30, 2011 actuarial valuation the amortization period is an open 30 year period.

The contribution rate developed in this exhibit is based on the June 30, 2011 actuarial valuation and applies to the fiscal year beginning July 1, 2012 and ending June 30, 2013.

	<b>Special Service Group 1*</b>	<b>Special Service Group 2**</b>
1. FYE 2012 Contribution Rate	19.66%	16.62%
2. Normal Cost Rate	16.59%	16.08%
3. Contribution Rate Applied to Fund the UAL (1) - (2)	3.07%	0.54%
4. Unfunded Actuarial Liability(UAL)/Surplus on June 30, 2011	\$ 57,440,242	\$ 59,391,601
5. Expected Payroll for FYE 2012	\$ 94,222,945	\$ 310,734,855
6. Projected UAL on June 30, 2012 [(4) x 1.075] - [(3) x (5) x 1.075 <sup>-5</sup> ]	\$ 58,749,103	\$ 62,106,217
7. Amortization Period to Fund the UAL/Surplus	30 years	30 years
8. Amortization Factor (Level % of Pay)	19.33574	19.33574
9. UAL Contribution Adjusted to Mid-year FYE 2013 [(6) / (8)] x (1.075) <sup>-5</sup>	\$ 3,150,247	\$ 3,330,263
10. Expected Payroll for FYE 2013 (5) x 1.04	\$ 97,991,863	\$ 323,164,249
11. UAL Contribution Rate for FYE 2013 (9) / (10)	3.21%	1.03%
12. Actuarial Contribution Rate for FYE 2013 (2) + (11)	19.80%	17.11%
Employer Contribution Rate	9.90% (50%)	10.27% (60%)
Employee Contribution Rate	9.90% (50%)	6.84% (40%)

\* Includes Sheriffs and Deputies

\*\* Includes all other public safety members



**SECTION V**  
**PLAN ACCOUNTING INFORMATION**



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## SECTION V – PLAN ACCOUNTING INFORMATION

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GASB Statement No. 25, as amended by GASB Statement No. 50, establishes financial reporting standards for defined benefit pension plans. In addition to two required statements regarding plan assets, the statement requires two schedules and accompanying notes disclosing information relative to the funded status of the plan and historical contribution patterns.

- The Schedule of Funding Progress provides information about whether the financial strength of the Plan is improving or deteriorating over time.
- The Schedule of Employer Contributions provides historical information about the annual required contribution (ARC) and the percentage of the ARC that was actually contributed.



## EXHIBIT 12

## SUMMARY OF MEMBERSHIP

	<u>June 30, 2011</u>	<u>June 30, 2010</u>
Active Employees:		
Vested	126,471	128,735
Not yet vested	<u>37,965</u>	<u>36,891</u>
Total active employees*	164,436	165,626
Retirees and beneficiaries currently receiving benefits:	98,312	93,513
Inactive vested members entitled to benefits but not yet receiving them:	29,077	28,472
Inactive, nonvested members entitled to a refund of contributions**	36,888	37,099

\*Retired/reemployed members are included in retiree counts, but not the active count.

Counts are 8,321 for 2011 and 8,347 for 2010.

\*\* Includes deceased vested inactive members with employee contributions still held by the System.





## EXHIBIT 13

## SCHEDULE OF FUNDING PROGRESS

In accordance with Statement No. 25 of the Governmental Accounting Standards Board

Actuarial Valuation Date	Net Actuarial Value of Assets (a)	Actuarial Liability (AL) (b)	Unfunded AL (UAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (P/R) (c)	UAL as a Percentage of Covered P/R [(b-a)/c]
6/30/06	\$19,144,036,519	\$21,651,122,419	\$2,507,085,900	88.42%	\$5,523,863,321	45.39%
6/30/07	20,759,628,415	23,026,113,782	2,266,485,367	90.16%	5,781,706,199	39.20%
6/30/08	21,857,423,183	24,522,216,589	2,664,793,406	89.13%	6,131,445,367	43.46%
6/30/09	21,123,979,941	26,018,593,823	4,894,613,882	81.19%	6,438,643,124	76.02%
6/30/10	21,537,458,560	26,468,419,650	4,930,961,090	81.37%	6,571,182,005	75.04%
6/30/11	22,575,309,199	28,257,080,114	5,681,770,915	79.89%	6,574,872,719	86.42%

Actuarial Assumptions: See Appendix C



## EXHIBIT 14

## SCHEDULE OF EMPLOYER CONTRIBUTIONS

The Employer Annual Required Contribution (ARC) is determined based on GASB Statement No. 25, *Financial Reporting for Defined Benefit Pension Plans*. The dollar amount of ARC is calculated by dividing the contributions paid by the Regular Membership for the fiscal year by the statutory contribution rate to determine covered payroll for the year. The covered payroll is then multiplied by the actuarial contribution rate including the normal cost and the amortization of the UAL from the actuarial valuation two years prior (the June 30, 2009 valuation sets the ARC for FY11). The resulting dollar amount of ARC for the Regular Membership is added to the actual contributions paid by the Special Service 1 and the Special Service 2 employers to determine the total ARC for the fiscal year.

Fiscal Year Ending	Actuarially Required Contributions (ARC)				Percentage of ARC Contributed			
	Regular Membership	Special Service Group 1*	Special Service Group 2**	Total	Regular Membership	Special Service Group 1*	Special Service Group 2**	Total
6/30/06	364,424,911	6,228,675	16,888,833	387,542,419	82.7%	100.0%	100.0%	83.8%
6/30/07	387,578,925	6,577,652	17,723,013	411,879,590	82.2%	100.0%	100.0%	83.3%
6/30/08	408,882,080	6,301,171	17,644,966	432,828,217	86.4%	100.0%	100.0%	87.2%
6/30/09	441,951,764	6,365,911	24,736,688	473,054,363	86.9%	100.0%	100.0%	87.8%
6/30/10	467,839,274	6,725,778	27,328,184	501,893,236	88.7%	100.0%	100.0%	89.5%
6/30/11	530,692,453	7,994,058	29,711,050	568,397,561	81.1%	100.0%	100.0%	82.3%

\* Includes Sheriffs and Deputies

\*\* Includes all other public safety members



## EXHIBIT 15

### EXPECTED BENEFIT PAYMENTS

The following chart shows the expected benefit payments to be made over the next 20 years. These payments include those expected to be made to current retirees and beneficiaries, current active members, and current deferred vested members (included in the active values) if all actuarial assumptions are met in future years. The benefits reflected include expected refunds and death benefits as well as annuity payments.

These payouts do not include any current nonvested inactive members, any future members, or any FED payments.

<u>Fiscal</u> <u>Year End</u>	<u>Actives</u> <u>at 6/30/11</u>	<u>Retirees</u> <u>at 6/30/11</u>	<u>Total</u>
2012	\$ 121,092,000	\$ 1,366,647,000	\$ 1,487,739,000
2013	249,887,000	1,344,744,000	1,594,631,000
2014	381,590,000	1,321,720,000	1,703,310,000
2015	513,232,000	1,297,170,000	1,810,402,000
2016	645,927,000	1,271,408,000	1,917,335,000
2017	779,144,000	1,244,091,000	2,023,235,000
2018	913,933,000	1,215,219,000	2,129,152,000
2019	1,051,392,000	1,185,119,000	2,236,511,000
2020	1,190,070,000	1,153,518,000	2,343,588,000
2021	1,327,109,000	1,120,245,000	2,447,354,000
2022	1,463,750,000	1,086,356,000	2,550,106,000
2023	1,600,260,000	1,051,480,000	2,651,740,000
2024	1,734,212,000	1,015,402,000	2,749,614,000
2025	1,865,669,000	978,151,000	2,843,820,000
2026	1,996,378,000	939,766,000	2,936,144,000
2027	2,126,397,000	900,300,000	3,026,697,000
2028	2,254,151,000	859,819,000	3,113,970,000
2029	2,379,491,000	818,404,000	3,197,895,000
2030	2,502,712,000	776,150,000	3,278,862,000
2031	2,623,489,000	733,179,000	3,356,668,000



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**APPENDIX A**  
**SUMMARY STATISTICS ON**  
**SYSTEM MEMBERSHIP**



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**APPENDIX A**  
**SUMMARY STATISTICS ON SYSTEM MEMBERSHIP**

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**RECONCILIATION OF ACTIVE MEMBERS**

Below is a summary of the changes in active members (excluding retired reemployed members) between June 30, 2010 and June 30, 2011.

	Regular Membership	Special Service Groups		Total
		Group 1	Group 2	
6/30/2010 Starting count	157,088	1,546	6,992	165,626
New actives	14,108	38	514	14,660
Returning actives	2,461	12	104	2,577
Nonvested Terminations	(4,563)	(6)	(141)	(4,710)
Elected Refund	(2,699)	(18)	(149)	(2,866)
Vested Terminations	(3,843)	(22)	(158)	(4,023)
Total Withdrawals	(11,105)	(46)	(448)	(11,599)
Deaths	(178)	(1)	(6)	(185)
Disability Retirements	(104)	(2)	(13)	(119)
AE Benefits	(365)	0	(2)	(367)
Service Retirements	(5,444)	(40)	(193)	(5,677)
Total Retirements	(5,913)	(42)	(208)	(6,163)
Other/transfer	(477)	16	(19)	(480)
6/30/2011 Ending count	155,984	1,523	6,929	164,436





**HISTORICAL SUMMARY OF MEMBERS**

The following table displays selected historical data (including regular and both Special Service groups) as available.

Valuation Date June 30	Total Count	Number	Average					Number			Active/Retired Ratio
			Age	Entry Age	Service	Annual Pay (\$)	% Change	Retired Reemployed	Inactive Vested	Retired	
1991	206,105	135,104	43.7			21,885				49,881	2.71
1992	207,860	134,485	44.3			22,510	2.9%			51,247	2.62
1993	211,862	136,409	43.9			22,604	0.4%			54,212	2.52
1994	216,989	141,423	44.2			22,968	1.6%			54,295	2.60
1995	216,973	144,912	44.1			23,322	1.5%			56,353	2.57
1996	221,891	147,431	44.2			25,218	8.1%			57,914	2.55
1997	224,357	147,736	44.6	33.1	11.5	26,031	3.2%		28,377	59,320	2.49
1998	241,767	148,917	44.7	33.2	11.5	26,767	2.8%		31,202	61,648	2.42
1999	250,168	152,440	44.8	33.4	11.4	27,322	2.1%	4,853	34,332	63,396	2.40
2000	249,970	153,039	44.8	33.2	11.6	29,032	6.3%	5,050	31,219	65,712	2.33
2001	255,963	154,610	45.0	33.5	11.5	30,341	4.5%	4,886	32,650	68,703	2.25
2002	264,974	158,467	45.1	33.8	11.3	32,119	5.9%	5,387	34,792	71,715	2.21
2003	268,813	159,310	45.2	33.8	11.4	31,950	-0.5%	6,126	35,375	74,128	2.15
2004	272,573	160,003	45.4	33.8	11.6	33,082	3.5%	6,438	35,788	76,782	2.08
2005	267,214	160,876	45.6	33.8	11.8	34,066	3.0%	6,592	26,919	79,419	2.03
2006	271,007	163,052	45.7	34.0	11.7	35,475	4.1%	8,044	25,918	82,037	1.99
2007	276,421	165,216	45.7	34.0	11.7	36,615	3.2%	7,848	26,435	84,770	1.95
2008	282,778	167,823	45.7	34.1	11.6	38,515	5.2%	8,523	27,626	87,309	1.92
2009	294,076	167,691	46.0	34.2	11.8	40,326	4.7%	8,427	28,240	89,718	1.87
2010	287,611	165,626	46.0	34.1	11.9	40,635	0.8%	8,347	28,472	93,513	1.77
2011	291,825	164,436	45.8	34.1	11.7	40,782	0.4%	8,321	29,077	98,312	1.67

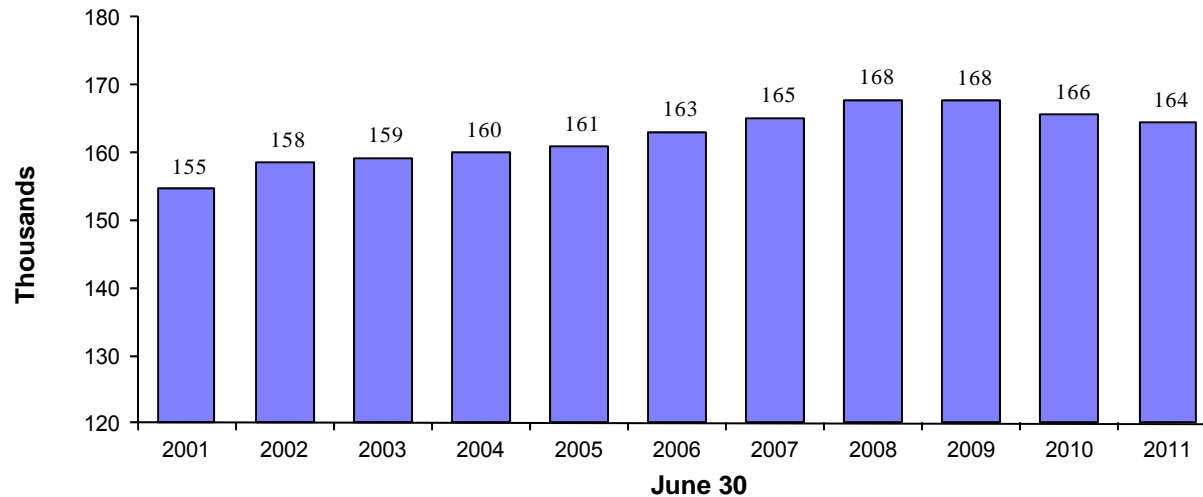
Note: Retired count includes retired reemployed members.



