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IPERS
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IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Actuarial Valuation Report as of June 30, 2015

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Cavanaugh Macdonald
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The experience and dedication you deserve

October 29, 2015

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

Re: June 30, 2015 Actuarial Valuation Report

Dear Board Members:

At your request, we have performed an actuarial valuation of the Iowa Public Employees' Retirement System (IPERS or System) as of June 30, 2015 to measure the assets and liabilities of the System, determine the funded status, and set the Required Contribution Rate based on the results of the valuation and IPERS' Contribution Rate Funding Policy. While not verifying the data at its source, the actuary performed tests for consistency and reasonableness. The major findings of valuation are contained in this report which reflects the benefit provisions in place on June 30, 2015.

In preparing our report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined in statute, member census data and financial information. We found this information to be reasonably consistent and comparable with information provided in prior years. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the System. The Investment Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix C.

This valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable, and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

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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.

The actuarial computations presented in this report are for purposes of determining the recommended funding amounts for the System. Actuarial computations for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standard Number 67 will be presented in a separate 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 and the plan provisions described in Appendix B of this report. 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.

The consultants who worked on this assignment are pension actuaries with significant public plan experience. In addition, the signing actuaries are independent of the System and the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

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.

Patrice Beckham

Brent A. Banister

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

Brent A. Banister, PhD, FSA, EA, FCA, MAAA
Chief Pension Actuary

INTRODUCTION

This report presents the results of the June 30, 2015 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 (ACR) and the Required Contribution Rate for the Regular Membership, Sheriffs and Deputies, and the Protection Occupation group (all public safety members other than Sheriffs and Deputies) in accordance with IPERS' Contribution Rate Funding Policy (described in Appendix D),
- to evaluate the funded status of the System and disclose various asset and liability measures as of June 30, 2015,
- 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.

The actuarial valuation results provide a "snapshot" view of the System's financial condition on June 30, 2015. The results reflect net favorable experience for the past plan year as demonstrated by an unfunded actuarial liability (UAL) that was lower than expected. The total UAL on June 30, 2015 for all three membership groups covered by IPERS is $5.455 billion as compared to an expected UAL of $5.616 billion. The favorable experience was the net result of an experience gain of $171 million on the actuarial value of assets and an experience loss of about $30 million on System liabilities.

Historically, the contribution rate for Regular Members was set by state statute. Effective with the 2011 valuation, IPERS has the authority to set the Required Contribution Rate (RCR) for the Regular Membership Group based on the Actuarial Contribution Rate (ACR) developed in the annual actuarial valuation, subject to a maximum change of 1% per year. Based on the current Contribution Rate Funding Policy, which is described in Appendix D, the Required Contribution Rate for Sheriffs and Deputies will decrease 0.50% for FY 2017, and it will remain unchanged for Protection Occupation and Regular members. The Required Contribution Rate is higher than the ACR for all three groups, as shown in the table below:

Contribution Rate for FY 2017			
	Regular Membership	Sheriffs and Deputies	Protection Occupation
1. Normal Cost Rate	10.22%	16.50%	16.01%
2. Amortization of UAL	3.95%	1.00%	(0.30)%*
3. Actuarial Contribution Rate	14.17%	17.50%	16.01%
4. Required Contribution Rate	14.88%	19.26%	16.40%
5. Shortfall/(Margin) (3) – (4)	(0.71)%	(1.76)%	(0.39)%
6. Employee Contribution Rate	5.95%	9.63%	6.56%
7. Employer Contribution Rate (4) - (6)	8.93%	9.63%	9.84%
8 Unfunded Actuarial Liability ($M)	$5,449	$24	$(17)
9. Funded Ratio	82.7%	96.0%	101.3%

* According to the Actuarial Amortization Method, a negative UAL rate is not reflected until the group has been 110% funded for three consecutive years.

Further details on the valuation results can be found in the following sections of this Executive Summary.

EXPERIENCE FOR THE LAST PLAN YEAR

Numerous factors contributed to the change in the Systems' assets, liabilities and the Actuarial Contribution Rate between June 30, 2014 and June 30, 2015. The components are examined in the following discussion.

ASSETS

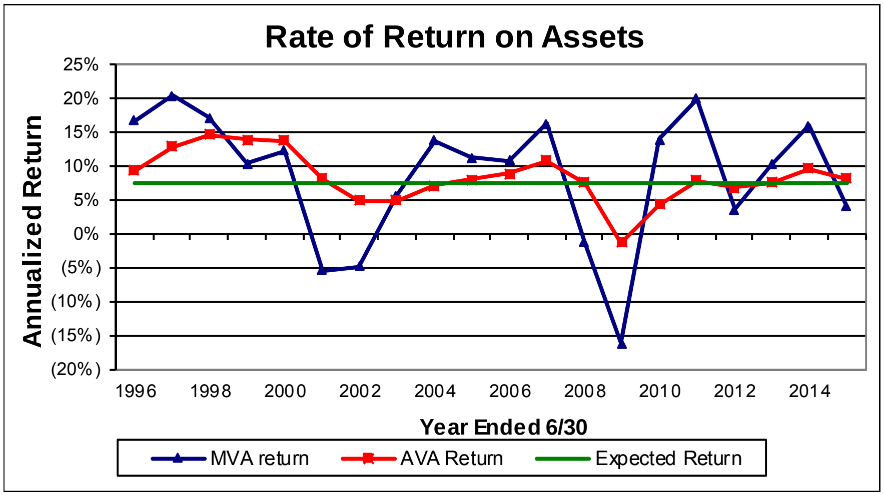
As of June 30, 2015, the System (all membership groups) had total assets of $28.430 billion, when measured on a market value basis. This was an increase of $391 million from the prior year.

The market value of assets is not used directly in the calculation of the unfunded actuarial liability (UAL) and the 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, 2015 was $27.915 billion, an increase of $1.455 billion from the value in the prior year. The components of the change in the asset values are shown in the following table:

	Market Value ($M)		Actuarial Value ($M)	
Net Assets, June 30, 2014	$	**28,039**	$	**26,460**
• Employer and Member Contributions	+	1,116	+	1,116
• Benefit Payments and Refunds	-	1,792	-	1,792
• Expected Investment Income, net of expenses (Based on 7.5% assumption)	+	2,078	+	1,960
• Actuarial Gain/(Loss) on Investment Return	-	1,011	+	171
Net Assets, June 30, 2015 Before FED Transfer	$	**28,430**	$	**27,915**
• FED Transfer	+	0	+	0
Net Assets, June 30, 2015 After FED Transfer	$	**28,430**	**$**	**27,915**
• Application of Corridor	-	0	-	0
Final Net Assets, June 30, 2015	**$**	**28,430**	**$**	**27,915**

On a market value basis the time-weighted rate of return, as reported by IPERS, was 3.96%. The dollar-weighted rate of return, net of investment and administrative expenses, measured on the actuarial value of assets was 8.16%.

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, Sheriffs and Deputies, and Protection Occupation group) as of June 30, 2015.



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 $1.579 billion in deferred (unrecognized) investment gain. With the unfavorable investment experience during FY 2015 on the market value of assets, the deferred gain has decreased to $514 million. The deferred investment gain will be recognized in the smoothing method in future years, but may be offset by actual investment experience if it is less favorable than assumed.

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, 2015 in the following table:

($Millions)	Regular Membership	Sheriffs & Deputies	Protection Occupation	Total*
Actuarial Liability	$31,452	$591	$1,327	$33,370
Actuarial Value of Assets	26,003	567	1,345	27,915
Unfunded Actuarial Liability*	5,449	24	(17)	5,455
Funded Ratio	82.7%	96.0%	101.3%	83.7%

*May not add due to rounding.

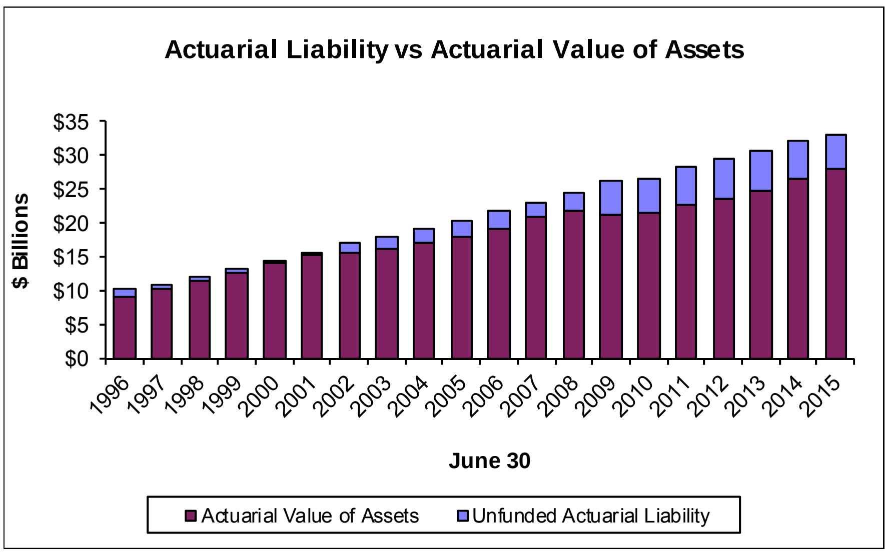
See Exhibit 7 in Section III of the report for the detailed development of the unfunded actuarial liability for each group.

Changes in the UAL occur for various reasons. The net decrease in the UAL from June 30, 2014 to June 30, 2015 was $89 million. The components of this net change are shown in the following table (in millions):

Unfunded Actuarial Liability, June 30, 2014 ($M)	$	5,544
• Expected increase from amortization method		72
• Expected decrease from contributions above actuarial rate		(20)
• Investment experience		(171)
• Liability experience*		30
• Other		0
Unfunded Actuarial Liability before FED transfer, June 30, 2015	$	5,455
• FED Transfer for favorable experience		0
Unfunded Actuarial Liability after FED transfer, June 30, 2015	$	5,455

* Liability experience is 0.09% of the actuarial liability.

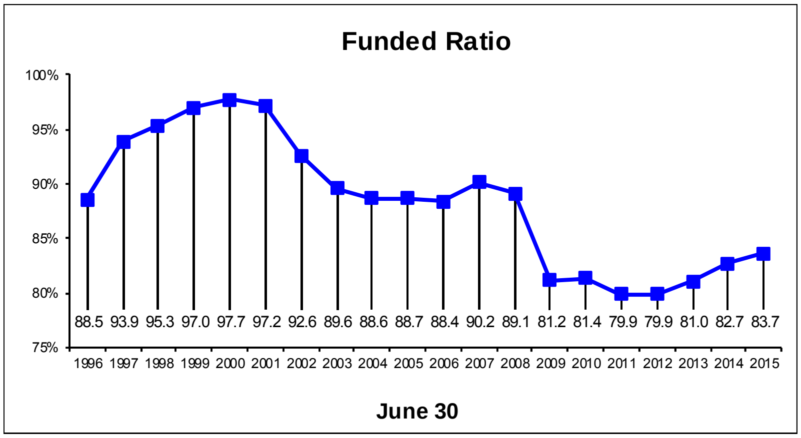
As seen above, various factors impacted the UAL. Actuarial gains (losses), which result from actual experience that is more (less) favorable than anticipated based on the actuarial assumptions, are reflected in the UAL and are measured as the difference between the expected unfunded actuarial liability and the actual unfunded actuarial liability, taking into account any changes due to actuarial assumptions and methods or benefit provision changes. Overall, the System experienced a net actuarial gain of $141 million. The total actuarial gain may be explained by considering the separate experience of assets and liabilities. As noted earlier, there was a $171 million actuarial gain as measured on the actuarial value of assets. There was a net actuarial loss of $30 million from demographic and other experience that was less favorable than anticipated by the actuarial assumptions.



The dollar amount of the UAL has grown over the past two decades due to numerous factors, the most significant of which have been the investment loss of FY 2009 and years of 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 in the following table (in millions).

	6/30/11	6/30/12	6/30/13	6/30/14	6/30/15
Funded Ratio	79.9%	79.9%	81.0%	82.7%	83.7%
Unfunded Actuarial Liability ($M)	$5,682	$5,916	$5,787	$5,544	$5,455



Negative investment experience in FY 2009 caused a significant drop in the funded ratio, which had been stable at around 90% since 2003. The funded ratio stabilized in FY 2010 due to a strong investment return coupled with benefit reductions. The funded ratio, which remained around 80% for several years, is now trending upward.

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.