**SUMMARY OF ACTIVE MEMBERS**

	<b>Regular Membership</b>	<b>Special Service Groups</b>		<b>Total 6/30/2011</b>	<b>Total 6/30/2010</b>	<b>Percent Change</b>
		<b>Group 1</b>	<b>Group 2</b>			
Total Active Members	155,984	1,523	6,929	164,436	165,626	-0.7
Projected Covered						
Payroll* (millions)	\$6,305	\$93	\$308	\$6,706	\$6,730	-0.4
Average Age	46.0	41.4	41.8	45.8	46.0	-0.4
Average Entry Age	34.3	26.8	31.3	34.1	34.1	0.0
Average Earnings	\$40,420	\$60,895	\$44,510	\$40,782	\$40,635	0.4
Retired Reemployed	8,134	73	114	8,321	8,347	-0.3

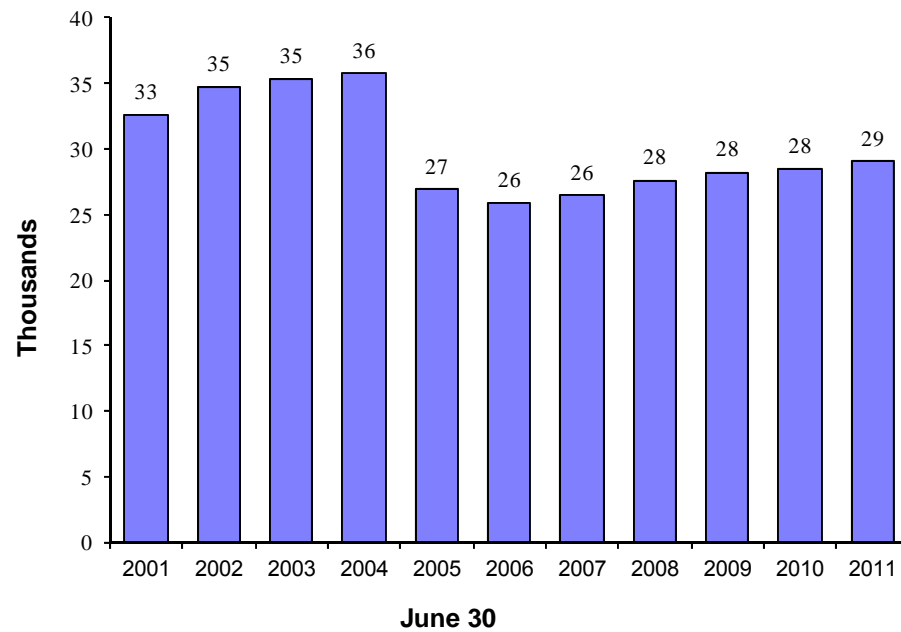
\*Payroll figures as of June 30 are actual amounts paid during the prior fiscal year, increased by the assumed salary increase factor for the upcoming fiscal year.





**SUMMARY OF INACTIVE VESTED MEMBERS**

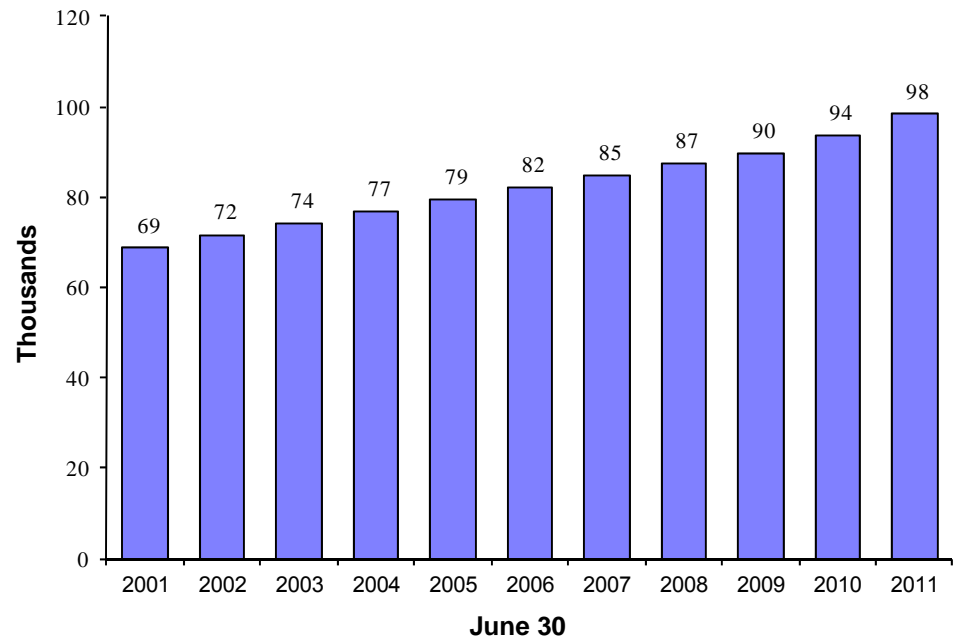
Regular Membership	Special Service		Total 6/30/2011	Total 6/30/2010	Percent Change
	Group 1	Group 2			
28,433	98	546	29,077	28,472	2.1%





**SUMMARY OF RETIRED MEMBERS AND BENEFICIARIES**

Regular Membership	Special Service		Total 6/30/2011	Total 6/30/2010	Percent Change
	Group 1	Group 2			
96,026	656	1,630	98,312	93,513	5.1%





**AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2011 FOR ACTIVE MEMBERS\***

Males and Females - Regular Membership

Age	<i>Years of Service</i>																		<i>Total</i>	
	<u>0 to 4</u>		<u>5 to 9</u>		<u>10 to 14</u>		<u>15 to 19</u>		<u>20 to 24</u>		<u>25 to 29</u>		<u>30 to 34</u>		<u>35 to 39</u>		<u>40 and over</u>		No.	Avg. Salary
	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary		
Under 25	5,581	13,432	77	23,996	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	5,658	13,576
25-29	9,717	27,491	2,812	38,265	30	37,767	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	12,559	29,928
30-34	6,424	27,877	6,525	42,522	1,924	47,386	13	36,912	0	NA	0	NA	0	NA	0	NA	0	NA	14,886	36,826
35-39	5,566	26,654	3,744	40,971	4,775	50,968	1,186	53,903	9	39,580	0	NA	0	NA	0	NA	0	NA	15,280	39,883
40-44	5,441	24,839	3,978	35,706	4,051	46,937	3,767	56,274	1,074	57,190	10	50,947	0	NA	0	NA	0	NA	18,321	40,459
45-49	4,779	23,546	4,246	32,264	4,227	40,158	2,897	49,054	3,324	58,851	1,293	57,355	83	49,276	0	NA	0	NA	20,849	40,062
50-54	4,172	24,376	3,672	32,323	4,492	37,193	3,511	43,103	3,092	52,780	3,307	60,368	2,249	56,573	105	52,196	0	NA	24,600	42,046
55-59	4,039	21,712	2,937	30,994	3,479	36,332	3,253	40,965	3,191	47,889	2,440	55,453	3,113	61,797	1,203	60,029	30	52,451	23,685	41,911
60-64	4,220	15,472	2,422	25,943	2,143	35,840	2,026	39,858	2,084	46,131	1,534	51,603	1,061	56,897	1,050	65,704	294	59,645	16,834	36,110
65-69	2,516	9,276	1,516	16,790	739	25,924	469	33,898	407	41,379	253	43,559	178	46,033	114	54,650	128	66,028	6,320	21,295
70 & over	2,527	12,153	1,681	10,997	683	10,944	138	13,354	35	23,857	23	30,042	14	35,981	11	37,361	14	49,744	5,126	12,027
Totals	54,982	22,297	33,610	33,794	26,543	41,159	17,260	46,442	13,216	51,999	8,860	56,488	6,698	58,639	2,483	61,750	466	60,638	164,118	36,668

\*Including retired/reemployed members



**AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2011 FOR ACTIVE MEMBERS\***

Males and Females - Special Service Group 1

Age	<u>0 to 4</u>		<u>5 to 9</u>		<u>10 to 14</u>		<u>15 to 19</u>		<u>20 to 24</u>		<u>25 to 29</u>		<u>30 to 34</u>		<u>35 to 39</u>		<u>40 and over</u>		<u>Total</u>	
	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary
Under 25	36	36,321	1	46,723	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	37	36,602
25-29	94	44,603	55	50,011	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	149	46,599
30-34	54	46,913	123	55,135	69	58,141	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	246	54,173
35-39	26	47,334	49	54,366	120	59,235	50	58,942	1	61,112	0	NA	0	NA	0	NA	0	NA	246	56,955
40-44	18	46,806	42	56,040	72	59,381	89	62,473	42	58,967	0	NA	0	NA	0	NA	0	NA	263	58,967
45-49	8	55,589	13	59,217	32	59,352	58	60,443	86	65,005	38	67,378	1	108,634	0	NA	0	NA	236	63,046
50-54	7	28,407	5	54,230	27	59,299	22	60,799	47	62,069	40	64,377	35	69,737	1	48,676	0	NA	184	61,905
55-59	26	24,463	6	53,748	3	46,749	14	63,304	22	61,719	24	62,619	27	66,047	21	65,787	0	NA	143	56,018
60-64	21	14,292	9	44,562	1	64,572	5	52,303	10	58,767	8	65,339	5	59,363	11	66,822	0	NA	70	45,279
65-69	2	13,240	7	12,022	1	10,975	0	NA	1	72,094	0	NA	0	NA	0	NA	1	51,652	12	20,446
70 & over	3	22,484	7	24,420	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	10	23,839
Totals	295	39,933	317	52,417	325	58,804	238	60,917	209	62,503	110	65,100	68	68,081	33	65,613	1	51,652	1,596	55,812

\*Including retired/reemployed members

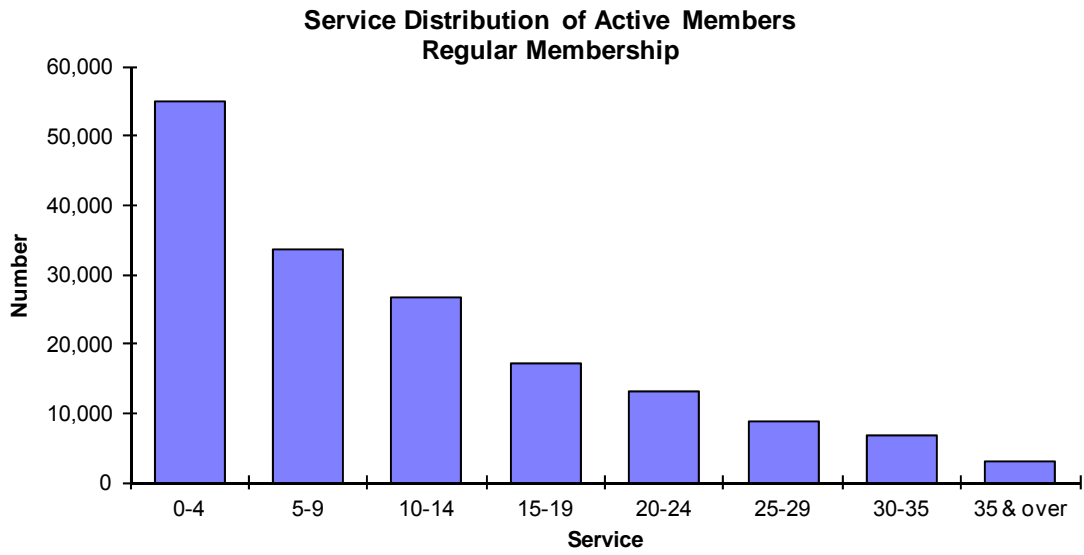
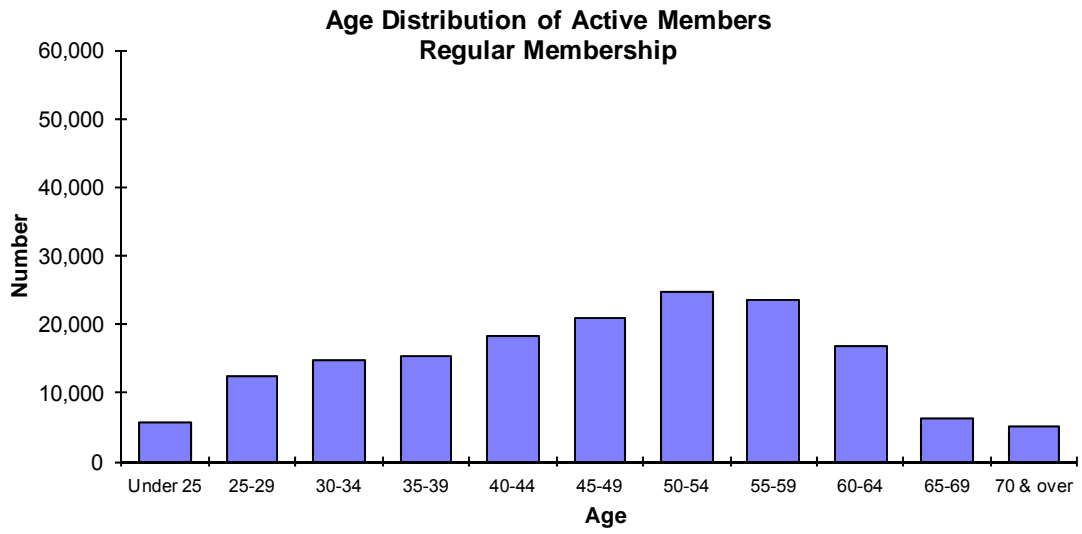


**AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2011 FOR ACTIVE MEMBERS\***

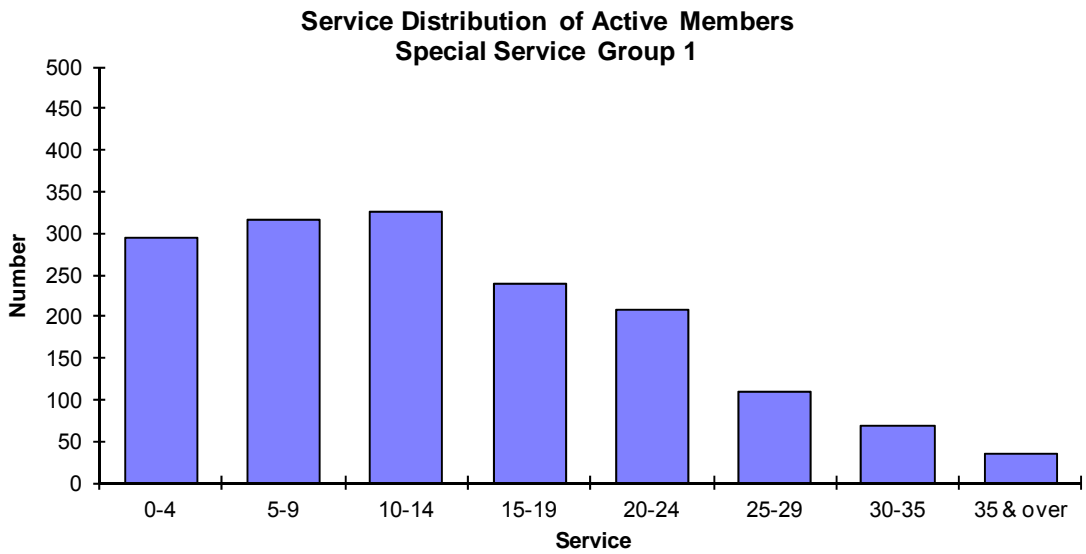
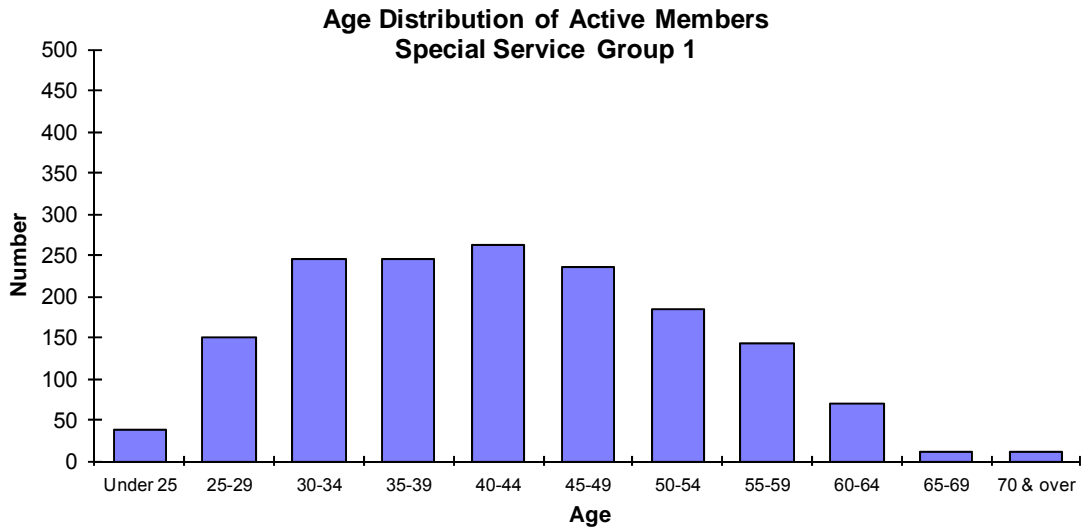
Males and Females - Special Service Group 2

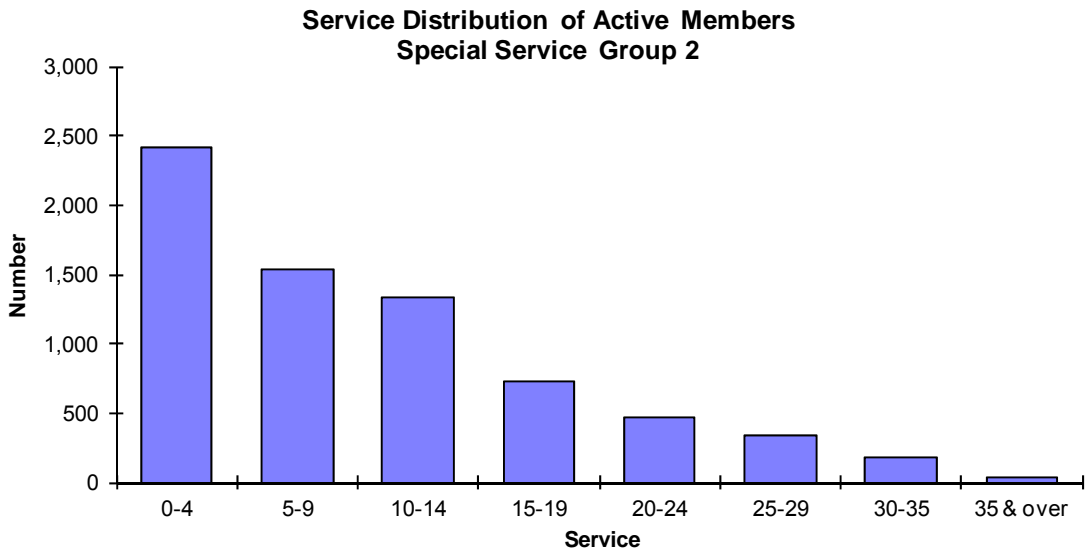
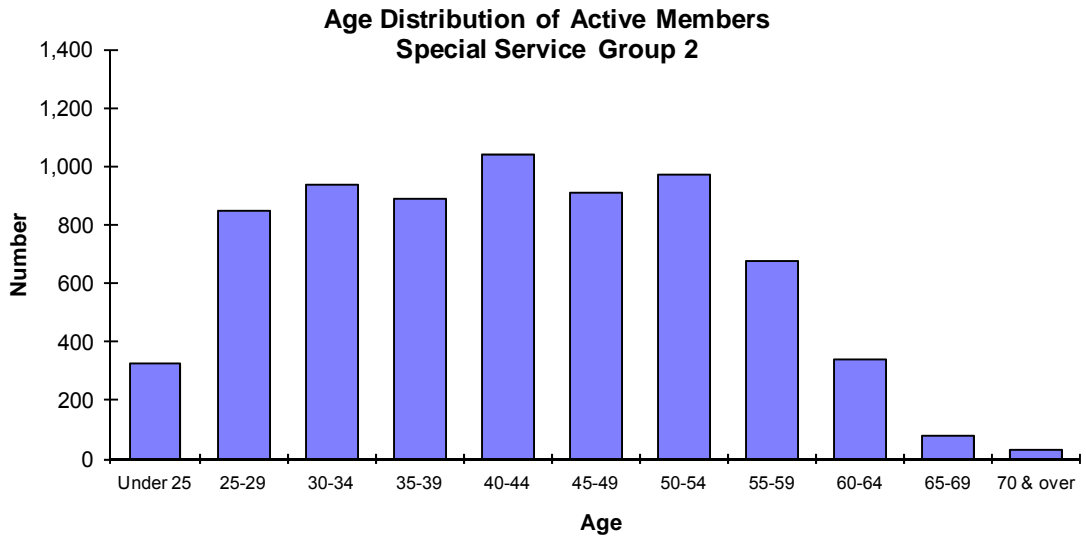
Age	<i>Years of Service</i>																		<i>Total</i>			
	<u>0 to 4</u>		<u>5 to 9</u>		<u>10 to 14</u>		<u>15 to 19</u>		<u>20 to 24</u>		<u>25 to 29</u>		<u>30 to 34</u>		<u>35 to 39</u>		<u>40 and over</u>					
	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary		
Under 25	318	22,153	9	30,703	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	327	22,388
25-29	647	32,501	195	40,874	3	53,769	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	845	34,509
30-34	423	31,226	358	43,090	152	45,644	1	43,438	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	934	38,133
35-39	272	30,166	249	38,138	292	51,466	74	52,203	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	887	41,254
40-44	235	30,191	217	37,493	287	49,139	216	53,066	82	54,390	2	24,355	0	NA	0	NA	0	NA	0	NA	1,039	43,604
45-49	165	31,437	175	36,027	195	49,190	139	50,539	157	57,530	77	59,289	3	60,703	0	NA	0	NA	0	NA	911	45,981
50-54	136	30,802	140	37,410	182	49,088	131	47,732	125	54,544	157	59,855	99	61,743	2	42,962	0	NA	0	NA	972	48,382
55-59	107	25,663	108	38,103	130	46,764	102	48,010	65	49,440	75	57,701	67	59,359	22	58,428	1	85,199	1	85,199	677	45,386
60-64	67	17,631	60	34,922	79	51,355	45	39,004	36	48,574	27	51,986	15	57,984	12	58,683	1	102,747	1	102,747	342	40,695
65-69	28	11,790	17	23,256	15	42,332	10	28,685	5	52,910	1	45,481	0	NA	1	35,610	0	NA	0	NA	77	25,882
70 & over	16	13,213	4	12,002	6	31,647	4	34,144	0	NA	1	12,883	1	37,976	0	NA	0	NA	0	NA	32	19,898
Totals	2,414	29,174	1,532	38,839	1,341	49,006	722	49,477	470	54,334	340	58,237	185	60,430	37	57,058	2	93,973	7,043	93,973	7,043	41,202