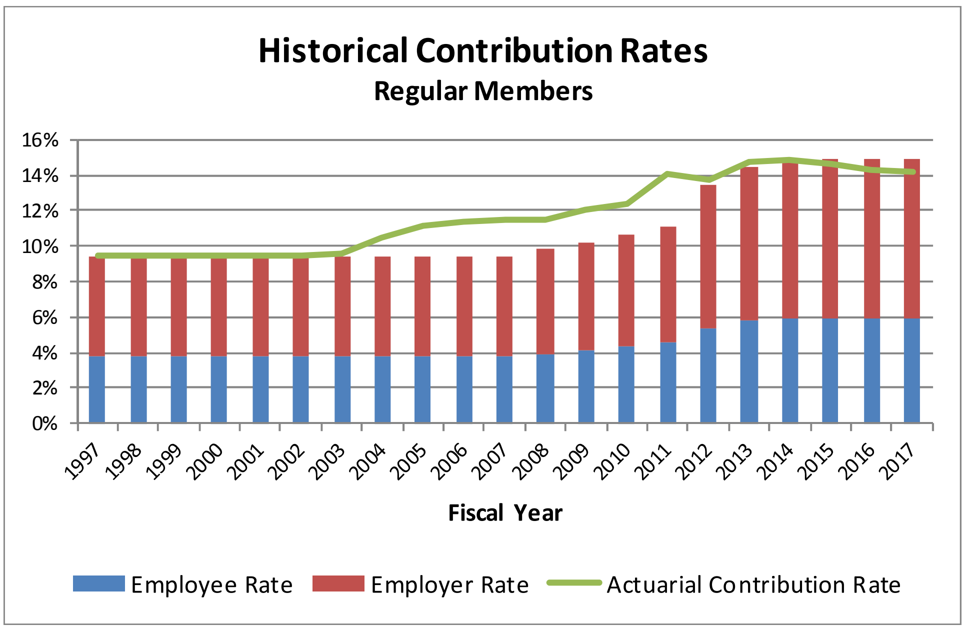
This valuation is used to determine the contribution rates that will be effective July 1, 2016 for the fiscal year ending June 30, 2017. Regular members contributed according to scheduled rates in statute prior to the 2011 valuation at which time IPERS was given the authority to set the Required Contribution Rate for Regular Members, subject to a maximum increase of 1% per year. Based on IPERS' Contribution Rate Funding Policy, the Required Contribution Rate for Regular members in this valuation will remain at the same level as set by last year's report, and so it exceeds the Actuarial Contribution Rate.

The remaining 5% of the active members, the Sheriffs and Deputies group and the Protection Occupation group, have historically contributed at the Actuarial Contribution Rate which was subject to change each year. These groups now contribute based on the same funding policy as is used for the Regular members. Based on the current Contribution Rate Funding Policy, the Required Contribution Rate for the Sheriffs and Deputies group decreased by 0.50% due to their funded status. However, the Required Contribution Rate for the Sheriffs and Deputies group is still higher than the ACR. The Required Contribution Rate for the Protection Occupation group remained unchanged. Based on the results of this valuation, the Required Contribution Rate is higher than the ACR for all three groups.

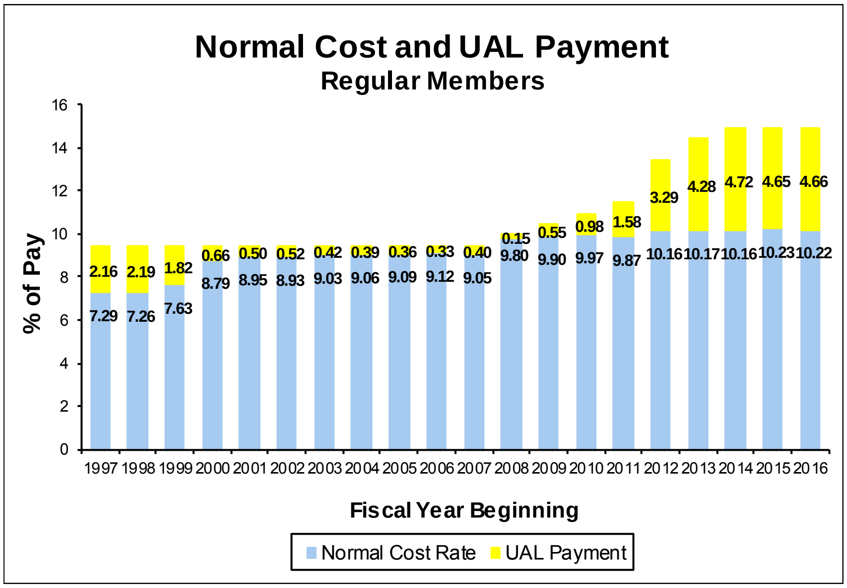
See Exhibit 14 in Section IV for development of these contribution rates which are summarized in the following table:

Contribution Rate for FY 2017	Regular Membership	Sheriffs & Deputies	Protection Occupation
1. Actuarial Contribution Rate	14.17%	17.50%	16.01%
2. Required Contribution Rate	14.88%	19.26%	16.40%
3. Employee Contribution Rate	5.95%	9.63%	6.56%
4. Employer Contribution Rate (2) – (3)	8.93%	9.63%	9.84%
5. Shortfall/(Margin) (1) – (2)	(0.71)%	(1.76)%	(0.39)%

In 2006 and 2010, legislation was passed that increased the statutory contribution rate for Regular Members. Beginning with 2011 valuation (FY 2013), the Investment Board was given the authority to set the Required Contribution Rate for Regular members subject to certain statutory limitations. A historical summary of the actual contribution rate and the actuarial contribution rate is shown in the graph below:



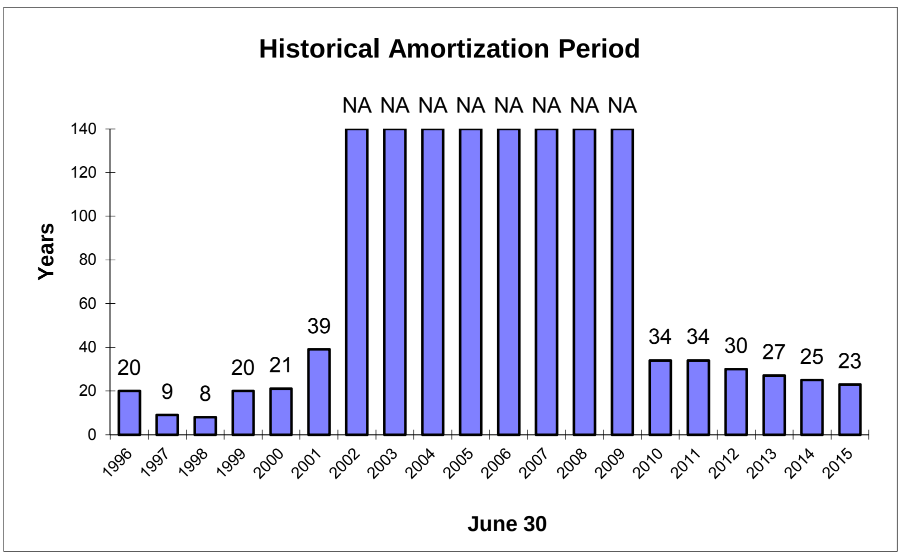
Based on the results of this valuation and the Contribution Rate Funding Policy adopted by the Board, the Required Contribution Rate for fiscal year ending June 30, 2017 for the Regular members is 14.88%, which is above the Actuarial Contribution Rate. This result is a deliberate design feature of the Contribution Rate Funding Policy and is intended to stabilize contribution rates and more quickly improve the funded status of the System.



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

For a number of years, only a small portion of the total contribution rate was available to fund the UAL. Recent changes have increased this portion, providing more progress toward eliminating the UAL.

The Actuarial Contribution Rate is determined based on the snapshot of the System taken on the valuation date, June 30, 2015, and applies only for the fiscal year beginning July 1, 2016. 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 Required Contribution Rate will be set in each future year based on the Actuarial Contribution Rate for that year and the Contribution Rate Funding Policy.



Based on the statutory contribution rate, the period to amortize the UAL was infinite in the 2002 to 2009 valuations. Due to the benefit reductions in 2010 and the increase in the contribution rate beginning in FY 2012, 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.

Note: Years to amortize after 2012 assume the current UAL amortization contribution rate remains level in future years. However, the provisions in the Contribution Rate Funding Policy will result in changes in the contribution rates over time. See Exhibits 11 through 13 for the applicable amortization periods established pursuant to the Actuarial Amortization Method.

SUMMARY

The investment return on the market value of assets for FY2015 was 3.96%, as reported by IPERS. However, due to the recognition of some of the unrecognized investment gains, the investment return on the actuarial value of assets was 8.16%, higher than the assumed 7.50% return. This created an experience gain on the actuarial value of assets, and as a result the System's funded ratio increased from 82.7% in the June 30, 2014 valuation to 83.7% in this valuation.

As mentioned earlier in this section, 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. As a result of favorable investment experience in several recent years that had not yet been recognized in the asset smoothing method, the return on the actuarial value of assets was 8.16%, higher than the assumed 7.50%. Due to the return on the market value of assets of 3.96%, the deferred investment gain has decreased from $1.58 billion in last year's valuation to $514 million in the current valuation.

The key valuation results from the June 30, 2015 actuarial valuation are shown below, using both actuarial and market value of assets.

Total System	Actuarial Value	Market Value
Actuarial Contribution Rate*		
Regular Members		
Normal Cost	10.22%	10.22%
UAL Contribution	3.95%	3.48%
Total Contribution	14.17%	13.70%
UAL ($M)	$ 5,449	$ 4,971
Funded Ratio	82.7%	84.2%
Sheriffs and Deputies		
Normal Cost	16.50%	16.50%
UAL Contribution	1.00%	0.25%
Total Contribution	17.50%	16.75%
UAL ($M)	$ 24	$ 13
Funded Ratio	96.0%	97.9%
Protection Occupation		
Normal Cost	16.01%	16.01%
UAL Contribution	0.00%	0.00%
Total Contribution	16.01%	16.01%
UAL ($M)	$ (17)	$ (44)
Funded Ratio	101.3%	103.3%

*Actuarial Contribution Rate is calculated prior to the application of the Contribution Rate Funding Policy which determines the Required Contribution Rate. These rates reflect the Amortization Method which does not amortize a negative UAL until the group has been at least 110% funded for three consecutive years.

Based on the Contribution Rate Funding Policy adopted by the Investment Board, the Required Contribution Rate determined in this year's valuation for Regular Members will remain unchanged from last year, i.e., 14.88%, and will apply for the fiscal year ending June 30, 2017. The Required Contribution Rate for the Sheriffs and Deputies group in this valuation declined by 0.50% from last year's rate due to their funded ratio and the provisions of the Contribution Rate Funding Policy, but the Required Contribution Rate remains higher than the Actuarial Contribution Rate. The Required Contribution Rate for the Protection Occupation group remains unchanged. As a result, for all three groups the Required Contribution Rates exceeds the Actuarial Contribution Rate for FY 2017.

The Actuarial Contribution Rate is determined based on the snapshot of the System taken on the valuation date, June 30, 2015, and applies only for the fiscal year beginning July 1, 2016. The Actuarial Contribution Rate in the future 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 Required Contribution Rate can vary each year, the annual change to the rate for Regular Members is limited by statute to 1.0% and the Contribution Rate Funding Policy also limits how the rate decreases. Therefore, depending on actual experience in future years, the Required Contribution Rate may vary from the Actuarial Contribution Rate.

The long-term financial health of IPERS is heavily dependent on two key items: (1) future investment returns and (2) systematic contributions to the System at the full actuarially determined rate. Given the System's current funded status, the Actuarial Contribution Rate, and the Required Contribution Rate, the System's funded ratio is expected to improve over the long term, assuming all actuarial assumptions are met in the future.

We conclude this executive summary by presenting comparative statistics and actuarial information on both the June 30, 2015 and June 30, 2014 valuations. All figures shown include the Regular Membership, Sheriffs and Deputies, and the Protection Occupation Group.

SUMMARY OF HISTORICAL CHANGE IN IPERS UNFUNDED ACTUARIAL LIABILITY

($Millions)	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Unfunded Actuarial Liability (BOY[1])	1,255	1,867	2,176	2,289	2,507	2,266	2,665	4,895	4,931	5,682	5,916	5,787	5,544
• **Expected Change**													
− **From Amortization Method**	24	36	42	22	49	44	52	95	96	110	115	99	72
− **Contributions different than Actuarial Rate**	61	87	103	125	118	127	140	248	218	65	21	0	(20)
• **Investment Experience**	402	75	(89)	(235)	(622)	5	1,903	666	(66)	168	(15)	(527)	(171)
• **Liability and Other Experience**	125	82	57	242	187	214	135	(185)	(17)	(109)	(250)	(29)	30
• **Benefit Enhancements**	0	29	0	0	0	6	0	(674)	0	0	0	0	0
• **Change in Assumptions/Methods**	0	0	0	64	27	3	0	(114)	417	0	0	215	0
• **Change in Actuarial Software**	0	0	0	0	0	0	0	0	103	0	0	0	0
• **FED Transfer**	0	0	0	0	0	0	0	0	0	0	0	(1)	0
Unfunded Actuarial Liability (EOY[2])	1,867	2,176	2,289	2,507	2,266	2,665	4,895	4,931	5,682	5,916	5,787	5,544	5,455

1 = Beginning of Year
2 = End of Year

IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
PRINCIPAL RESULTS

	June 30, 2015	June 30, 2014	% Chg
SYSTEM MEMBERSHIP			
1. Active Membership			
- Number of Members			
(excluding Retired/Reemployed)	167,368	165,911	0.9
- Projected Payroll for Upcoming Fiscal Year	$7,573M	$7,337M	3.2
- Average Salary	$45,247	$44,225	2.3
2. Inactive Membership			
- Number Not in Pay Status	67,374	72,214	(6.7)
- Number of Retirees/Beneficiaries	111,127	107,934	3.0
- Average Annual Benefit	$15,745	$15,293	3.0
ASSETS AND LIABILITIES			
1. Net Assets (excluding FED reserve)			
- Market Value	$28,430M	$28,039M	1.4
- Actuarial Value	27,915M	26,460M	5.5
2. Projected Liabilities			
- Retired Members	$16,843M	$15,975M	5.4
- Inactive Members	699M	651M	7.4
- Active Members	22,599M	21,927M	3.1
- Total Liability	$40,142M	$38,553M	4.1
3. Actuarial Liability	$33,370M	$32,004M	4.3
4. Unfunded Actuarial Liability	$5,455M	$5,544M	(1.6)
5. Funded Ratio			
a. Actuarial Value Assets/Actuarial Liability	83.65%	82.68%	1.2
b. Market Value Assets/Actuarial Liability	85.19%	87.61%	(2.8)
SYSTEM CONTRIBUTIONS			
Required Contribution Rate, Regular Members*	14.88%	14.88%	0.0
Employer Contribution Rate	8.93%	8.93%	0.0
Employee Contribution Rate	5.95%	5.95%	0.0
Total Actuarial Contribution Rate	14.17%	14.35%	(1.3)
Shortfall/(Margin)	(0.71%)	(0.53%)	34.0

Note: Totals may not add due to rounding

M = ($)Millions

* Contribution rates for Sheriffs and Deputies are 9.63% for employers, 9.63% for employees

Contribution rates for Protection Occupation are 9.84% for employers, 6.56% for employees

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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, 2015			June 30, 2014		
		Amount	% of Total		Amount	% of Total
Cash & Equivalents	$	239	0.8%	$	285	1.0%
Capital Assets, Receivables and Payables		(616)	(2.2)		(433)	(1.5)
Domestic Equity		6,873	24.2		7,319	26.1
International Equity		4,515	15.9		4,408	15.7
Fixed Income		9,615	33.8		9,128	32.6
Real Estate		2,275	8.0		2,178	7.8
Real Assets		1,732	6.1		1,666	5.9
Private Equity/Debt		3,242	11.4		3,075	11.0
Securities Lending Collateral Pool		555	2.0		413	1.4
TOTAL NET ASSETS	$	28,430	100.0%	$	28,039	100.0%
FED Reserve (Before current year transfer)		0			0	
Current Year FED Transfer Payable		0			0	
Net Retirement System Assets	$	28,430		$	28,039	

EXHIBIT 2

SUMMARY OF FUND ACTIVITY
(Market Value)

	Regular Membership	Sheriffs & Deputies	Protection Occupation	FED Reserve	Total
NET RETIREMENT SYSTEM ASSETS ON JUNE 30, 2014	$26,157,761,036	$559,260,253	$1,321,528,604	$0	$28,038,549,893
REVENUE					
Employer contributions	613,976,718	9,817,386	33,117,056	0	656,911,160
Member contributions	409,317,812	9,817,386	22,078,038	0	441,213,236
Service purchase	16,378,230	380,522	716,881	0	17,475,633
Investment income	1,079,547,834	23,276,163	55,198,676	0	1,158,022,673
Total Revenue	$2,119,220,594	$43,291,457	$111,110,651	$0	$2,273,622,702
DISBURSEMENTS					
Benefit payments	1,667,665,590	24,654,004	52,281,416	0	1,744,601,010
Member and employer refunds	40,546,738	488,710	6,131,983	0	47,167,431
Administrative expenses	12,102,219	91,897	397,640	0	12,591,756
Investment expenses	72,693,323	1,567,343	3,716,903	0	77,977,569
Total Expenses	$1,793,007,870	$26,801,954	$62,527,942	$0	$1,882,337,766
PRELIMINARY NET ASSETS ON JUNE 30, 2015	$26,483,973,760	$575,749,756	$1,370,111,313	$0	$28,429,834,829
TRANSFERS					
Membership changes	(3,567,837)	2,581,684	986,153	0	0
FED Reserve	0	0	0	0	0
ADJUSTED NET ASSETS ON JUNE 30, 2015	$26,480,405,923	$578,331,440	$1,371,097,466	$0	$28,429,834,829

EXHIBIT 3

ACTUARIAL VALUE OF NET ASSETS

	Regular Membership	Sheriffs & Deputies	Protection Occupation	Total
1. Actuarial Value of Assets as of June 30, 2014	$24,688,992,673	$527,010,103	$1,244,425,309	$26,460,428,085
2. Actual Receipts/Disbursements				
a. Contributions	1,039,672,760	20,015,294	55,911,975	1,115,600,029
b. Benefit Payments and Refunds	1,708,212,328	25,142,714	58,413,399	1,791,768,441
c. Net Change	(668,539,568)	(5,127,420)	(2,501,424)	(676,168,412)
3. Expected Value of Assets as of June 30, 2015 [(1) x 1.075] + [(2c) x $(1.075)^{.5}$]	25,847,510,546	561,219,639	1,335,163,676	27,743,893,861
4. Preliminary Market Value of Assets as of June 30, 2015	26,483,973,760	575,749,756	1,370,111,313	28,429,834,829
5. Difference Between Market and Expected Values (4) - (3)	636,463,214	14,530,117	34,947,637	685,940,968
6. Preliminary Actuarial Value of Assets as of June 30, 2015 (3) + [(5) x 25%]	26,006,626,350	564,852,168	1,343,900,585	27,915,379,103
7. Transfers				
a. Membership changes	(3,503,275)	2,534,967	968,308	0
b. FED Reserve	0	0	0	0
8. Initial Actuarial Value of Assets as of June 30, 2015	$26,003,123,075	$567,387,135	$1,344,868,893	$27,915,379,103
9. Determination of Corridor				
a. 80% of Market Value of Assets	21,184,324,738	462,665,152	1,096,877,973	22,743,867,863
b. 120% of Market Value of Assets	31,776,487,108	693,997,728	1,645,316,959	34,115,801,795
10. Final Actuarial Value of Assets as of June 30, 2015 (8), but not less than (9a), nor greater than (9b)	$26,003,123,075	$567,387,135	$1,344,868,893	$27,915,379,103

EXHIBIT 4

HISTORICAL COMPARISON (ACTUARIAL AND MARKET)

Value as of June 30		Actuarial Value of Net Assets (AVA)	Market Value of Net Assets (MVA)	AVA/MVA
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%
2012		23,530,094,461	23,024,773,746	102%
2013		24,711,096,187	24,756,663,715	100%
2014		26,460,428,085	28,038,549,893	94%
2015		27,915,379,103	28,429,834,829	98%

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

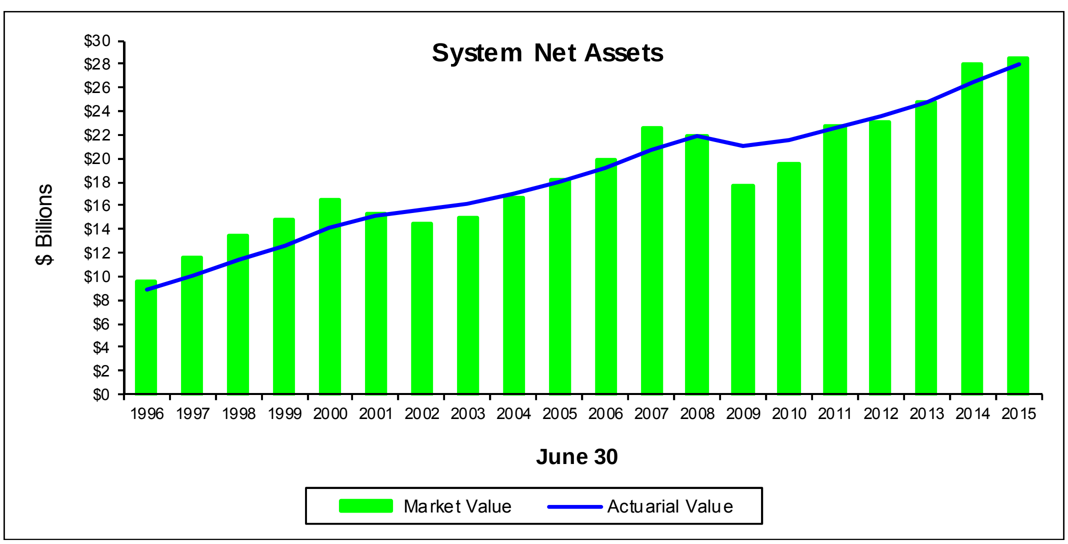

EXHIBIT 5

SUMMARY OF FAVORABLE EXPERIENCE DIVIDEND RESERVE

1. Initial Market Value of FED Reserve as of June 30, 2015	$	0
2. Transfer to Membership Groups		0
3. Final Value of FED Reserve as of June 30, 2015 (1) - (2)	$	0

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 expected covered payroll of current actives 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:

From	To		
	Regular	Sheriffs and Deputies	Protection Occupation
Regular		14	220
Sheriffs and Deputies	3		10
Protection Occupation	164	45	

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

Regular	Sheriffs and Deputies	Protection Occupation
($2,776,775)	$542,527	$1,678,036

EXHIBIT 6

PRESENT VALUE OF FUTURE BENEFITS
as of June 30, 2015

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	Sheriffs & Deputies	Protection Occupation	Total
Present Value of Future Benefits:				
Active Members				
Retirement benefits	$19,218,655,745	$412,293,951	$1,042,098,812	$20,673,048,508
Death benefits	206,813,536	5,465,866	24,410,461	236,689,863
Termination benefits	969,798,227	35,924,420	153,553,442	1,159,276,089
Disability benefits	464,616,819	12,937,709	52,868,979	530,423,507
Inactive Members				
Vested members	602,986,370	7,202,898	30,551,021	640,740,289
Nonvested members	56,516,918	236,380	1,459,024	58,212,322
Retired Members and Beneficiaries	16,028,939,271	266,693,628	547,545,074	16,843,177,973
Total Present Value of Future Benefits	$37,548,326,886	$740,754,852	$1,852,486,813	$40,141,568,551

EXHIBIT 7

UNFUNDED ACTUARIAL LIABILITY
as of June 30, 2015

	Regular Membership	Sheriffs & Deputies	Protection Occupation	Total
1. Present Value of Future Benefits	$37,548,326,886	$740,754,852	$1,852,486,813	$40,141,568,551
2. Present Value of Future Normal Costs	6,096,474,931	149,752,816	525,022,073	6,771,249,820
3. Actuarial Liability (1) - (2)	$31,451,851,955	$591,002,036	$1,327,464,740	$33,370,318,731
4. Actuarial Value of Net Assets	26,003,123,075	567,387,135	1,344,868,893	27,915,379,103
5. Unfunded Actuarial Liability (3) - (4)	$5,448,728,880	$23,614,901	($17,404,153)	$5,454,939,628
6. Funded Ratio (4) / (3)	82.7%	96.0%	101.3%	83.7%

EXHIBIT 8

CALCULATION OF ACTUARIAL (GAIN)/LOSS AND ANY TRANSFER TO THE FAVORABLE EXPERIENCE DIVIDEND RESERVE
Based on the June 30, 2015 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 currently has an UAL so no transfer is to be made this year, nor is any future transfer assumed for any actuarial valuation calculations.