\*Including retired/reemployed members











**AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2011 FOR INACTIVE VESTED MEMBERS**  
**Males and Females - Regular Membership**

Age	<u>0 to 3</u>		<u>4 to 9</u>		<u>10 to 14</u>		<u>15 to 19</u>		<u>20 to 24</u>		<u>25 to 29</u>		<u>30 to 34</u>		<u>35 to 39</u>		<u>40 and over</u>		<u>Total</u>	
	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3
Under 25	0	NA	40	10,505	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	40	10,505
25-29	0	NA	484	20,958	2	4,357	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	486	20,889
30-34	0	NA	1,402	26,604	45	29,385	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	1,447	26,691
35-39	0	NA	1,584	26,180	264	33,715	22	39,924	0	NA	0	NA	0	NA	0	NA	0	NA	1,870	27,405
40-44	0	NA	1,965	23,768	527	31,416	112	39,865	11	53,705	0	NA	0	NA	0	NA	0	NA	2,615	26,125
45-49	0	NA	2,362	20,137	662	26,797	261	34,333	94	41,758	19	33,738	1	33,445	0	NA	0	NA	3,399	23,202
50-54	0	NA	2,891	18,130	1,188	24,293	553	31,630	300	38,119	101	40,217	38	48,532	3	56,863	0	NA	5,074	22,916
55-59	2,265	12,195	2,655	17,819	1,086	21,165	522	25,801	246	32,878	62	36,851	24	42,597	2	39,135	0	NA	6,862	17,904
60-64	1,963	9,674	1,480	15,537	582	18,661	261	22,430	98	30,789	31	35,351	7	44,062	2	47,408	0	NA	4,424	14,289
65-69	997	7,838	502	10,632	139	11,470	47	16,933	15	26,958	8	34,237	5	31,552	0	NA	0	NA	1,713	9,561
70 & over	339	5,768	114	7,000	32	5,438	9	7,076	5	20,722	1	13,834	1	21,183	2	15,157	0	NA	503	6,282
Totals	5,564	10,133	15,479	20,186	4,527	24,078	1,787	29,086	769	35,845	222	37,708	76	44,571	9	41,554	0	NA	28,433	20,030



**AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2011 FOR INACTIVE VESTED MEMBERS**  
**Males and Females - Special Service Group 1**

Age	<u>0 to 3</u>		<u>4 to 9</u>		<u>10 to 14</u>		<u>15 to 19</u>		<u>20 to 24</u>		<u>25 to 29</u>		<u>30 to 34</u>		<u>35 to 39</u>		<u>40 and over</u>		<u>Total</u>	
	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3
Under 25	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
25-29	0	NA	4	37,373	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	4	37,373
30-34	0	NA	10	43,287	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	10	43,287
35-39	0	NA	13	44,535	7	40,305	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	20	43,054
40-44	0	NA	5	35,189	7	46,255	5	50,248	0	NA	0	NA	0	NA	0	NA	0	NA	17	44,175
45-49	0	NA	8	38,586	3	32,244	6	50,566	3	47,691	0	NA	0	NA	0	NA	0	NA	20	42,594
50-54	0	NA	7	27,303	6	39,818	5	37,827	1	36,391	0	NA	0	NA	0	NA	0	NA	19	34,503
55-59	0	NA	1	19,632	1	19,965	3	25,763	0	NA	0	NA	0	NA	0	NA	0	NA	5	23,377
60-64	0	NA	1	32,278	0	NA	0	NA	1	43,821	0	NA	0	NA	0	NA	0	NA	2	38,050
65-69	1	2,633	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	1	2,633
70 & over	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
<b>Totals</b>	<b>1</b>	<b>2,633</b>	<b>49</b>	<b>38,550</b>	<b>24</b>	<b>40,064</b>	<b>19</b>	<b>43,213</b>	<b>5</b>	<b>44,657</b>	<b>0</b>	<b>NA</b>	<b>0</b>	<b>NA</b>	<b>0</b>	<b>NA</b>	<b>0</b>	<b>NA</b>	<b>98</b>	<b>39,770</b>

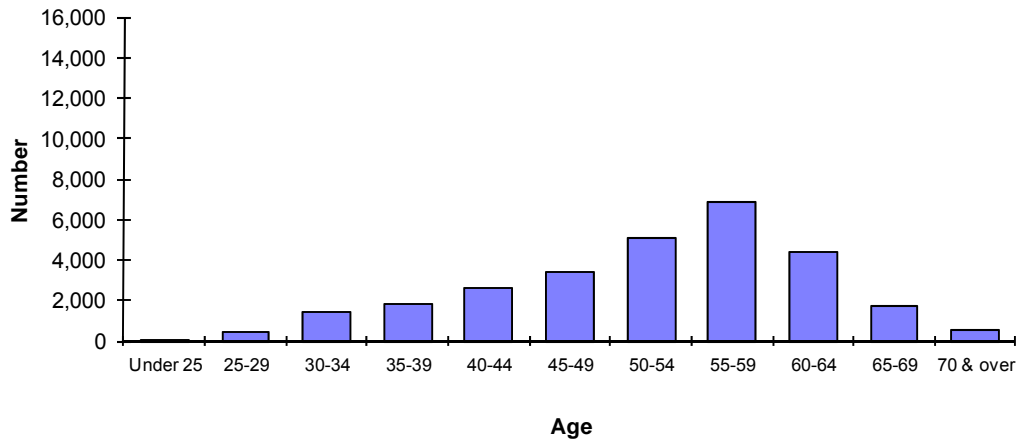


**AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2011 FOR INACTIVE VESTED MEMBERS**  
**Males and Females - Special Service Group 2**

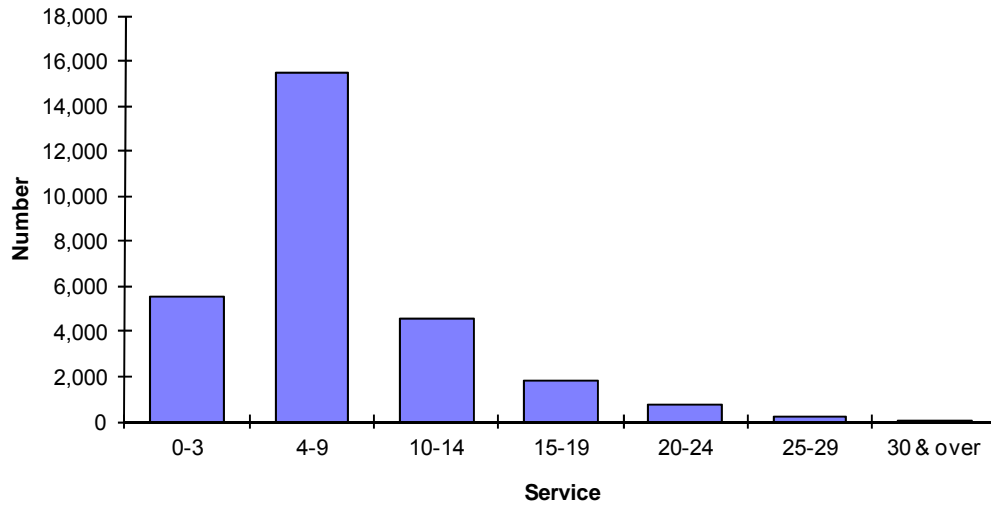
Age	<u>0 to 3</u>		<u>4 to 9</u>		<u>10 to 14</u>		<u>15 to 19</u>		<u>20 to 24</u>		<u>25 to 29</u>		<u>30 to 34</u>		<u>35 to 39</u>		<u>40 and over</u>		<u>Total</u>	
	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3	No.	Avg. Hi-3
Under 25	0	NA	3	16,866	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	3	16,866
25-29	0	NA	30	27,262	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	30	27,262
30-34	0	NA	45	24,648	2	18,966	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	47	24,406
35-39	0	NA	62	18,795	16	37,742	2	31,568	0	NA	0	NA	0	NA	0	NA	0	NA	80	22,904
40-44	0	NA	50	15,995	32	26,822	4	44,234	3	45,296	0	NA	0	NA	0	NA	0	NA	89	22,145
45-49	0	NA	47	17,854	21	31,536	9	33,145	6	43,290	1	46,525	0	NA	0	NA	0	NA	84	25,071
50-54	0	NA	46	17,487	28	23,328	16	26,236	4	45,460	4	46,078	7	44,962	0	NA	0	NA	105	24,364
55-59	17	18,142	28	9,257	7	14,748	6	38,377	3	44,909	3	34,532	2	64,864	0	NA	0	NA	66	19,230
60-64	9	20,422	9	6,614	6	15,146	4	9,775	0	NA	0	NA	0	NA	0	NA	0	NA	28	13,332
65-69	7	11,638	2	1,830	1	1,228	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	10	8,636
70 & over	1	508	2	1,392	1	593	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	4	971
<b>Totals</b>	<b>34</b>	<b>16,888</b>	<b>324</b>	<b>18,245</b>	<b>114</b>	<b>26,417</b>	<b>41</b>	<b>29,939</b>	<b>16</b>	<b>44,512</b>	<b>8</b>	<b>41,804</b>	<b>9</b>	<b>49,385</b>	<b>0</b>	<b>NA</b>	<b>0</b>	<b>NA</b>	<b>546</b>	<b>22,373</b>