1. June 30, 2014 Unfunded Actuarial Liability	$	5,544,028,003
2. Normal Cost for year ending June 30, 2015		721,830,877
3. Employer and Employee Contributions*		1,098,124,396
4. Change due to membership transfers		(556,212)
5. Change due to FED transfer		0
6. Change due to assumptions and method revisions		0
7. Expected Unfunded Actuarial Liability as of June 30, 2015 $[(1) + (2)] * 1.075 - (3) * (1.075)^{.5} + (4) + (5) + (6)$		5,596,682,477
8. Actual Unfunded Actuarial Liability as of June 30, 2015		5,454,939,628
9. (Gain)/loss (8) - (7)		(141,742,849)
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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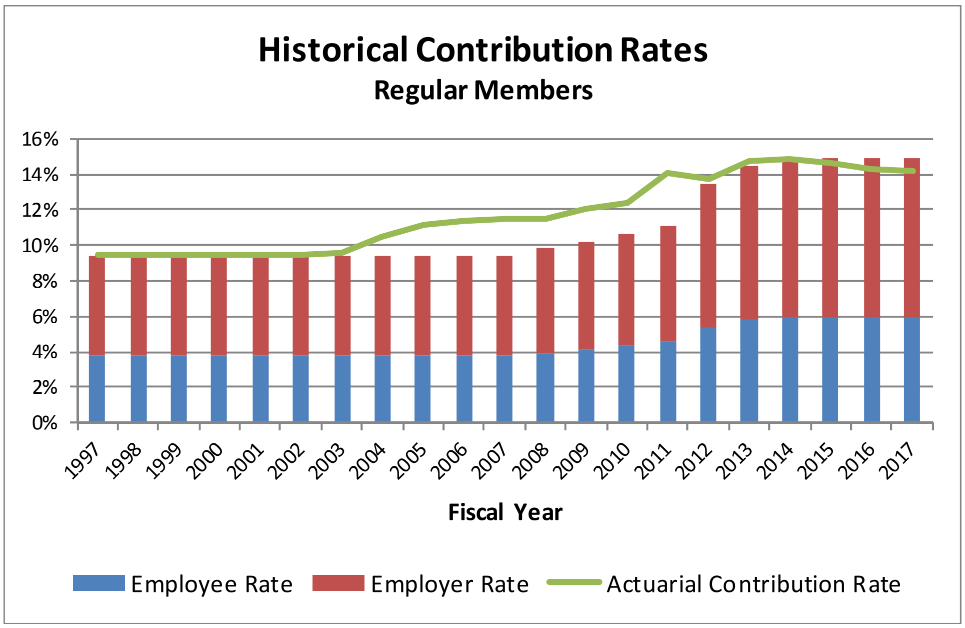
Under the actuarial funding method described in Appendix C, the actuarial contribution rate consists of two elements:

(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. Beginning with the 2011 valuation (FY 2013), the Investment Board was given the authority to set the Required Contribution Rate for Regular members subject to certain statutory limitations. A historical summary of the actual contribution rate and the actuarial contribution rate is shown in the graph below:



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, 2015

	Regular Membership	Sheriffs & Deputies	Protection Occupation	Total
ASSETS				
Actuarial value of assets	$26,003,123,075	$567,387,135	$1,344,868,893	$27,915,379,103
Present value of future normal costs	6,096,474,931	149,752,816	525,022,073	6,771,249,820
Present value of future contributions to amortize unfunded actuarial liability	5,448,728,880	23,614,901	(17,404,153)	5,454,939,628
Total Net Assets	$37,548,326,886	$740,754,852	$1,852,486,813	$40,141,568,551
LIABILITIES				
Present Value of Future Benefits:				
Retired Members and Beneficiaries	$16,028,939,271	$266,693,628	$547,545,074	$16,843,177,973
Active Members	20,859,884,327	466,621,946	1,272,931,694	22,599,437,967
Inactive Members	659,503,288	7,439,278	32,010,045	698,952,611
Total Liabilities	$37,548,326,886	$740,754,852	$1,852,486,813	$40,141,568,551

EXHIBIT 10

PROJECTED UNFUNDED ACTUARIAL LIABILITY ON JUNE 30, 2016

		Regular Membership		Sheriffs & Deputies		Protection Occupation
1. FYE 2016 Contribution Rate		14.88%		19.76%		16.40%
2. Normal Cost Rate		10.22%		16.50%		16.01%
3. Contribution Rate Applied to Fund the UAL for FYE 2016 (1) - (2)		4.66%		3.26%		0.39%
4. Unfunded Actuarial Liability/(Surplus) on June 30, 2015	$	5,448,728,880	$	23,614,901	$	(17,404,153)
5. Expected Payroll for FYE 2016	$	7,253,725,042	$	105,723,281	$	350,017,676
6. Projected UAL on June 30, 2016 [(4) x 1.075] - [(3) x (5) x $1.075^{.5}$]	$	5,506,913,232	$	21,812,529	$	(20,124,798)

EXHIBIT 11

UAL AMORTIZATION BASES
REGULAR MEMBERS

Date Base is Established	Original Amount	Remaining Payments	Projected July 1, 2016 Balance	Annual Payment*
June 30, 2014	$ 5,592,056,086	29	$ 5,700,561,430	$ 311,851,790
June 30, 2015	(193,648,198)	20	(193,648,198)	(13,501,117)
Total			**$ 5,506,913,232**	**$ 298,350,673**

* Payment amount reflects mid-year timing.

1. Total UAL Amortization Payments	$ 298,350,673
2. Projected Payroll for FYE 2016	$ 7,253,725,042
3. Projected Payroll for FYE 2017 (2) x 1.04	$ 7,543,874,044
4. UAL Amortization Payment Rate (1) / (3)	3.95%

Note: Based on the Actuarial Amortization Method, adopted by the Investment Board, annual net experience gains/losses are amortized over a new, closed 20-year period.

EXHIBIT 12

UAL AMORTIZATION BASES
SHERIFFS & DEPUTIES

Date Base is Established	Original Amount	Remaining Payments	Projected July 1, 2016 Balance	Annual Payment*
June 30, 2014	$ 27,848,921	29	$ 28,389,287	$ 1,553,049
June 30, 2015	(6,576,758)	20	(6,576,758)	(458,530)
Total			**$ 21,812,529**	**$ 1,094,519**

* Payment amount reflects mid-year timing.

1. Total UAL Amortization Payments	$	1,094,519
2. Projected Payroll for FYE 2016	$	105,723,281
3. Projected Payroll for FYE 2017 (2) x 1.04	$	109,952,212
4. UAL Amortization Payment Rate (1) / (3)		1.00%

Note: Based on the Actuarial Amortization Method, adopted by the Investment Board, annual net experience gains/losses are amortized over a new, closed 20-year period.

EXHIBIT 13

UAL AMORTIZATION BASES
PROTECTION OCCUPATION

Date Base is Established	Original Amount	Remaining Payments	Projected July 1, 2016 Balance	Annual Payment*
June 30, 2015	$ (20,124,798)	30	$ (20,124,798)	$ (1,079,133)
Total			**$ (20,124,798)**	**$ (1,079,133)**

* Payment amount reflects mid-year timing.

1. Total UAL Amortization Payments	$ (1,079,133)
2. Projected Payroll for FYE 2016	$ 350,017,676
3. Projected Payroll for FYE 2017 (2) x 1.04	$ 364,018,383
4. UAL Amortization Payment Rate (1) / (3)	(0.30%)

Note: Based on the Actuarial Amortization Method, adopted by the Investment Board, the total surplus is amortized over an open 30-year period since the UAL is negative.

EXHIBIT 14

ANALYSIS OF CONTRIBUTION RATE

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. This method was revised by the Investment Board in September 2013 (see Appendix C). The contribution rate developed in this exhibit is based on the Funding Policy and the June 30, 2015 actuarial valuation and applies to the fiscal year beginning July 1, 2016 and ending June 30, 2017.

	Regular Membership	**Sheriffs & Deputies**	**Protection Occupation**
1. Normal Cost Rate	10.22%	16.50%	16.01%
2. UAL Contribution Rate for FYE 2017	3.95%	1.00%	(0.30%)
3. Funded Ratio as of June 30, 2015	82.7%	96.0%	101.3%
Funded Ratio as of June 30, 2014	81.7%	94.8%	100.1%
Funded Ratio as of June 30, 2013	80.2%	90.5%	96.8%
4. UAL Contribution Rate Applicable for FYE 2017 (2) if positive or if all years in (3) >=110%	3.95%	1.00%	0.00%
5. Actuarial Contribution Rate for FYE 2017 (1) + (4)	14.17%	17.50%	16.01%
6. Required Contribution Rate for FYE 2016	14.88%	19.76%	16.40%
7. Required Contribution Rate for FYE 2017*	14.88%	19.26%	16.40%
Employer Contribution Rate	8.93%	9.63%	9.84%
Employee Contribution Rate	5.95%	9.63%	6.56%

* The Required Contribution Rate is the Actuarial Contribution Rate, but not more than 1% greater than the prior year's Required Contribution Rate for Regular Members, nor lower than the prior year's Required Contribution Rate unless the difference is at least 0.50% and the funded ratio is at least 95%, in which case the Required Contribution Rate is the prior year's Required Contribution Rate less 0.50% for all groups.

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SECTION V

HISTORICAL FUNDING AND OTHER INFORMATION

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This section of the report provides a historical perspective on the System's funding and contribution practices, along with other information that may be of interest.

In the past, Governmental Accounting Standards Board (GASB) Statements No. 25, Financial Reporting for Defined Benefit Pension Plans, applied to the preparation of financial reports of pension plans for state and local governments. GASB 67, which is effective for fiscal years ending after June 15, 2014, replaces GASB 25 and represents a significant departure from the requirements of that older statement. GASB 25 was issued as a "funding friendly" statement that required pension plans to report items consistent with the results of the plan's actuarial valuations, as long as those valuations met certain parameters. GASB 67 separates accounting from funding by creating disclosure and reporting requirements that may or may not be consistent with the basis used for funding the System. A separate report that contains all of the information and exhibits of an actuarial nature that are necessary for the System's financial reporting under GASB 67 will be issued.

This section continues to report certain key actuarial metrics related to the historical funding of the System, many of which were formerly disclosed under GASB 25. This data provides a valuable long-term perspective of the System's funding and contribution practices.

EXHIBIT 15

SUMMARY OF VALUATION MEMBERSHIP

	June 30, 2015	June 30, 2014
Active Employees:		
Vested	106,744	112,931
Not yet vested	60,624	52,980
Total active employees	167,368	165,911
Retirees and beneficiaries currently receiving benefits*	111,127	107,934
Inactive vested members entitled to benefits but not yet receiving them	27,659	28,713
Inactive, nonvested members entitled to a refund of contributions**	39,715	43,501

* Retired/reemployed members are included in retiree counts, but not the active or inactive counts. Counts are 10,295 for 2015 and 9,931 for 2014.

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

EXHIBIT 16

SCHEDULE OF FUNDING PROGRESS

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]
6/30/03	$16,120,476,011	$17,987,374,960	1,866,898,949	89.62%	$4,881,100,238	38.25%
6/30/04	16,951,942,539	19,128,410,606	2,176,468,067	88.62%	5,072,027,906	42.91%
6/30/05	17,951,490,071	20,240,098,667	2,288,608,596	88.69%	5,236,860,886	43.70%
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%
6/30/12	23,530,094,461	29,446,197,486	5,916,103,025	79.91%	6,786,158,720	87.18%
6/30/13	24,711,096,187	30,498,342,320	5,787,246,133	81.02%	6,880,131,134	84.12%
6/30/14	26,460,428,085	32,004,456,088	5,544,028,003	82.68%	7,099,277,280	78.09%
6/30/15	27,915,379,103	33,370,318,731	5,454,939,628	83.65%	7,326,348,141	74.46%

EXHIBIT 17

SCHEDULE OF EMPLOYER CONTRIBUTIONS

The Employer Actuarial Contribution Rate (ACR) is determined as a rate of pay as part of the annual valuation. The dollar amounts displayed in this table are based on analysis by IPERS each year to consider the actual contributions received (using the actual contribution rate in effect) and then determining what the ACR amount would have been on the same payroll.

	Actuarial Contribution Rate (ACR)				Percentage of ACR Contributed			
Fiscal Year Ending	**Regular Membership**	**Sheriffs & Deputies**	**Protection Occupation**	**Total**	**Regular Membership**	**Sheriffs & Deputies**	**Protection Occupation**	**Total**
6/30/03	$270,363,338	$5,670,239	$13,738,478	$289,772,054	99.2%	100.0%	100.0%	99.2%
6/30/04	309,006,609	5,489,797	14,263,836	328,760,242	90.3%	100.0%	100.0%	90.9%
6/30/05	341,552,685	6,236,611	15,391,729	363,181,025	84.7%	100.0%	100.0%	85.6%
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	96.4%	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%
6/30/12	528,525,785	8,999,273	30,864,449	568,389,507	98.1%	100.0%	100.0%	98.2%
6/30/13	573,480,969	9,246,766	32,118,873	614,846,608	97.8%	100.0%	100.0%	98.0%
6/30/14	596,983,323	9,583,512	32,434,713	639,001,548	100.0%	100.0%	100.0%	100.0%
6/30/15	602,423,393	9,588,844	32,548,775	644,561,012	102.1%	102.4%	101.7%	101.9%

EXHIBIT 18

EXPECTED BENEFIT PAYMENTS

The following table 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 retirement benefit payments.

These payouts do not include any current non-vested inactive members, any future members, or any FED payments.

Fiscal Year End	Actives at 6/30/15	Retirees at 6/30/15	Total
2016	$ 158,031,000	$ 1,744,824,000	$ 1,902,855,000
2017	305,459,000	1,716,253,000	2,021,712,000
2018	452,517,000	1,686,306,000	2,138,823,000
2019	595,762,000	1,654,579,000	2,250,341,000
2020	736,892,000	1,621,307,000	2,358,199,000
2021	876,063,000	1,585,840,000	2,461,903,000
2022	1,014,204,000	1,548,953,000	2,563,157,000
2023	1,155,990,000	1,510,291,000	2,666,281,000
2024	1,296,723,000	1,469,915,000	2,766,638,000
2025	1,436,119,000	1,427,621,000	2,863,740,000
2026	1,575,975,000	1,383,922,000	2,959,897,000
2027	1,716,372,000	1,339,021,000	3,055,393,000
2028	1,856,755,000	1,292,425,000	3,149,180,000
2029	1,996,846,000	1,244,239,000	3,241,085,000
2030	2,136,652,000	1,194,462,000	3,331,114,000
2031	2,276,275,000	1,143,164,000	3,419,439,000
2032	2,415,186,000	1,090,431,000	3,505,617,000
2033	2,556,658,000	1,036,365,000	3,593,023,000
2034	2,697,212,000	981,117,000	3,678,329,000
2035	2,835,826,000	924,852,000	3,760,678,000

Note: Cash flows are the expected future non-discounted payments to current members. These numbers exclude refund payouts to current non-vested inactives and assume future retirees elect the normal form of annuity payment (Option 2) and future withdrawals elect refunds according to valuation assumptions.

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APPENDIX A

SUMMARY STATISTICS ON SYSTEM MEMBERSHIP

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APPENDIX A

SUMMARY STATISTICS ON SYSTEM MEMBERSHIP

TABLE OF CONTENTS

RECONCILIATION OF ACTIVE MEMBERS

Below is a summary of the changes in active members (excluding retired re-employed members) between June 30, 2014 and June 30, 2015.

	Regular Membership	Sheriffs & Deputies	Protection Occupation	Total
6/30/2014 Starting count	157,347	1,538	7,026	165,911
New actives	15,778	48	545	16,371
Returning actives	2,758	10	97	2,865
Nonvested Terminations	(6,344)	(4)	(150)	(6,498)
Elected Refund	(2,742)	(7)	(161)	(2,910)
Vested Terminations	(2,738)	(12)	(183)	(2,933)
Total Withdrawals	(11,824)	(23)	(494)	(12,341)
Deaths	(180)	0	(4)	(184)
Disability Retirements	(98)	0	(10)	(108)
AE Benefits	(251)	0	(2)	(253)
Service Retirements	(4,506)	(56)	(147)	(4,709)
Total Retirements	(4,855)	(56)	(159)	(5,070)
Other/transfer	(215)	35	(4)	(184)
6/30/2015 Ending count	158,809	1,552	7,007	167,368

HISTORICAL SUMMARY OF MEMBERS

The following table displays selected historical data (including Regular, Sheriffs and Deputies, and Protection Occupation groups) as available.

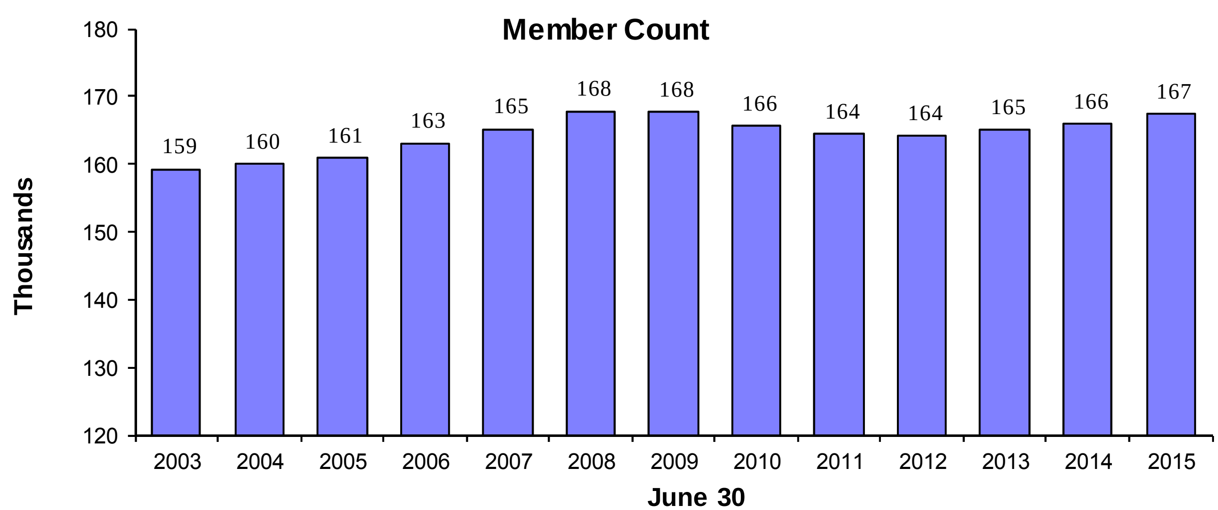
Valuation Date June 30	Total Count	Number	Average					Number			Active/Retired Ratio
			Age	Entry Age	Service	Annual Pay ($)	% Change	Retired Reemployed	Inactive Vested	Retired	
1991	206,105	135,104	43.7			21,885				49,881	2.71
1992	207,860	134,485	44.3			22,510	2.9%			51,247	2.62
1993	211,862	136,409	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
2012	294,996	164,200	45.8	34.2	11.6	42,223	3.5%	8,265	29,119	101,677	1.61
2013	299,793	165,095	45.7	34.1	11.6	42,404	0.4%	9,925	28,443	104,640	1.58
2014	302,558	165,911	45.7	34.1	11.6	44,225	4.3%	9,931	28,713	107,934	1.54
2015	306,154	167,368	45.6	34.1	11.5	45,247	2.3%	10,295	27,659	111,127	1.51

Note: The Total Count figure represents the number of members valued in this report. The Retired Reemployed figure represents the number of members who have both an in-pay record and a not-in-pay record.

SUMMARY OF ACTIVE MEMBERS

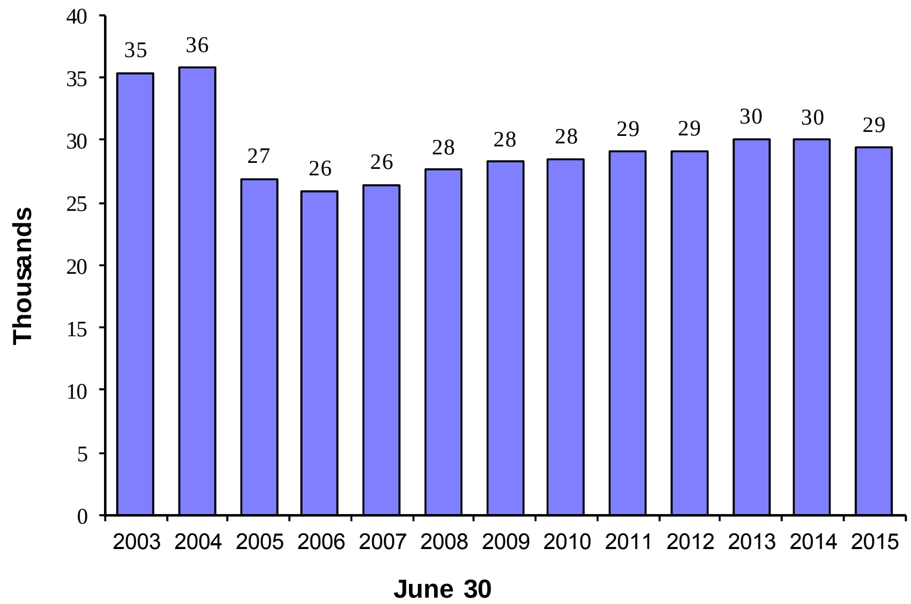
	Regular Membership	Sheriffs & Deputies	Protection Occupations	Total 6/30/2015	Total 6/30/2014	Percent Change
Total Active Members	158,809	1,552	7,007	167,368	165,911	0.9
Projected Covered Payroll* (millions)	$7,128	$103	$341	$7,573	$7,337	3.2
Average Age	45.8	41.4	41.9	45.6	45.7	(0.2)
Average Entry Age	34.3	26.7	30.9	34.1	34.1	0.0
Average Earnings	$44,885	$66,571	$48,724	$45,247	$44,225	2.3
Retired Reemployed	8,295	99	148	8,542	8,389	1.8

*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.



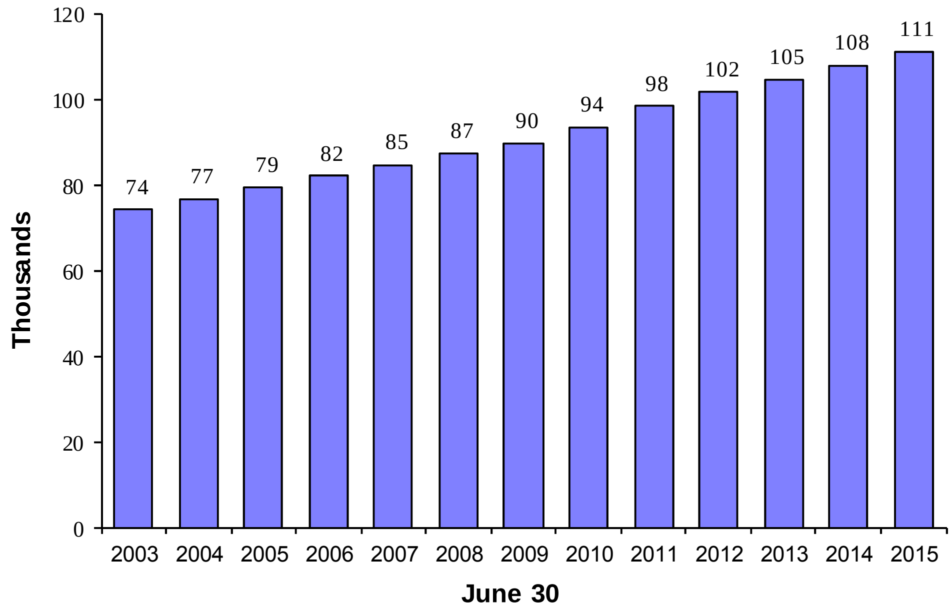
SUMMARY OF INACTIVE VESTED MEMBERS

	Regular Membership	Sheriffs & Deputies	Protection Occupations	Total 6/30/2015	Total 6/30/2014	Percent Change
Inactive Vested	26,788	92	779	27,659	28,713	(3.7%)
Inactive Retired Reemployed	1,704	10	39	1,753	1,542	13.7%
Total Inactive Vested	28,492	102	818	29,412	30,255	(2.8%)



SUMMARY OF RETIRED MEMBERS AND BENEFICIARIES

Regular Membership	Sheriffs & Deputies	Protection Occupations	Total 6/30/2015	Total 6/30/2014	Percent Change
107,984	848	2,295	111,127	107,934	3.0%



AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2015 FOR ACTIVE MEMBERS*

Males and Females - Regular Membership

Years of Service

Age	0 to 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 30		30 to 35		35 to 40		40 and over		Total	
	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	6,220	17,485	65	28,100	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	6,285	17,595
25-29	11,003	31,295	2,621	40,640	34	33,481	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	13,658	33,094
30-34	7,074	32,892	6,684	45,964	2,078	51,752	34	42,215	0	NA	0	NA	0	NA	0	NA	0	NA	15,870	40,887
35-39	6,088	30,701	4,477	45,747	5,236	55,083	1,657	58,740	15	51,560	0	NA	0	NA	0	NA	0	NA	17,473	44,539
40-44	5,293	29,175	4,086	41,904	3,055	52,369	4,402	61,717	1,090	63,502	14	60,806	0	NA	0	NA	0	NA	17,940	46,119
45-49	4,438	28,283	3,893	38,073	3,290	45,290	3,453	55,692	3,368	65,823	1,015	65,871	14	58,368	0	NA	0	NA	19,471	46,449
50-54	3,888	28,205	3,574	35,031	3,467	40,515	3,802	47,355	2,718	55,836	3,210	65,820	1,435	63,728	102	55,808	0	NA	22,196	45,754
55-59	3,793	25,795	3,043	36,031	2,893	39,566	3,666	44,113	2,955	50,092	2,665	59,359	2,559	68,370	1,343	62,841	63	54,169	22,980	45,807
60-64	4,136	19,343	2,450	32,603	1,986	36,852	2,410	43,131	2,131	47,362	1,923	54,189	1,067	59,957	1,228	67,481	459	62,522	17,790	40,342
65-69	3,074	13,299	1,688	19,541	921	28,878	690	41,420	547	42,858	420	49,434	232	55,140	184	63,236	219	70,824	7,975	26,732
70 & over	2,829	19,732	1,548	12,103	734	12,279	229	14,416	62	21,426	20	29,482	14	39,494	15	31,382	15	59,439	5,466	16,594
Totals	57,836	26,572	34,129	38,274	23,694	45,151	20,343	51,140	12,886	55,655	9,267	60,725	5,321	64,752	2,872	64,436	756	64,170	167,104	40,761