**Age Distribution of Inactive Vested Members  
Regular Membership**

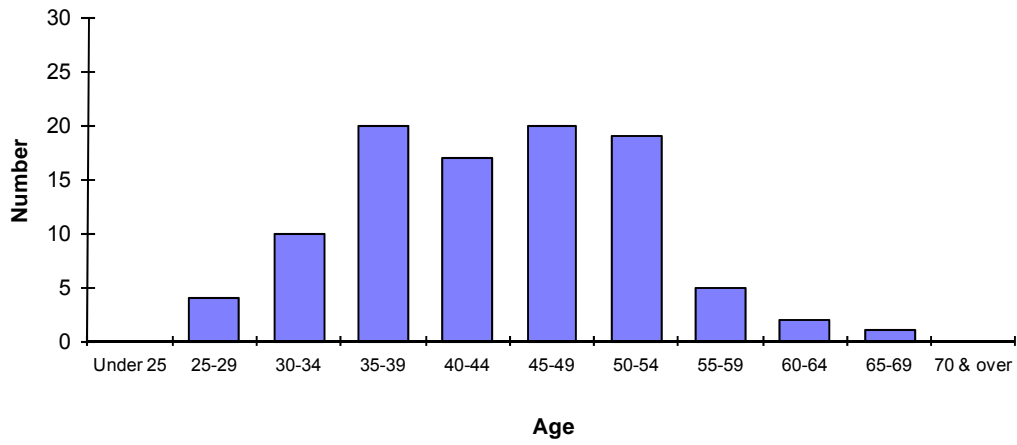


**Service Distribution of Inactive Vested Members  
Regular Membership**

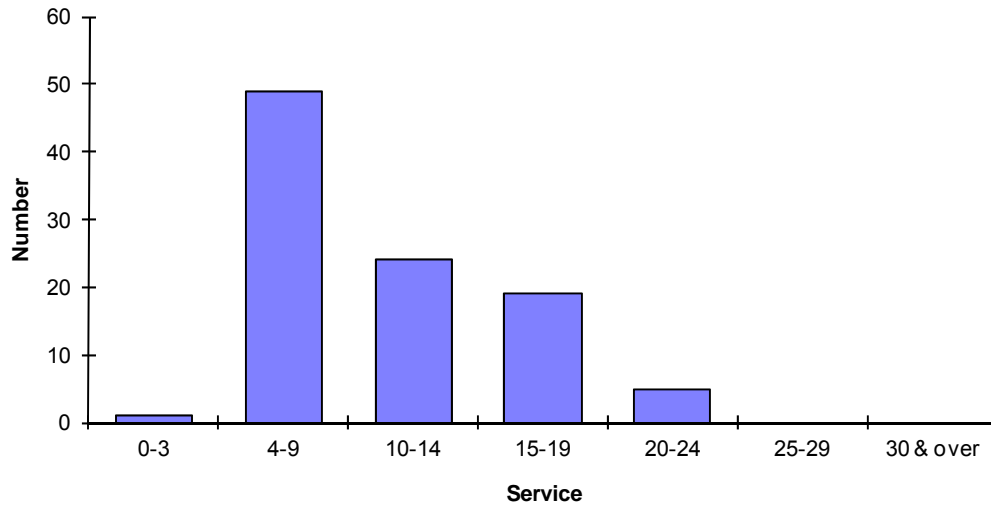




**Age Distribution of Inactive Vested Members  
Special Service Group 1**

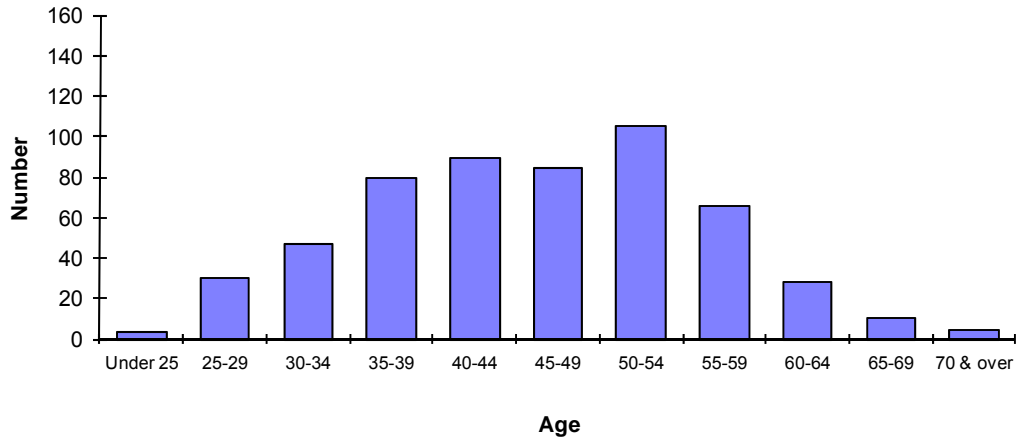


**Service Distribution of Inactive Vested Members  
Special Service Group 1**

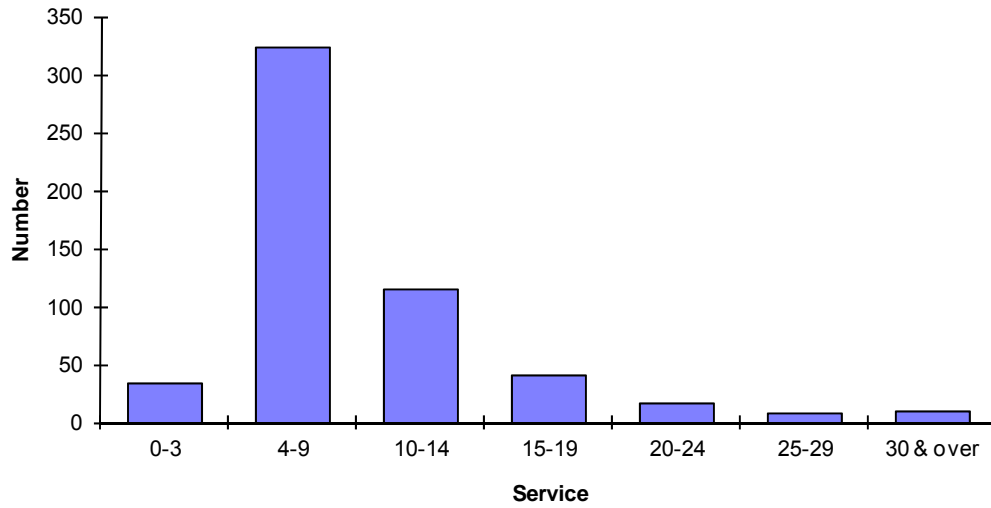




**Age Distribution of Inactive Vested Members  
Special Service Group 2**



**Service Distribution of Inactive Vested Members  
Special Service Group 2**







**ANALYSIS OF RETIREES AND BENEFICIARIES**

Males and Females - Regular Membership

Age	Number of Members and Beneficiaries										Average Annual Benefit	
	Chpt 97	Option 1	Option 2	Option 3	Option 4	Contingent			Period			Total
						Beneficiary	Option 5	Option 6	Certain	Total		
Under 40	0	7	2	3	4	34	1	2	8	61	\$6,459	
40 to 44	0	14	12	2	4	19	3	6	2	62	6,687	
45 to 49	0	45	18	12	14	34	4	12	8	147	8,098	
50 to 54	0	121	30	29	33	78	16	29	5	341	9,278	
55 to 59	0	1,301	1,231	762	451	204	491	1,426	11	5,877	21,251	
60 to 64	0	3,638	3,607	2,465	1,151	352	1,550	4,076	29	16,868	21,122	
65 to 69	0	4,572	4,085	2,939	1,741	468	1,849	3,419	46	19,119	16,772	
70 to 74	0	4,554	3,571	2,571	2,215	605	1,973	1,436	21	16,946	13,017	
75 to 79	0	4,268	3,075	1,747	2,443	779	1,775	245	18	14,350	9,996	
80 to 84	0	3,403	2,698	1,088	1,566	764	1,207	33	8	10,767	7,310	
85 to 89	0	2,539	1,719	708	766	608	796	2	3	7,141	5,521	
90 to 94	0	1,485	552	268	257	231	528	0	0	3,321	4,768	
95 to 99	2	484	66	82	39	42	170	0	0	885	3,891	
100 & up	1	87	8	17	2	6	20	0	0	141	3,565	
Counts	3	26,518	20,674	12,693	10,686	4,224	10,383	10,686	159	96,026	\$13,631	
% of Total	0.0%	27.6%	21.5%	13.2%	11.1%	4.4%	10.8%	11.1%	0.2%	100.0%		



**ANALYSIS OF RETIREES AND BENEFICIARIES**

Males and Females - Special Service Group 1

Age	Number of Members and Beneficiaries									Average
	Option 1	Option 2	Option 3	Option 4	Contingent Beneficiary	Option 5	Option 6	Period Certain	Total	Annual Benefit
Under 40	0	0	0	0	1	0	0	0	1	\$6,159
40 to 44	2	0	0	0	1	0	0	0	3	21,452
45 to 49	4	1	0	0	2	0	0	0	7	24,546
50 to 54	9	7	6	10	2	0	23	0	57	36,858
55 to 59	24	14	11	36	1	6	38	0	130	30,784
60 to 64	38	20	6	27	5	8	63	0	167	29,977
65 to 69	30	13	10	30	5	7	25	0	120	25,507
70 to 74	14	7	6	24	5	5	12	0	73	21,354
75 to 79	17	5	4	18	6	3	3	0	56	14,527
80 to 84	9	4	1	7	8	0	0	0	29	10,576
85 to 89	1	2	0	4	4	0	0	0	11	7,040
90 to 94	0	1	0	1	0	0	0	0	2	41,621
95 to 99	0	0	0	0	0	0	0	0	0	NA
100 & up	0	0	0	0	0	0	0	0	0	NA
Counts	148	74	44	157	40	29	164	0	656	\$26,196
% of Total	22.6%	11.3%	6.7%	23.9%	6.1%	4.4%	25.0%	0.0%	100.0%	



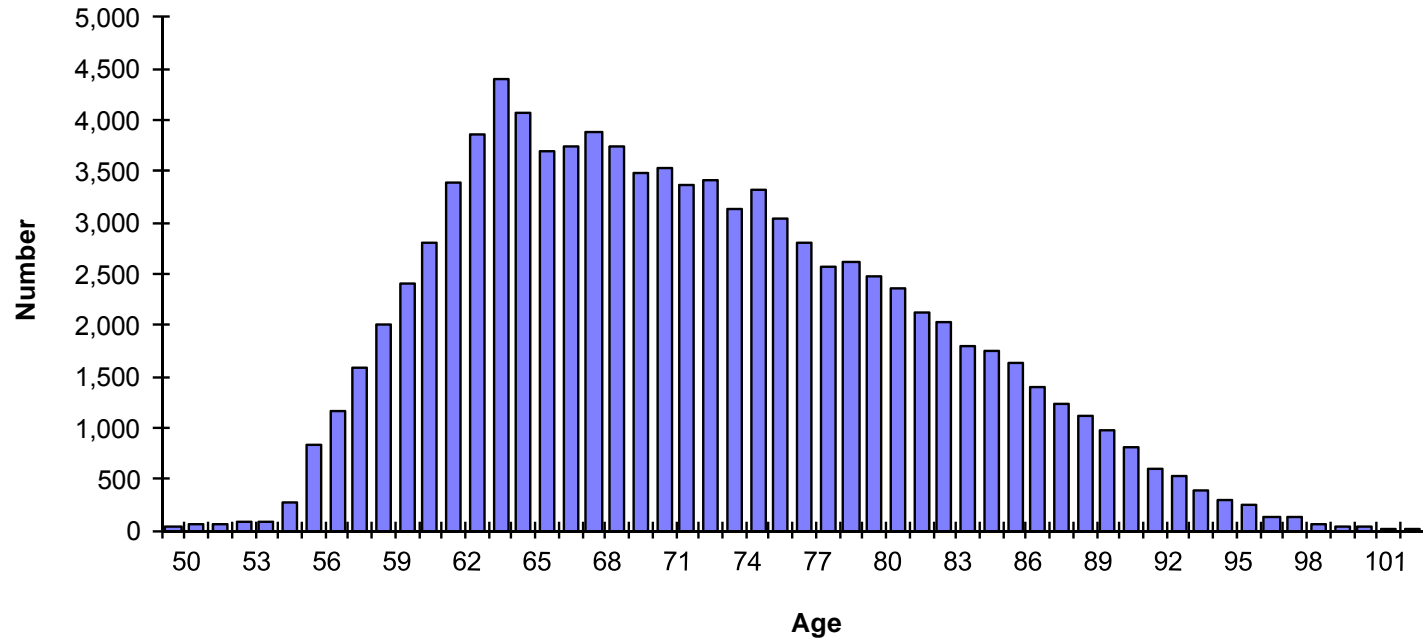
**ANALYSIS OF RETIREES AND BENEFICIARIES**

Males and Females - Special Service Group 2

Age	Number of Members and Beneficiaries									Average Annual Benefit
	Option 1	Option 2	Option 3	Option 4	Contingent Beneficiary	Option 5	Option 6	Period Certain	Total	
Under 40	1	0	0	0	0	0	0	0	1	\$25,970
40 to 44	0	0	0	3	0	1	2	0	6	24,899
45 to 49	5	1	3	2	1	0	3	0	15	17,576
50 to 54	4	2	7	6	3	0	7	0	29	18,507
55 to 59	65	46	18	52	12	8	96	0	297	28,079
60 to 64	103	73	47	90	11	19	167	1	511	25,059
65 to 69	80	46	26	59	9	19	82	1	322	20,497
70 to 74	45	31	21	66	20	15	40	0	238	15,814
75 to 79	31	6	5	41	14	8	4	0	109	12,394
80 to 84	26	5	2	23	8	4	0	0	68	10,215
85 to 89	7	1	0	6	8	7	0	0	29	7,183
90 to 94	2	0	0	1	1	1	0	0	5	33,140
95 to 99	0	0	0	0	0	0	0	0	0	NA
100 & up	0	0	0	0	0	0	0	0	0	NA
Counts	369	211	129	349	87	82	401	2	1,630	\$21,335
% of Total	22.6%	12.9%	7.9%	21.4%	5.3%	5.0%	24.6%	0.1%	100.0%	