*Including retired/reemployed members

AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2015 FOR ACTIVE MEMBERS*

Males and Females - Sheriffs and Deputies

Years of Service

	0 to 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 30		30 to 35		35 to 40		40 and over		Total	
Age	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	39	40,133	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	39	40,133
25-29	111	50,812	48	57,994	1	51,090	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	160	52,968
30-34	68	51,443	115	61,762	57	60,484	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	240	58,535
35-39	18	51,044	58	59,878	115	62,781	71	67,003	2	54,702	0	NA	0	NA	0	NA	0	NA	264	62,417
40-44	9	51,095	29	59,788	60	63,251	106	65,588	42	67,243	0	NA	0	NA	0	NA	0	NA	246	64,086
45-49	4	47,058	19	60,317	36	63,664	59	70,171	87	69,604	48	69,231	0	NA	0	NA	0	NA	253	67,767
50-54	10	60,981	10	53,610	10	64,152	37	66,492	38	67,889	62	70,735	20	79,865	1	129,007	0	NA	188	68,826
55-59	20	26,873	5	51,304	7	68,740	15	63,611	16	65,812	27	67,120	17	70,688	16	76,007	0	NA	123	61,076
60-64	21	14,607	19	30,915	3	57,132	1	54,086	5	71,206	11	69,669	8	71,128	16	73,070	9	79,391	93	50,480
65-69	9	10,545	10	16,944	5	68,158	0	NA	2	60,382	1	69,726	2	63,782	1	53,777	1	72,248	31	33,846
70 & over	4	16,218	5	10,712	5	17,946	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	14	14,869
Totals	313	44,358	318	56,107	299	61,973	289	66,845	192	68,223	149	69,510	47	74,374	34	75,530	10	78,677	1,651	60,497

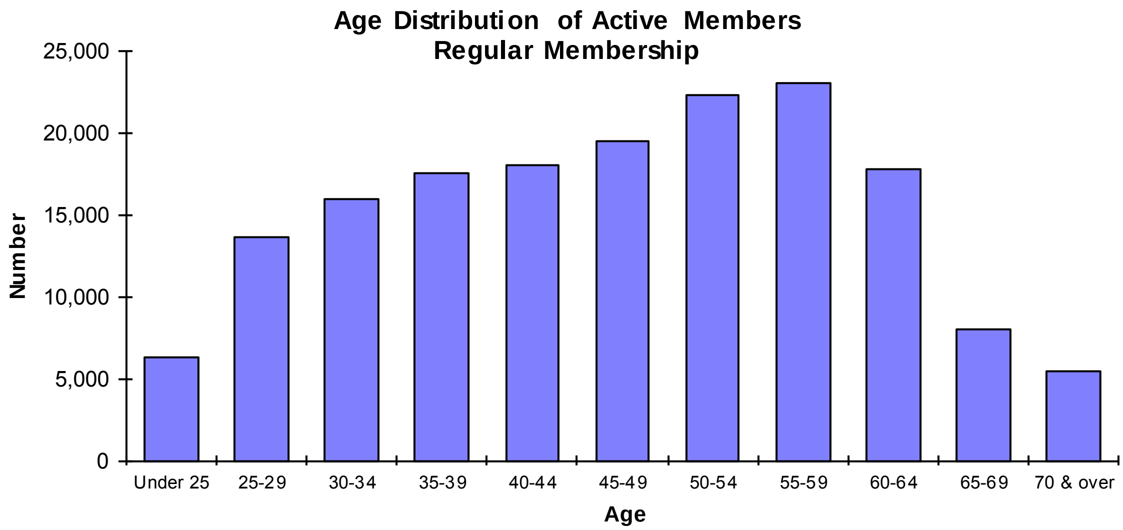
*Including retired/reemployed members

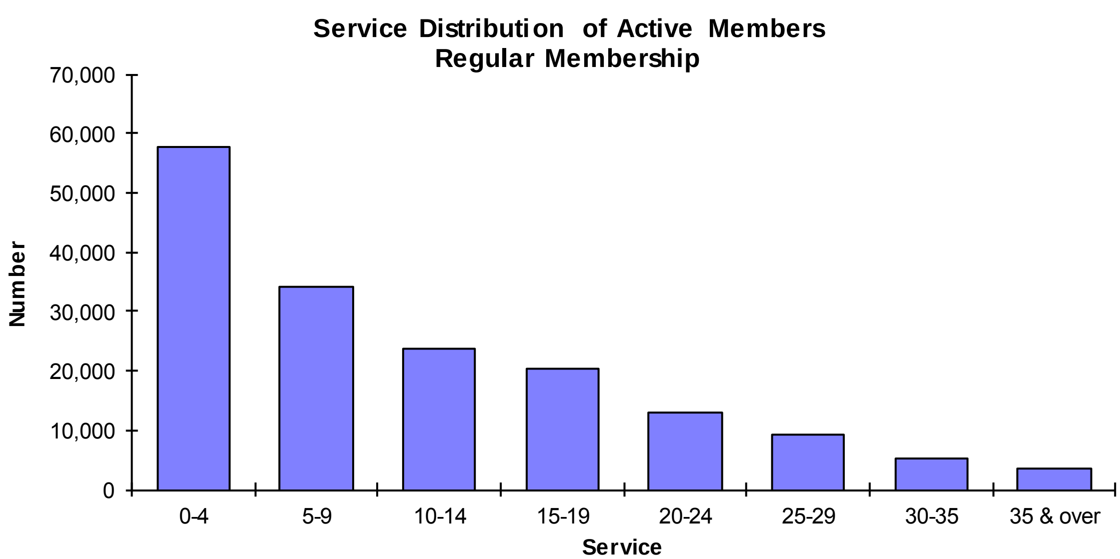
AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2015 FOR ACTIVE MEMBERS*

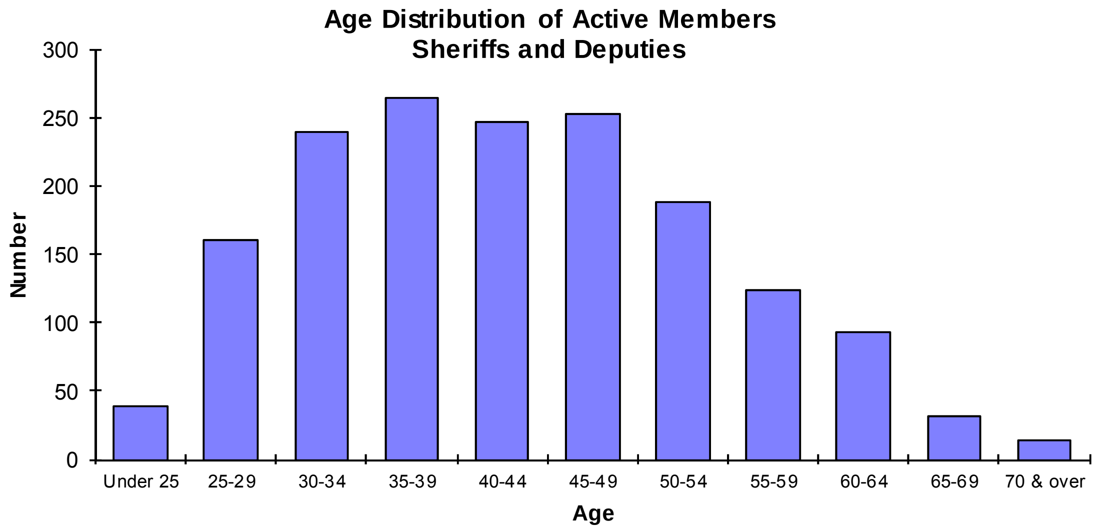
Males and Females - Protection Occupation

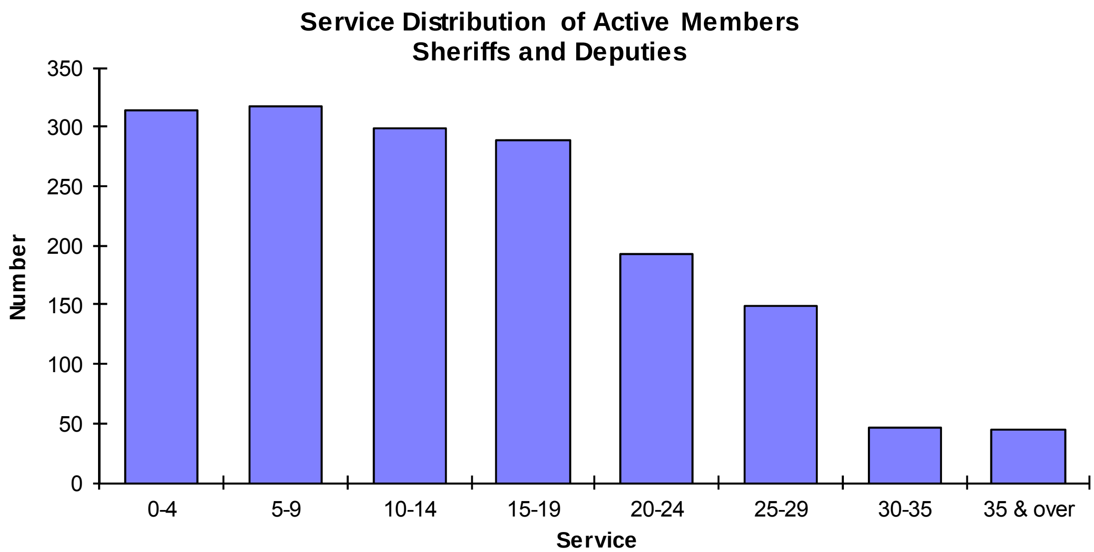
	Years of Service																			
	0 to 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 30		30 to 35		35 to 40		40 and over		Total	
Age	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary	No.	Avg. Salary
Under 25	364	27,034	7	33,530	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	371	27,156
25-29	568	32,931	217	42,418	3	47,557	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	788	35,599
30-34	440	33,264	457	48,897	121	51,197	4	63,688	0	NA	0	NA	0	NA	0	NA	0	NA	1,022	42,497
35-39	249	29,760	290	48,685	256	53,513	131	54,939	2	61,637	0	NA	0	NA	0	NA	0	NA	928	45,849
40-44	188	31,975	195	45,719	178	48,422	273	58,292	64	59,622	2	59,965	0	NA	0	NA	0	NA	900	48,217
45-49	142	30,527	171	44,782	153	45,134	216	56,761	181	61,146	77	62,001	1	49,563	0	NA	0	NA	941	49,999
50-54	93	33,089	153	42,156	140	48,563	184	54,378	108	55,597	160	64,094	88	61,584	8	64,114	0	NA	934	51,952
55-59	87	33,005	84	41,952	104	48,974	146	49,874	78	58,851	80	57,673	84	66,119	31	70,993	1	69,276	695	51,509
60-64	63	23,115	73	40,494	68	45,218	84	54,236	46	48,014	28	51,262	21	68,039	24	58,576	5	72,008	412	45,829
65-69	39	12,387	26	26,761	18	36,875	16	48,727	7	32,366	4	48,316	3	74,382	2	64,586	2	91,788	117	30,581
70 & over	28	23,148	11	19,842	4	7,170	0	NA	2	38,233	2	64,069	0	NA	0	NA	0	NA	47	23,398
Totals	2,261	30,727	1,684	45,321	1,045	49,015	1,054	55,264	488	57,609	353	60,962	197	64,340	65	65,365	8	76,612	7,155	45,064