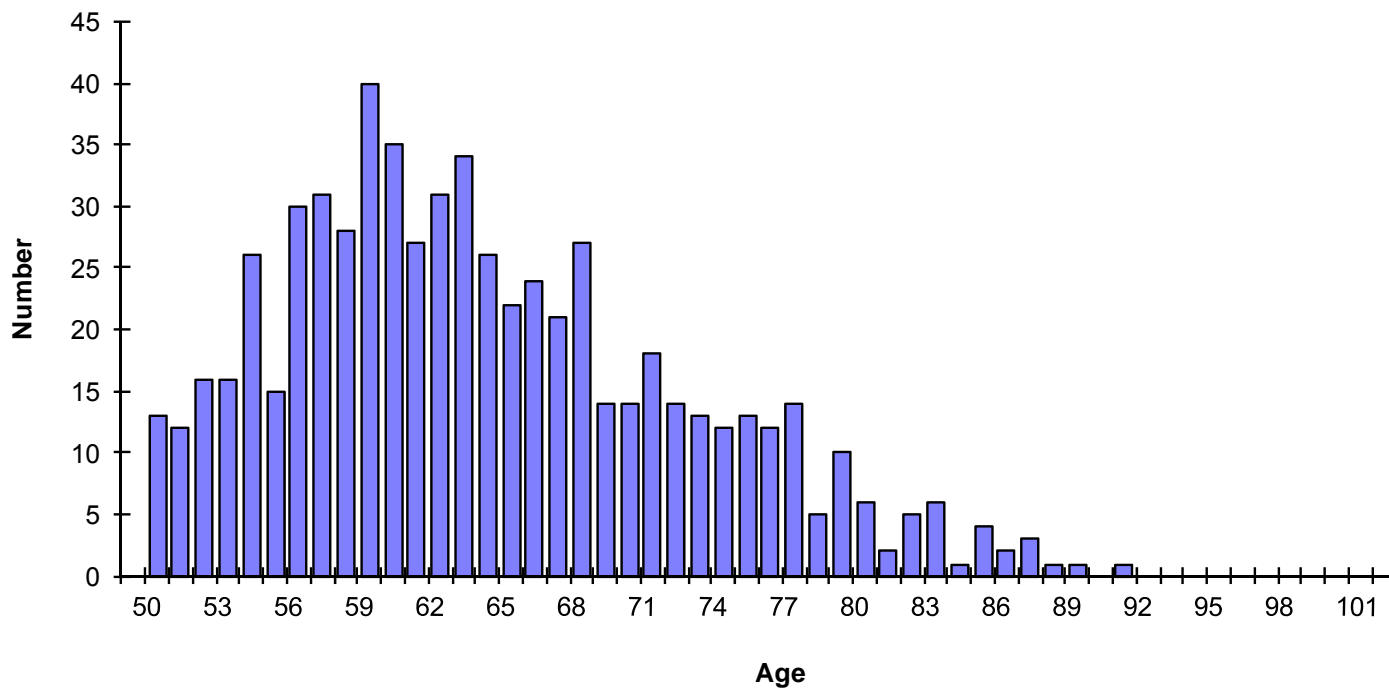


**Age Distribution of Retirees & Beneficiaries  
Regular Membership**



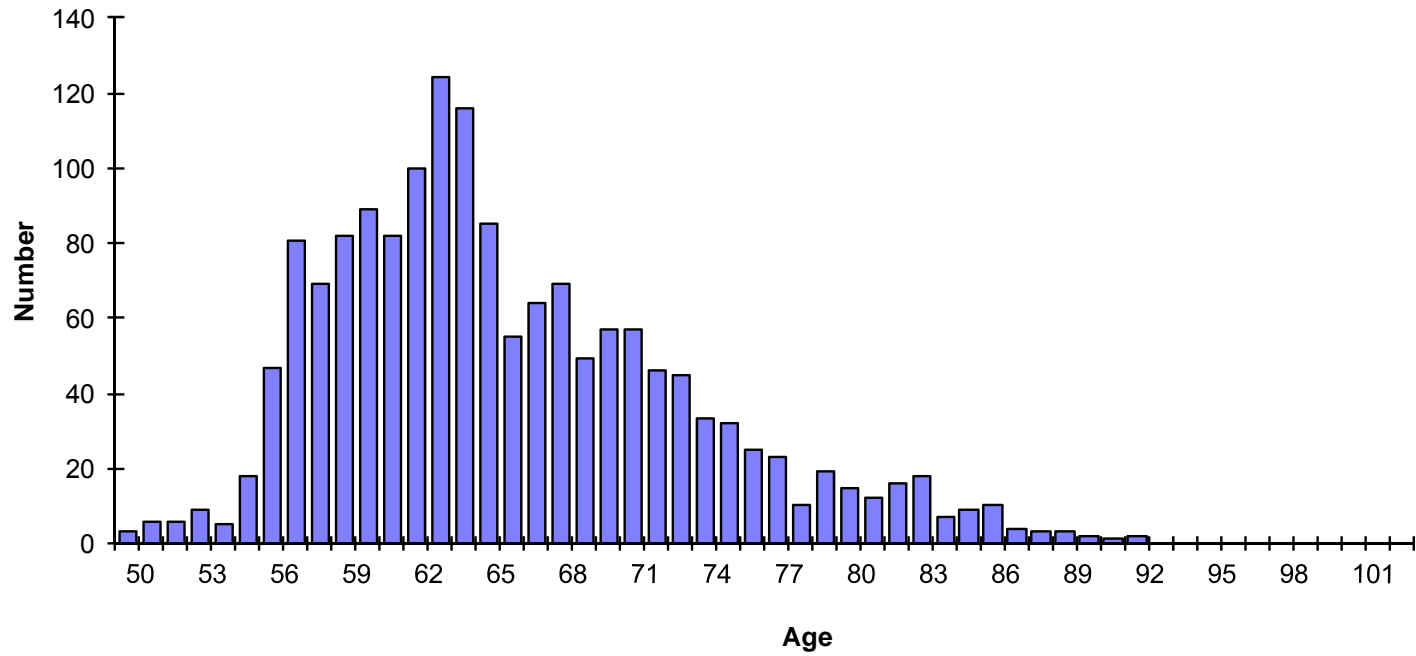


Age Distribution of Retirees & Beneficiaries  
Special Service Group 1





**Age Distribution of Retirees & Beneficiaries  
Special Service Group 2**





**SUMMARY OF DATA FILE RECONCILIATION**

The following table reconciles the data we received from IPERS to the final membership counts used in the valuation.

Records on the in-pay data file	98,540
Removed deaths prior to 7/1/11	(228) <sup>1</sup>
Records used in the valuation	98,312
Records on the not-in-pay data file	257,601
Records removed because the member has received all benefits	(18,879) <sup>2</sup>
Records used in the valuation	238,722

These records are allocated as follows:

Active members	164,436
Retired, reemployed members	8,321
Vested inactive members	29,077
Nonvested inactive members	<u>36,888</u>
Total	238,722

Nonvested inactive members include deceased vested inactive members with employee contributions still held by the System.

1 These 228 include:

- 201 removed because of death
- 27 removed because benefit ended

2 These 18,879 include were removed because they no longer active or entitled to benefits



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**APPENDIX B**  
**SUMMARY OF PLAN PROVISIONS**



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Chapter 97B of the Iowa code sets out the IPERS provisions, which are briefly summarized as follows:

**Participation:** In general, the System covers people in non-federal public employment within the State of Iowa. Membership is mandatory if a person is in covered employment. Exceptions to this are set out in the law. Notable exceptions are those covered by another public system in Iowa (such as judges, state patrol, and policemen and firemen in cities having civil service), employees of the Regents' institutions, and employees of the community colleges who elect alternative coverage under TIAA.

**Service Credit:** A member will receive membership credit for service rendered after July 4, 1953 (special rules apply to service before this date). Service is counted to the complete quarter of a calendar year. A member will not receive credit for more than four quarters of service in a calendar year regardless of the number of employers reporting covered wages for that member. A calendar year is the 12-month period beginning January 1 and ending December 31.

Members may purchase service under specified conditions. To make such a purchase, the member must pay the actuarial cost of such service.

**REGULAR MEMBERS:**

**Average Salary:** The average of the member’s highest three years of covered wages. Effective July 1, 2012 the average of a member’s highest five years of covered wages, but not less than the member’s highest three years as of June 30, 2012, if vested at that time.

**Age and Service Requirements for Benefits:**

Normal Retirement	Earliest of the first day of the month of the member's 65 <sup>th</sup> birthday, age 62 with 20 years of service or Rule of 88 (age plus service equals/exceeds 88), with a minimum of age 55.
Early Retirement	First day of any month starting with the month of the member's 55 <sup>th</sup> birthday but preceding the normal retirement date.
Inactive Vested Benefit	Four years of service (seven years effective July 1, 2012). Prior to July 1, 2005 inactive members could become eligible for a vested benefit merely by reaching age 55.
Pre-retirement Death Benefit	Upon death of a member before benefits have started.
Disability Benefit	Upon meeting requirements to be vested, if the active or inactive member begins receiving federal Social Security disability or Railroad Retirement disability benefits.





benefit as calculated under Option 2 by more than 50%.

*Option 3:* After the member’s death, all benefits cease.

*Option 4:* The member receives a reduced monthly benefit so that a lifetime monthly benefit may be provided after the member’s death to the person named by the member as the contingent annuitant. The member specifies what benefit the contingent annuitant will receive after the death of the member. The monthly benefit can be the same as the member’s monthly benefit or three-fourths, one-half, or one-fourth of the amount. These choices may be restricted if the contingent annuitant is not the member’s spouse and is more than ten years younger than the member.

*Option 5:* If the member dies before ten full years (120 months of payments) have ended, the member’s beneficiary will receive a monthly benefit for the remainder of the ten years. Members who have attained age 90 as of the first month of entitlement are not allowed to select this option.

*Option 6:* The member receives a reduced monthly benefit so that a lifetime monthly benefit may be provided after the member’s death to the person named by the member as the contingent annuitant. In addition, the monthly amounts are also reduced to pay for a pop-up feature. The pop-up feature provides that if the contingent annuitant dies before the member, the member’s benefit will pop back up to what it would have been under IPERS Option 2, and death benefits may be payable to the member’s designated beneficiary if certain conditions are met.

**Actuarial Equivalent Lump Sum Payment:** If a vested member is entitled to receive a benefit and it is less than \$50 per month under Option 2, the member shall receive a retirement benefit in an actuarial equivalent lump sum payment. The lump sum will include the member’s and employer’s accumulated contributions.

**Post-retirement Benefit Increases:** Annual dividends are paid to those retired prior to July 1, 1990. Effective with the November 2000 dividend payment, the dividend is adjusted by the least of the following percentages: (1) the change in the CPI, (2) percentage certified to by the actuary as affordable by the System, and (3) 3%.

**Favorable Experience Dividend (FED):** For members who retired after June 30, 1990, a favorable experience dividend (FED) reserve account has been established under Iowa Code §97B.49F(2). The main purpose of this account is to help offset the negative effects of postretirement inflation. All members and beneficiaries who receive a monthly allowance qualify for favorable experience dividend payments. Each November, IPERS



determines if a FED payment should be paid the following January subject to the following conditions:

- The member must be retired one year.
- The FED rate cannot exceed 3%.
- The FED payment will be issued in a lump sum in January.
- The FED payment is not guaranteed.

The formula is as follows:

$$(\text{December's Monthly benefit}) \times (12 \text{ months}) \times (\text{Rate}) \times (\text{Full calendar years retired}) = \text{FED}$$

Source of Funds:

Regular Membership:

<b>Contribution Rates</b>			
<b>Time Period</b>	<b>Employees</b>	<b>Employer</b>	<b>Total</b>
Prior to 7/1/07	3.70%	5.75%	9.45%
7/1/07 – 6/30/08	3.90%	6.05%	9.95%
7/1/08 – 6/30/09	4.10%	6.35%	10.45%
7/1/09 – 6/30/10	4.30%	6.65%	10.95%
7/1/10 – 6/30/11	4.50%	6.95%	11.45%
7/1/11 – 6/30/12	5.38%	8.07%	13.45%
7/1/12 and later	Actuarially Determined*		

\*Change in contribution rate cannot exceed 1.0% per year.

**SPECIAL SERVICE GROUPS 1 AND 2:**

Average Salary: The average of the member’s highest three years of covered wages

Age and Service Requirements for Benefits:

- Normal Retirement: Generally age 55. However, a member of the Sheriffs and Deputy Sheriffs (Group 1) may retire at age 50 with 22 years of service.
- Inactive Vested Benefit: Four years of service. Prior to July 1, 2005 inactive members could become eligible for vested benefits merely by reaching age 55.
- Pre-retirement Death Benefit: Upon death of a member before benefits have started.