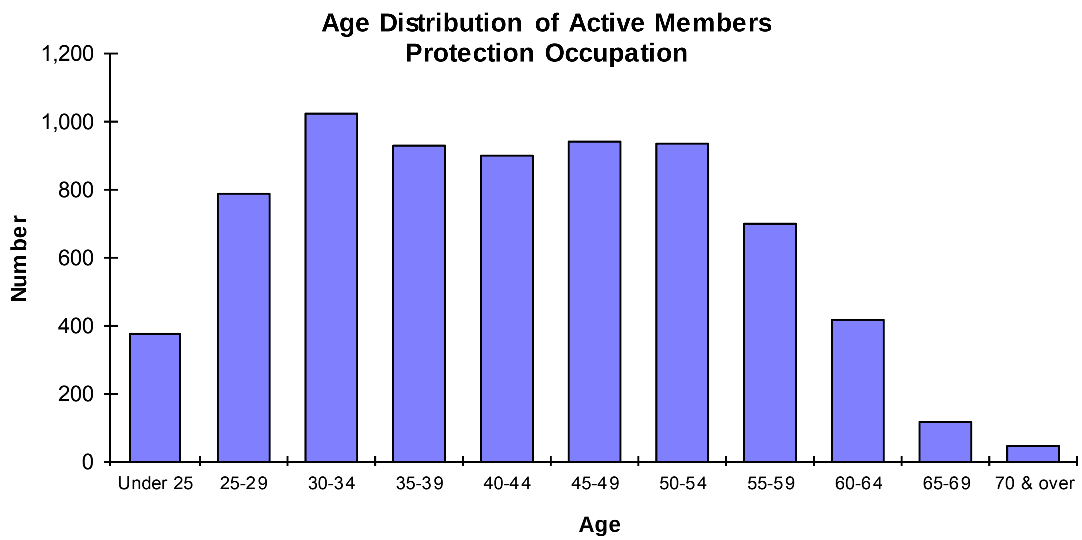
*Including retired/reemployed members

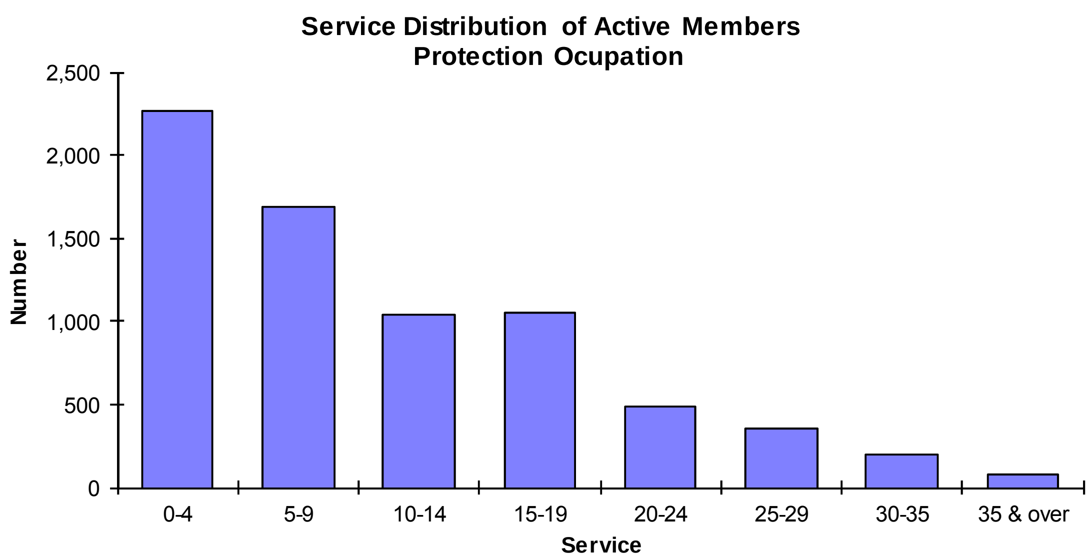

Age Distribution of Active Members
Regular Membership
Number
25,000
20,000
15,000
10,000
5,000
0
Under 25
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70 & over
Age


Service Distribution of Active Members
Regular Membership
Number
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
0-4
5-9
10-14
15-19
20-24
25-29
30-35
35 & over
Service


Age Distribution of Active Members
Sheriffs and Deputies
Number
0
50
100
150
200
250
300
Under 25
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70 & over
Age


Service Distribution of Active Members
Sheriffs and Deputies
Number
0
50
100
150
200
250
300
350
0-4
5-9
10-14
15-19
20-24
25-29
30-35
35 & over
Service


Age Distribution of Active Members
Protection Occupation
1,200
1,000
800
600
400
200
0
Number
Under 25
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70 & over
Age


Service Distribution of Active Members
Protection Ocupation
2,500
2,000
1,500
1,000
500
0
Number
0-4
5-9
10-14
15-19
20-24
25-29
30-35
35 & over
Service

AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2015 FOR INACTIVE VESTED MEMBERS*

Males and Females - Regular Membership

Years of Service

	0 to 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 30		30 to 35		35 to 40		40 and over		Total	
Age	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.
Under 25	0	NA	2	11,624	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	2	11,624
25-29	79	14,879	182	17,342	1	2,878	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	262	16,544
30-34	426	24,819	932	30,371	77	32,363	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	1,435	28,830
35-39	456	23,990	1,321	30,182	319	38,519	30	35,712	0	NA	0	NA	0	NA	0	NA	0	NA	2,126	30,183
40-44	427	22,913	1,327	27,317	499	37,388	144	43,495	10	40,011	0	NA	0	NA	0	NA	0	NA	2,407	29,644
45-49	482	21,910	1,749	24,040	694	31,610	274	40,469	102	49,435	8	56,358	0	NA	0	NA	0	NA	3,309	27,539
50-54	525	18,937	2,131	21,822	1,063	26,188	470	32,493	232	39,253	92	48,554	27	48,293	6	57,163	0	NA	4,546	25,247
55-59	739	16,244	2,214	18,938	1,181	22,240	534	27,676	232	32,956	69	39,213	25	49,649	4	42,935	0	NA	4,998	21,357
60-64	1,917	12,483	1,629	17,174	773	19,549	356	23,232	131	32,857	32	33,654	7	71,192	3	22,254	2	58,754	4,850	16,773
65-69	2,437	8,730	691	10,699	217	13,862	85	16,431	33	25,499	6	24,950	2	31,855	1	31,179	0	NA	3,472	9,838
70 & over	849	5,779	180	6,506	39	6,509	11	8,529	3	17,243	2	16,067	0	NA	1	474	0	NA	1,085	6,000
Totals	8,337	13,805	12,358	22,222	4,863	26,291	1,904	30,586	743	36,867	209	42,499	61	50,938	15	40,875	2	58,754	28,492	21,617

*Including inactive retired/reemployed members

AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2015 FOR INACTIVE VESTED MEMBERS*

Males and Females - Sheriffs and Deputies

Years of Service

	0 to 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 30		30 to 35		35 to 40		40 and over		Total	
Age	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.
Under 25	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
25-29	2	57,139	1	59,600	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	3	57,959
30-34	3	38,420	5	45,174	1	23,293	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	9	40,491
35-39	4	45,744	9	49,232	3	52,840	1	41,651	0	NA	0	NA	0	NA	0	NA	0	NA	17	48,602
40-44	2	39,740	10	39,616	12	47,164	2	60,324	1	63,303	0	NA	0	NA	0	NA	0	NA	27	45,391
45-49	2	25,353	3	33,836	3	41,832	2	48,737	3	54,259	0	NA	0	NA	0	NA	0	NA	13	41,382
50-54	0	NA	6	36,839	4	44,131	4	50,465	2	54,504	0	NA	0	NA	0	NA	0	NA	16	44,276
55-59	5	10,347	3	26,559	2	36,412	1	39,582	0	NA	0	NA	0	NA	0	NA	0	NA	11	22,165
60-64	1	602	0	NA	0	NA	2	18,643	0	NA	0	NA	0	NA	0	NA	0	NA	3	12,629
65-69	2	720	1	7,095	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	3	2,845
70 & over	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA
Totals	21	28,404	38	40,369	25	44,905	12	44,875	6	55,848	0	NA	0	NA	0	NA	0	NA	102	40,458

*Including inactive retired/reemployed members

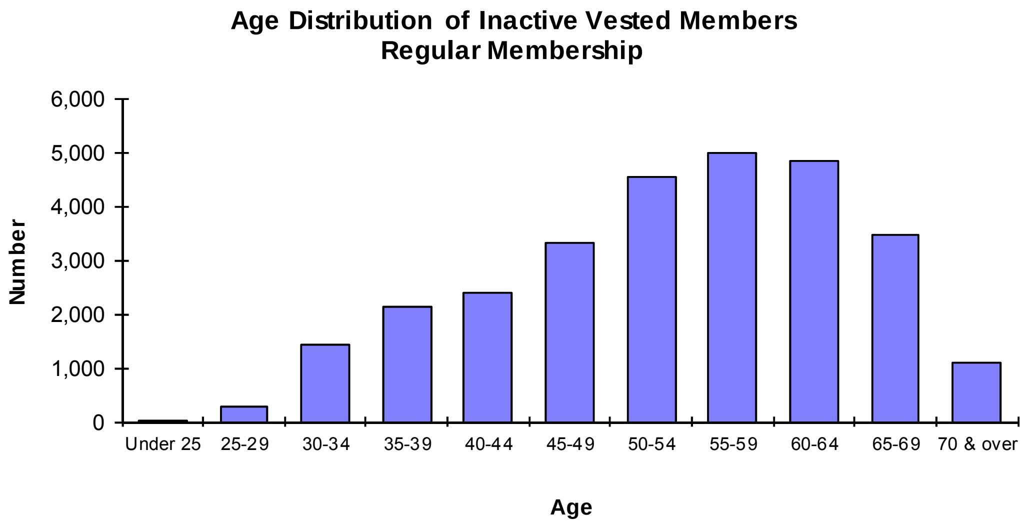
AGE AND SERVICE DISTRIBUTION AS OF JUNE 30, 2015 FOR INACTIVE VESTED MEMBERS*

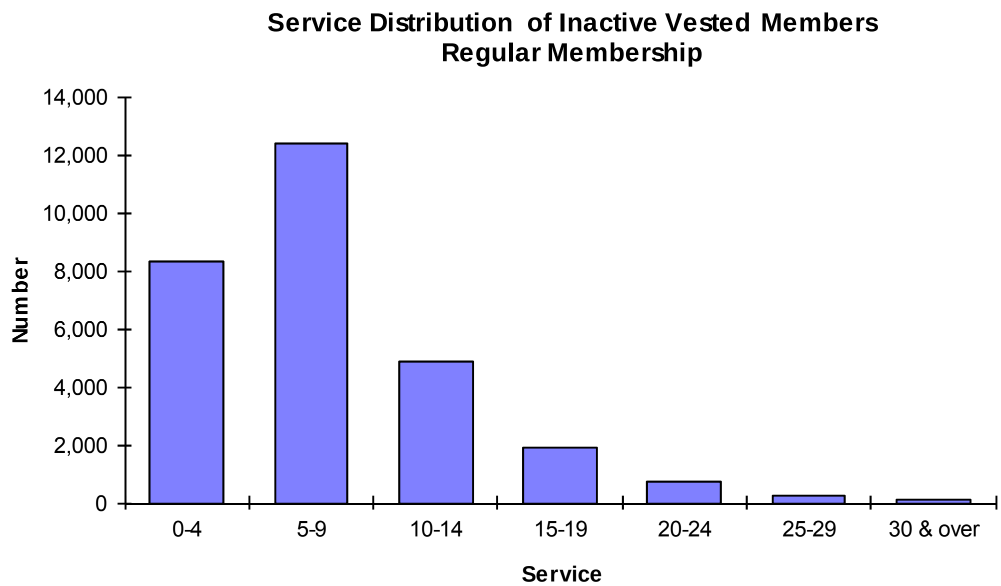
Males and Females - Protection Occupation