Disability Benefit	Upon meeting requirements to be vested, (i) if the active or inactive member begins receiving federal Social Security or Railroad Retirement disability benefits, or (ii) upon being determined by IPERS to be disabled under the provisions of Iowa Code section 97B.50A. The disability benefits under Iowa Code section 97B.50A must be applied for through IPERS within one (1) year after termination of employment. Benefits under Iowa Code section 97B.50A may be paid for in-service disability or ordinary disability.
Retirement Benefits:	
Normal Retirement	60% of average salary after completion of 22 years of service, plus an additional 1.5% of average salary for years of service greater than 22 but not more than 30. Maximum formula is 72% of average salary.
Pre-retirement Death Benefit	Beneficiaries of members may receive a lump sum determined by a formula that includes how much the member contributed to IPERS, years of service, highest year's salary, and other factors. Beneficiaries may have the option of receiving a monthly benefit based on the present value of the member's accrued benefit at death.
Disability Benefits	<p>An annuity, payable immediately, equal to the Normal Retirement Benefit, without an adjustment.</p> <p>The benefit is the greater of the Normal Retirement Benefit and either 50% (for ordinary disability) or 60% (for in-service disability) of Average Salary.</p>
Termination Benefits:	
Less than four years of Service (Non-vested)	A refund of all of the member's accumulated contributions.
Four or more years of Service (Vested)	<p>At the member's election either:</p> <p>(1) a refund of all of the member's accumulated contributions plus a portion (years of service divided by 22) of the employer's contributions with interest, or</p> <p>(2) a deferred benefit determined in the same manner as for normal retirement. Payments begin at normal retirement.</p>
Form of Annuity:	The base form, or normal form, is a life annuity with a guaranteed return of employee contributions (Option 2).
Optional Forms of Payment:	<i>Option 1:</i> The member specifies a dollar amount, in \$1,000 increments, that the member wishes to have paid to a designated beneficiary following the death of the member.



The death benefit will be in the form of a single payment and cannot exceed the amount of a member's own accumulated contributions to IPERS, and it cannot lower the member's benefit as calculated under Option 2 by more than 50%.

*Option 3:* After the member's death, all benefits cease.

*Option 4:* The member receives a reduced monthly benefit so that a lifetime monthly benefit may be provided after the member's death to the person named by the member as the contingent annuitant. The member specifies what benefit the contingent annuitant will receive after the death of the member. The monthly benefit can be the same as the member's monthly benefit or three-fourths, one-half, or one-fourth of the amount. These choices may be restricted if the contingent annuitant is not the member's spouse and is more than ten years younger than the member.

*Option 5:* If the member dies before ten full years (120 months of payments) have ended, the member's beneficiary will receive a monthly benefit for the remainder of the ten years. Members who have attained age 90 as of the first month of entitlement are not allowed to select this option.

*Option 6:* The member receives a reduced monthly benefit so that a lifetime monthly benefit may be provided after the member's death to the person named by the member as the contingent annuitant. In addition, the monthly amounts are also reduced to pay for a pop-up feature. The pop-up feature provides that if the contingent annuitant dies before the member, the member's benefit will pop back up to what it would have been under IPERS Option 2, and death benefits may be payable to the member's designated beneficiary if certain conditions are met.

*Level Income Payment Option:* A Level Income payment alternative is authorized for special service members. This alternative applies to all IPERS retirement options listed above except Option 6. The Level Income payment alternative permits a special service member to receive a relatively level income both before and after age 62 when benefits from IPERS and Social Security are combined. Higher IPERS benefits are paid prior to age 62. When the member reaches age 62, the member's IPERS benefit is permanently reduced. This amount is determined when the member retires and is not recomputed based on the actual Social Security benefit.

**Actuarial Equivalent Lump Sum Payment:** If a vested member is entitled to receive a benefit and it is less than \$50 per month under Option 2, the member shall receive a retirement benefit in an actuarial equivalent lump sum payment. The lump sum will include the member's and employer's accumulated contributions.





Post-retirement Benefit Increases: Annual dividends are paid to those retired prior to July 1, 1990. Effective with the November 2000 dividend payment, the dividend is adjusted by the least of the following percentages: (1) the change in the CPI, (2) percentage certified to by the actuary as affordable by the System, and (3) 3%.

Favorable Experience Dividend (FED): For members who retired after June 30, 1990, a favorable experience dividend (FED) reserve account has been established under Iowa Code §97B.49F(2). The main purpose of this account is to help offset the negative effects of postretirement inflation. All members and beneficiaries who receive a monthly allowance qualify for favorable experience dividend payments. Each November, IPERS determines if a FED payment should be paid the following January subject to the following conditions:

- The member must be retired one year.
- The FED rate cannot exceed 3%.
- The FED payment will be issued in a lump sum in January.
- The FED payment is not guaranteed.

The formula is as follows:

$$(\text{December's Monthly benefit}) \times (12 \text{ months}) \times (\text{Rate}) \times (\text{Full calendar years retired}) = \text{FED}$$

Source of Funds:

Special Service Group 1: Actuarially determined contribution rate. Employees contribute 50% and employers contribute 50%.

Special Service Group 2: Actuarially determined contribution rate. Employees contribute 40% and employers contribute 60%.



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**APPENDIX C**  
**ACTUARIAL ASSUMPTIONS AND METHODS**



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Sound financing of any retirement system requires that benefits accruing to its members shall be paid for during their active working lifetime so that when a member (or his beneficiary) becomes entitled to a benefit, the monies necessary to provide such benefit shall be on hand. In this way, the cost of benefits for present active members will not become a liability to future members and taxpayers.

The principal purpose of an actuarial valuation is to calculate, on the basis of certain assumptions, the present value of benefits that are payable in the future from the system to present members (and their beneficiaries) and the present value of future contributions to be made by the members and their employers. Having calculated such present values, the level of annual contribution to the system required to fund (or pay for) the benefits, in accordance with the above stated principle of sound financing, may be determined.

### **VALUATION ASSUMPTIONS**

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

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

- long-term rates of investment return to be generated by the assets of the system
- patterns of pay increases to members
- rates of mortality among members, retirants and beneficiaries
- rates of withdrawal of active members
- rates of disability among active members
- the age patterns of actual retirements

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

Actual experience of the Retirement System will not coincide exactly with assumed experience. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experiences. The result is a continual series of adjustments to the computed contribution rate, or alternatively to the amortization period for the unfunded actuarial liability.

From time to time, one or more of the assumptions are modified to reflect experience trends (but not random or temporary year to year fluctuations). A complete review of the actuarial assumptions was completed in 2010, based on experience from 2005-2009. The Investment Board has adopted and approved the use of the assumptions and methods presented in the 2005-09 Experience Study. In November, 2011, the Board adopted revised post-retirement mortality assumptions for the regular members after a coding error was discovered and the retained actuary recommended changing the current assumption. The following is a summary of the assumptions and methods used in the valuation:



**APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS**

**ECONOMIC ASSUMPTIONS:**

**Rate of Inflation (effective June 30, 2006)**

3.25% per annum

**Rate of Crediting Interest on Contribution Balances (effective June 30, 2006)**

4.00% per annum, compounded annually

**Rate of Investment Return (effective June 30, 1996)**

7.50% per annum, compounded annually, net of expenses.

**Wage Growth Assumption (effective June 30, 1999)\***

4.00% per annum based on 3.25% inflation assumption and 0.75% real wage inflation.

\*Total of 4.0% did not change but the components changed June 30, 2006

**Payroll Increase Assumption (effective June 30, 1999)**

4.00% per year

**DEMOGRAPHIC ASSUMPTIONS:**

**Rates of Mortality**

To reflect anticipated future mortality improvements, generational mortality is used with projected mortality improvements based on Projection Scale AA.

**Pre-Retirement (effective June 30, 2010)**

**State**

Male	RP2000 Employee Table, Generational, set back 3 years
Female	RP2000 Employee Table, Generational, set back 8 years

**School**

Male	RP2000 Employee Table, Generational, set back 3 years
Female	RP2000 Employee Table, Generational, set back 8 years

**Other**

Male	RP2000 Employee Table, Generational, no set back
Female	RP2000 Employee Table, Generational, set back 8 years

**Special Services**

Male	RP2000 Employee Table, Generational
Female	RP2000 Employee Table, Generational

For Special Services active members, 5% of deaths are assumed to be service related.



**APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS**

**Post-Retirement (effective June 30, 2011 for Regular Members and June 30, 2010 for Special Service Members)**

<b>State</b>	RP2000 Healthy Annuitant Table, Generational
Male	1 Year set forward
Female	1 Year set back with 5% increase above age 75
<b>School</b>	RP2000 Healthy Annuitant Table, Generational
Male	No age adjustment but rates decreased by 5% below age 75
Female	3 Year set back with 10% decrease before age 75 and 10% increase above age 75
<b>Other</b>	RP2000 Healthy Annuitant Table, Generational
Male	1 Year set forward
Female	2 Year set back with 5% increase above age 75
<b>Special Services</b>	RP2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	No age adjustment
<b>Beneficiaries:</b>	Same as members
<b>Disabled Members (all groups):</b>	RP2000 Disabled Mortality, Generational Set back 1 year for males and set forward 3 years for females

**Retirement Rates (effective June 30, 2010)**

Upon meeting the requirements for early retirement, the following rates apply to Regular Members:

<u>Age</u>	<u>Assumed Retirement Rates – Early</u>		
	<u>State</u>	<u>School</u>	<u>Other</u>
55	5.0%	8.0%	5.0%
56	5.0%	8.0%	5.0%
57	5.0%	8.0%	5.0%
58	5.0%	8.0%	5.0%
59	5.0%	9.0%	5.0%
60	5.0%	10.0%	5.0%
61	15.0%	15.0%	10.0%
62	15.0%	20.0%	20.0%
63	15.0%	20.0%	20.0%
64	15.0%	20.0%	20.0%





**APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS**

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Upon reaching the requirements for normal retirement (unreduced benefits), the following rates apply:

**Assumed Retirement Rates – Select  
Unreduced**

<u>Age</u>	<u>State</u>	<u>School</u>	<u>Other</u>
55	20.0%	30.0%	20.0%
56	15.0%	30.0%	20.0%
57	15.0%	30.0%	20.0%
58	15.0%	30.0%	20.0%
59	15.0%	30.0%	20.0%
60	15.0%	30.0%	20.0%
61	20.0%	30.0%	20.0%
62	40.0%	40.0%	40.0%
63	35.0%	30.0%	35.0%
64	30.0%	30.0%	35.0%
65	30.0%	30.0%	30.0%

**Assumed Retirement Rates – Ultimate  
Unreduced**

<u>Age</u>	<u>State</u>	<u>School</u>	<u>Other</u>
55	15.0%	23.0%	15.0%
56	15.0%	23.0%	15.0%
57	15.0%	23.0%	15.0%
58	15.0%	23.0%	15.0%
59	15.0%	23.0%	15.0%
60	15.0%	23.0%	15.0%
61	20.0%	30.0%	20.0%
62	40.0%	35.0%	35.0%
63	30.0%	30.0%	25.0%
64	30.0%	30.0%	25.0%
65	30.0%	45.0%	40.0%
66	30.0%	35.0%	30.0%
67	20.0%	25.0%	20.0%
68	20.0%	25.0%	20.0%
69	35.0%	40.0%	40.0%
70	100.0%	100.0%	100.0%



**APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS**

<u>Age</u>	<u>Assumed Retirement Rates</u>	
	<u>SS1</u>	<u>SS2</u>
50	20.0%	
51	20.0%	
52	20.0%	
53	20.0%	
54	20.0%	
55	25.0%	20.0%
56	20.0%	10.0%
57	20.0%	10.0%
58	20.0%	10.0%
59	20.0%	10.0%
60	20.0%	10.0%
61	20.0%	10.0%
62	35.0%	35.0%
63	50.0%	30.0%
64	50.0%	30.0%
65	100.0%	100.0%

Terminated vested members are assumed to retire at age 62 (55 for Special Services). For Regular Membership, retired reemployed members are assumed to retire at a rate of 25% per year until age 80 when all are assumed to retire.

**Rates of Disablement (effective June 30, 2010)**

<u>Age</u>	<u>Assumed Rates</u>					
	<u>Males</u>			<u>Females</u>		
	<u>State</u>	<u>School</u>	<u>Other</u>	<u>State</u>	<u>School</u>	<u>Other</u>
27	0.020%	0.020%	0.020%	0.020%	0.030%	0.020%
32	0.020%	0.020%	0.020%	0.020%	0.030%	0.020%
37	0.040%	0.040%	0.040%	0.032%	0.040%	0.032%
42	0.065%	0.065%	0.065%	0.051%	0.050%	0.051%
47	0.120%	0.110%	0.140%	0.087%	0.090%	0.087%
52	0.220%	0.160%	0.326%	0.220%	0.165%	0.200%
57	0.320%	0.260%	0.630%	0.390%	0.240%	0.350%
62	0.420%	0.360%	0.900%	0.620%	0.320%	0.500%



**Assumed Rates  
Special Services**

<u>Age</u>	<u>Rate</u>
27	0.150%
32	0.150%
37	0.150%
42	0.180%
47	0.230%
52	0.280%
57	0.380%
62	0.510%

**Rates of Termination of Employment (effective June 30, 2010)**

***Regular Membership***

<u>Years of Service</u>	<u>Male</u>			<u>Female</u>		
	<u>State</u>	<u>School</u>	<u>Other</u>	<u>State</u>	<u>School</u>	<u>Other</u>
1	15.4%	15.0%	21.0%	15.4%	15.0%	21.0%
5	5.5%	6.9%	8.4%	5.5%	6.9%	9.2%
10	2.2%	2.9%	4.3%	2.2%	2.9%	5.8%
15	1.7%	1.8%	2.6%	1.7%	1.8%	4.1%
20	1.1%	1.3%	2.4%	1.1%	1.3%	3.2%
25	1.1%	1.3%	2.0%	1.1%	1.2%	2.4%
30	1.1%	1.2%	1.2%	1.1%	1.2%	1.5%

***Special Services***

<u>Age</u>	<u>Rate of Termination</u>
22	5.8%
27	5.8%
32	3.5%
37	3.0%
42	2.6%
47	2.0%
52	2.0%



**APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS**

**Probability of Electing a Deferred Vested Benefit (effective June 30, 2010)**

<u>Years of Service</u>	<b>Regular Membership</b>					
	<b>Male</b>			<b>Female</b>		
	<u>State</u>	<u>School</u>	<u>Other</u>	<u>State</u>	<u>School</u>	<u>Other</u>
5	66.0%	76.0%	61.0%	61.0%	80.0%	70.0%
10	73.0%	81.0%	66.0%	66.0%	80.0%	73.0%
15	78.0%	86.0%	71.0%	76.0%	85.0%	80.0%
20	83.0%	91.0%	76.0%	86.0%	90.0%	85.0%
25	88.0%	95.0%	80.0%	96.0%	95.0%	90.0%
30	90.0%	95.0%	80.0%	100.0%	100.0%	90.0%

<b>Special Services</b>	
<u>Years of Service</u>	<u>Rate</u>
5	53%
10	65%
15	85%
20	95%
25	100%
30	100%

**Rates of Salary Increase\* (effective June 30, 2010)**

<u>Years of Service</u>	<b>Annual Increase</b>			
	<u>State</u>	<u>School</u>	<u>Other</u>	<u>Special Services</u>
1	15.0%	17.0%	15.0%	17.0%
5	7.6%	6.5%	6.1%	6.5%
10	6.3%	5.3%	5.3%	5.3%
15	5.2%	4.5%	4.8%	4.8%
20	4.8%	4.2%	4.5%	4.5%
25	4.6%	4.0%	4.4%	4.5%
30+	4.3%	4.0%	4.4%	4.0%

\* Includes 4.0% wage growth



### **ACTUARIAL COST METHOD (adopted 1996)**

The actuarial cost method is a procedure for allocating the actuarial present value of pension plan benefits and expenses to time periods. The method used for the valuation is known as the entry age normal actuarial cost method. Under this method, a total contribution rate is determined which consists of two parts: (i) the normal cost rate and (ii) the unfunded actuarial liability (UAL) rate. The entry age normal cost method has the following characteristics:

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

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

### **ACTUARIAL AMORTIZATION METHOD (adopted 2011)**

The portion of the actuarial present value allocated to the valuation year is called the normal cost. The portion of the actuarial present value not provided for by the actuarial present value of future normal costs is called the actuarial accrued liability. Deducting the actuarial value of assets from the actuarial accrued liability determines the unfunded actuarial liability (UAL). The one-year lag between the valuation date and the date the contribution rate is effective is reflected in calculating the UAL and the corresponding amortization payment. The UAL is amortized according to the Actuarial Amortization Method adopted by the Investment Board and summarized below:

1. For the actuarial valuation prepared as of June 30, 2011, the amortization period of the UAL for each of IPERS' membership groups is 30-year open.
2. For actuarial valuations prepared as of June 30, 2012 and later, the amortization period for the UAL for Special Service Group 1 and Special Service Group 2 shall be a closed period beginning at 30 years.
3. The amortization period for the Regular Membership shall be 30-year open until the statutory rate is the same as the actuarially determined contribution rate (ADCR). The amortization period shall move to a closed period, beginning at 30 years, in the actuarial valuation following the actuarial valuation in which the statutory rate equals the ADCR.
4. The amortization period of a surplus shall be a 30-year open period for all groups.

### **ACTUARIAL VALUE OF ASSETS SMOOTHING METHOD (adopted 2007)**

The market value of assets, representing a fair value of System assets, may not necessarily be the best measure of the System's ongoing ability to meet its obligations.

To arrive at a suitable value for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens volatility in the market value while still indirectly recognizing market value. The specific technique follows:

- Step 1:** Determine the expected value of plan assets at the current valuation date using the actuarial assumption for investment return applied to the prior actuarial value and the actual receipts and disbursements of the fund for the previous 12 months.



- Step 2:** Subtract the expected value determined in Step 1 from the total market value of the Fund at the current valuation date.
- Step 3:** Multiply the difference between market and expected values determined in Step 2 by 25%.
- Step 4:** Add the expected value of Step 1 and the product of Step 3 to determine the actuarial value of assets.
- Step 5:** Verify the preliminary actuarial value of assets in Step 4 is not more than 120% of the market value of assets nor less than 80% of the market value. If it is, adjust the actuarial value of assets so it falls within the 80% - 120% corridor.

## **TECHNICAL VALUATION PROCEDURES**

### **Data Procedures**

#### ***In-pay members:***

If a birth date is not available, the member is assumed to be 80. If a retirement date is also not available, the member is assumed to have retired at 65.

If a beneficiary birth date is needed but not supplied, husbands are assumed to be 3 years older than wives.

#### ***Not in-pay members:***

If a birth date is not available, the member is assumed to be the average age of the members with the same status.

If gender is not provided, regular members are assumed to be female and Special Service members are assumed to be male.

Salaries for first year members are annualized based on the number of quarters with wages.

### **Membership Transfers**

IPERS provides a code in the valuation data to indicate that a member is in a membership group (regular, Special Service 1 and Special Service 2) different from that on the prior valuation date. The actuarial liability for these members is calculated under the assumptions and provisions of the prior membership group. A preliminary funded ratio (before asset transfer) is determined for the three membership groups. Assets are then transferred from the prior to the current membership group based on the funded ratio of the prior group times the actuarial liability of the member in the prior group. Then, the members are revalued in the current membership group for purposes of valuation calculations.

### **Other Valuation Procedures**

No actuarial accrued liability in excess of the unclaimed member contribution balance is held for nonvested, inactive members. Inactive vested members who have died are treated in the same manner.

The wages used in the projection of benefits and liabilities are considered earnings for the current year ending



## APPENDIX C – ACTUARIAL ASSUMPTIONS AND METHODS

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June 30, increased by the salary scale.

The calculations for the actuarial required contribution are determined as of mid-year. This is a reasonable estimate since contributions are made throughout the year.

The projected IRC Section 415 limit for active participants was not valued. The impact was assumed to be *de minimus*.

The compensation limitation under IRC Section 401(a)(17) is considered in this valuation.



## DEFINITION OF TERMS

<b>Accrued Service</b>	Service credited under the system that was rendered before the date of the actuarial valuation.
<b>Actuarial Assumptions</b>	Estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.
<b>Actuarial Cost Method</b>	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of retirement system benefits between future normal cost and actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”
<b>Actuarial Equivalent</b>	A single amount or series of amounts of equal value to another single amount or series of amounts computed on the basis of a given set of actuarial assumptions.
<b>Actuarial Liability</b>	The difference between the actuarial present value of system benefits and the actuarial value of future normal costs. Also referred to as “accrued liability” or “actuarial accrued liability.”
<b>Actuarial Present Value</b>	The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at predetermined rates of interest and by probabilities of payment.
<b>Amortization</b>	Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with lump sum payment.
<b>Experience Gain (Loss)</b>	The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates.
<b>Normal Cost</b>	The actuarial present value of retirement system benefits allocated to the current year by the actuarial cost method.





**Unfunded Actuarial Liability**

The difference between actuarial liability and the actuarial value of assets. Sometimes referred to as “unfunded accrued liability” or “unfunded liability”.

Most retirement systems have unfunded actuarial liability. They arise anytime new benefits are added and anytime an actuarial loss is realized.

The existence of unfunded actuarial liability is not in itself bad, any more than a mortgage on a house is bad. Unfunded actuarial liability does not represent a debt that is payable today. What is important is the ability to amortize the unfunded actuarial liability and make payments to finance it. Also of importance are trends in the amount or duration of payment.



**APPENDIX D**

**CONTRIBUTION RATE FUNDING POLICY**



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## APPENDIX D – CONTRIBUTION RATE FUNDING POLICY

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### **Background:**

IPERS is charged with setting a “Required Contribution Rate” for each membership category within IPERS that will discharge its liabilities. Iowa Code §97B.11(3)(d) provides the basic framework for implementing this charge by stating:

The required contribution rate that is set by the system for a membership category shall be the contribution rate the system actuarially determines, based upon the most recent actuarial valuation of the system and using the actuarial methods, assumptions, and funding policy approved by the investment board, is the rate required by the system to discharge its liabilities as a percentage of the covered wages of members in that membership category. However, the required contribution rate set by the system for members in regular service for a fiscal year shall not vary by more than one percentage point from the required contribution rate for the prior fiscal year.

The Investment Board adopted entry age normal as the applicable actuarial cost method and adopts actuarial assumptions following each quadrennial experience study. A funding policy will give further definition to the application of the actuarial assumptions in determining a rate to discharge the liabilities.

### **Purpose/Goal:**

To provide guidance in setting contribution rates that combined with investment income will fund the benefits specified in Chapter 97B of the Iowa Code.

### **Contribution Rate Funding Policy:**

1. The Actuarially Determined Contribution Rate (ADCR) shall be determined using the actuarial value of assets and actuarial value of liabilities based on the entry age normal actuarial cost method and the actuarial assumptions and methods approved by the IPERS Investment Board for use in the annual actuarial valuation process.
2. The ADCR payable in a fiscal year shall be computed from the actuarial valuation of the fiscal year end two years prior to the payment year (for example, the ADCR payable in fiscal year ending June 30, 2013 will be determined in the June 30, 2011 valuation). A separate ADCR shall be determined for each membership group within IPERS.
3. The ADCR shall constitute:
  - a. Normal cost and amortization cost of any unfunded actuarial liability based on the amortization period set forth in the approved actuarial assumptions and methods, or
  - b. Normal cost with an offset by a negative amortization cost after a membership group has attained a funding ratio of 110 percent or greater for 3 consecutive years.
4. The combined employer and employee Required Contribution Rate shall be:
  - a. The ADCR for Special Service Group 1.
  - b. The ADCR for Special Service Group 2.
  - c. The ADCR for Regular Membership, but no more than a one percentage point change from the prior year’s Required Contribution Rate.



## APPENDIX D – CONTRIBUTION RATE FUNDING POLICY

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### **Guidelines:**

In adopting actuarial assumptions and methods to be used in setting contributions, the Investment Board shall strive to provide the following:

1. Stability in contributions (such as use of smoothing and amortization schedules that do not produce dramatic swings in the required contributions from year to year).
2. Disciplined funding approach (such as requiring full payment of normal cost and an amortization payment towards the unfunded actuarial liability).
3. Intergeneration equity (such as shortening the amortization schedule when reasonable, amortization of retroactive benefit enhancements over a reasonable time period such as the average working lifetime for active members and the average life expectancy of retired members).
4. Support an affordable, sustainable plan.