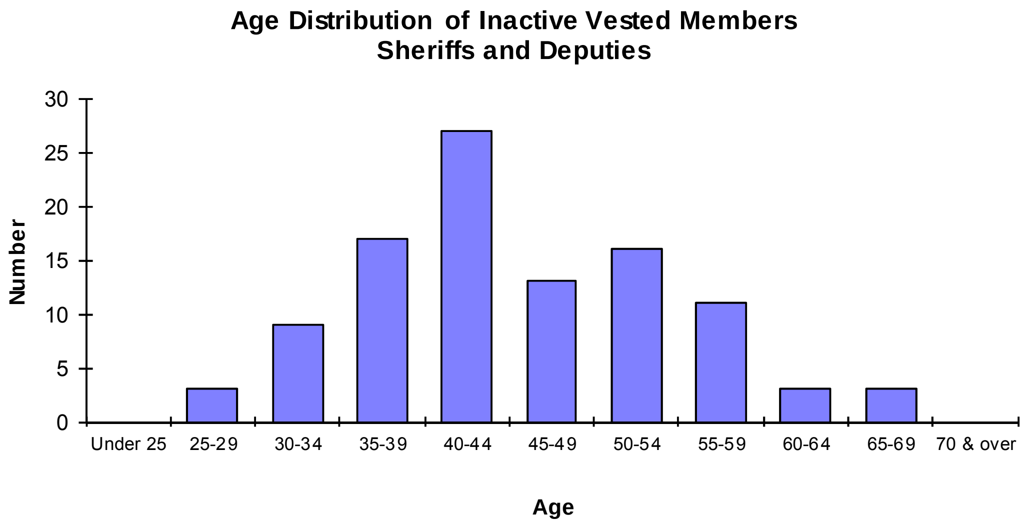
Years of Service

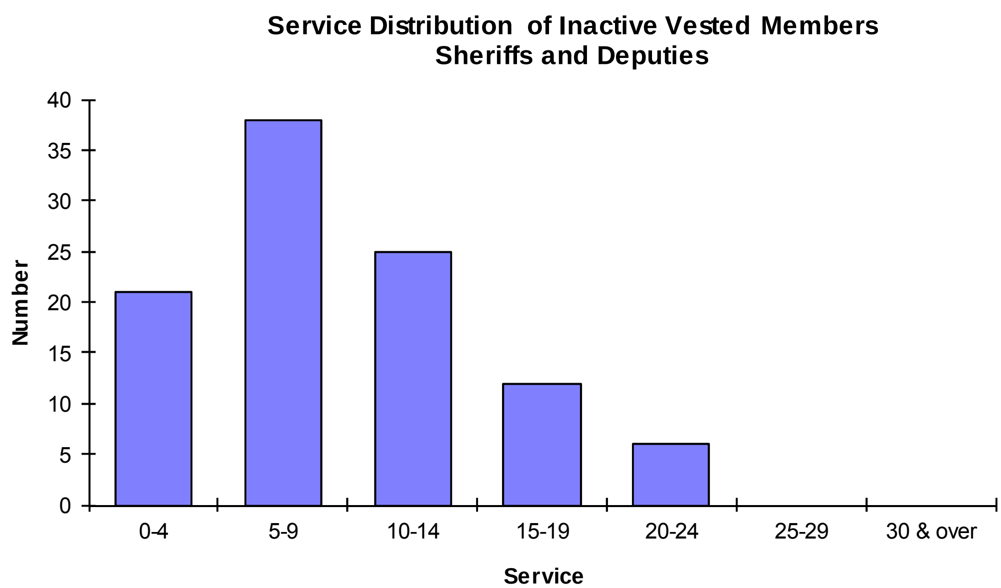
	0 to 5		5 to 10		10 to 15		15 to 20		20 to 25		25 to 30		30 to 35		35 to 40		40 and over		Total	
Age	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.	No.	Avg. Sal.
Under 25	1	638	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	1	638
25-29	17	19,778	20	28,717	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	37	24,610
30-34	24	25,270	66	30,943	5	27,797	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	95	29,344
35-39	15	18,028	73	22,689	21	28,420	6	30,293	0	NA	0	NA	0	NA	0	NA	0	NA	115	23,525
40-44	10	19,381	56	15,346	25	29,963	10	52,770	0	NA	0	NA	0	NA	0	NA	0	NA	101	23,069
45-49	13	15,750	62	15,855	35	26,187	13	30,522	9	34,049	2	37,148	0	NA	0	NA	0	NA	134	21,506
50-54	9	18,723	53	20,245	37	25,947	22	35,088	9	35,239	5	48,443	3	42,716	0	NA	0	NA	138	26,529
55-59	25	14,079	35	13,181	16	17,597	7	19,230	4	38,323	3	55,468	0	NA	0	NA	0	NA	90	17,213
60-64	37	9,649	14	10,659	6	6,199	7	19,525	0	NA	0	NA	0	NA	0	NA	0	NA	64	10,627
65-69	21	7,825	6	10,659	2	17,143	2	3,203	0	NA	0	NA	0	NA	0	NA	0	NA	31	8,676
70 & over	10	7,033	0	NA	1	460	0	NA	1	656	0	NA	0	NA	0	NA	0	NA	12	5,954
Totals	182	14,970	385	20,423	148	25,101	67	32,177	23	33,806	10	48,291	3	42,716	0	NA	0	NA	818	21,817

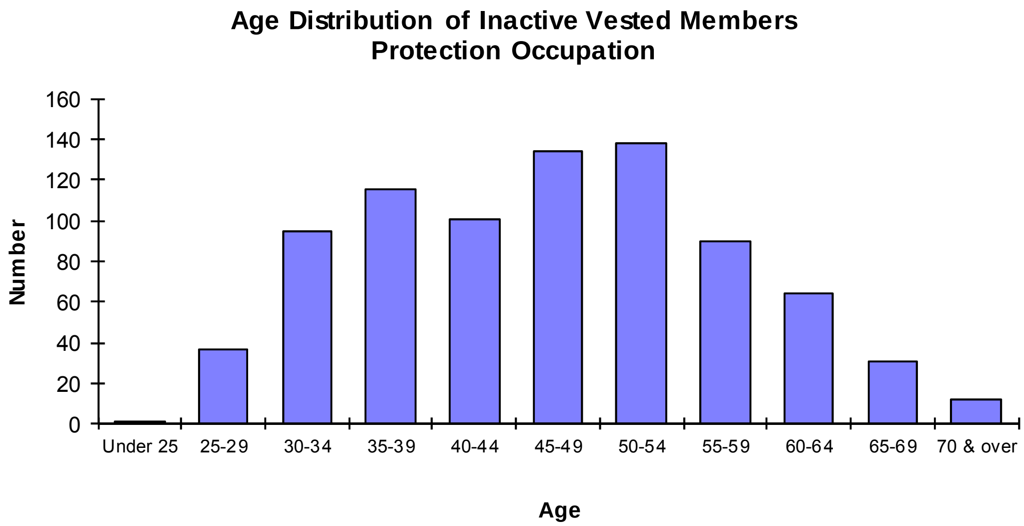
*Including inactive retired/reemployed members

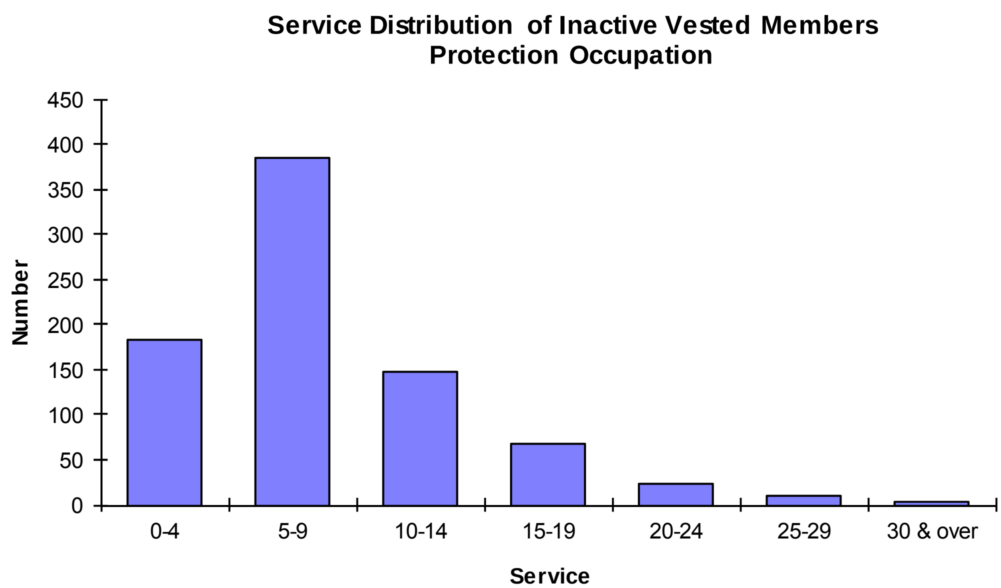

Age Distribution of Inactive Vested Members
Regular Membership
Number
6,000
5,000
4,000
3,000
2,000
1,000
0
Under 25
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70 & over
Age


Service Distribution of Inactive Vested Members
Regular Membership
Number
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
0-4
5-9
10-14
15-19
20-24
25-29
30 & over
Service


Age Distribution of Inactive Vested Members
Sheriffs and Deputies
Number
30
25
20
15
10
5
0
Under 25
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70 & over
Age


Service Distribution of Inactive Vested Members
Sheriffs and Deputies
Number
40
35
30
25
20
15
10
5
0
0-4
5-9
10-14
15-19
20-24
25-29
30 & over
Service


Age Distribution of Inactive Vested Members
Protection Occupation
Number
160
140
120
100
80
60
40
20
0
Under 25
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70 & over
Age


Service Distribution of Inactive Vested Members
Protection Occupation
Number
450
400
350
300
250
200
150
100
50
0
0-4
5-9
10-14
15-19
20-24
25-29
30 & over
Service

ANALYSIS OF RETIREES AND BENEFICIARIES

Males and Females - Regular Membership

	Number of Members and Beneficiaries										Average
						Contingent			Period		Annual
Age	Chpt 97	Option 1	Option 2	Option 3	Option 4	Beneficiary	Option 5	Option 6	Certain	Total	Benefit
Under 40	0	3	1	4	0	38	0	5	4	55	$10,578
40 to 44	0	9	1	3	4	23	1	5	5	51	6,343
45 to 49	0	26	19	2	8	39	2	14	6	116	9,325
50 to 54	0	75	38	17	17	77	10	37	4	275	11,169
55 to 59	0	673	595	252	231	178	249	952	11	3,141	20,315
60 to 64	0	2,615	2,868	1,396	923	357	1,055	3,643	15	12,872	22,502
65 to 69	0	5,288	5,663	3,390	1,766	605	2,135	6,455	31	25,333	20,425
70 to 74	0	4,981	4,898	3,255	1,865	717	2,027	3,821	33	21,597	16,108
75 to 79	0	4,344	3,675	2,507	2,038	858	1,871	1,343	16	16,652	12,778
80 to 84	0	3,740	2,802	1,584	2,075	928	1,581	208	8	12,926	9,979
85 to 89	0	2,617	2,223	872	1,127	787	950	32	6	8,614	7,398
90 to 94	0	1,426	1,300	477	447	462	484	2	0	4,598	5,625
95 to 99	2	245	664	130	112	109	224	0	0	1,486	5,864
100 & up	1	9	167	22	10	10	49	0	0	268	4,011
Counts	3	26,051	24,914	13,911	10,623	5,188	10,638	16,517	139	107,984	$15,419
% of Total	0.0%	24.1%	23.1%	12.9%	9.8%	4.8%	9.9%	15.3%	0.1%	100.0%	

ANALYSIS OF RETIREES AND BENEFICIARIES

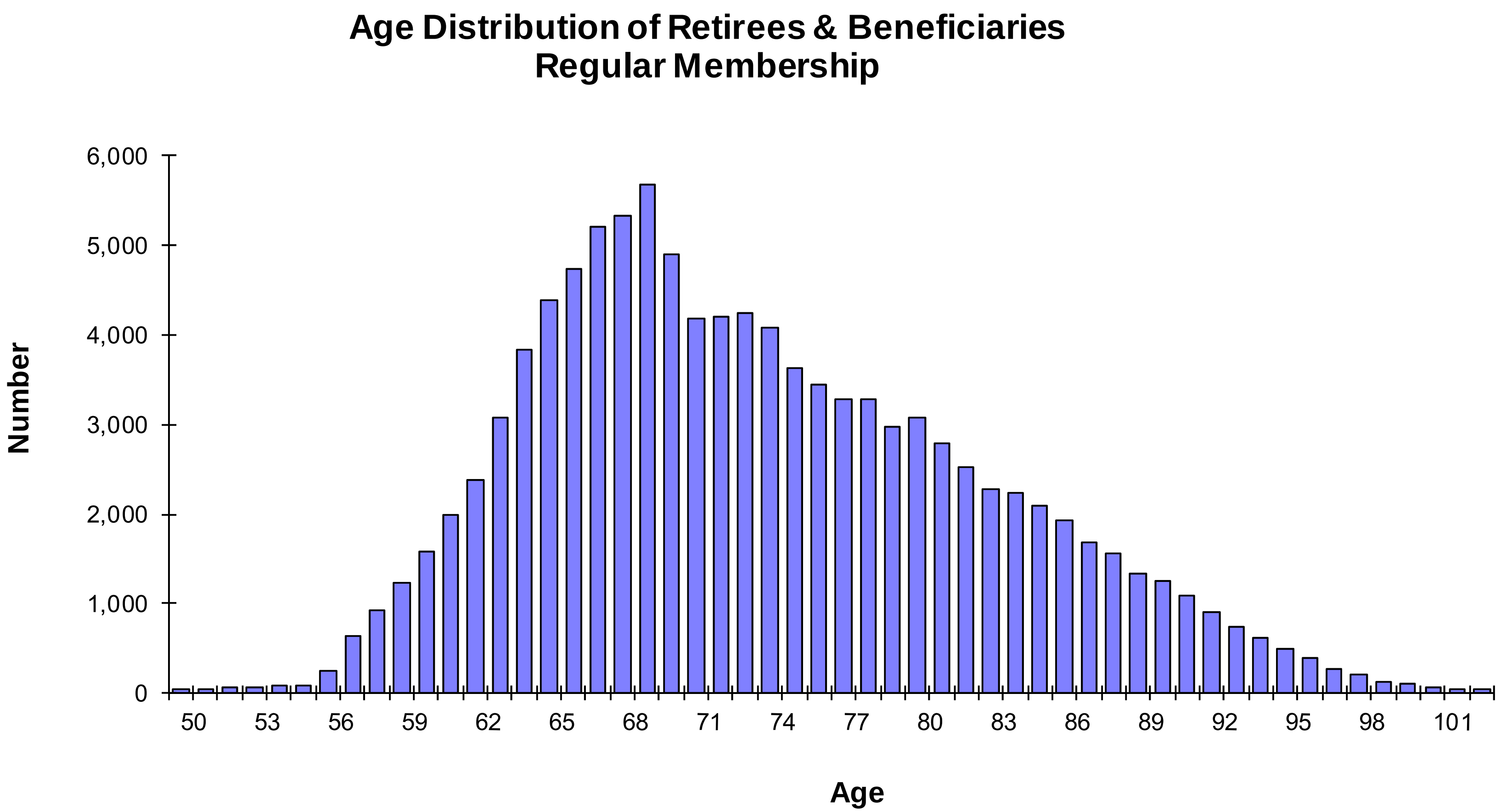
Males and Females - Sheriffs and Deputies

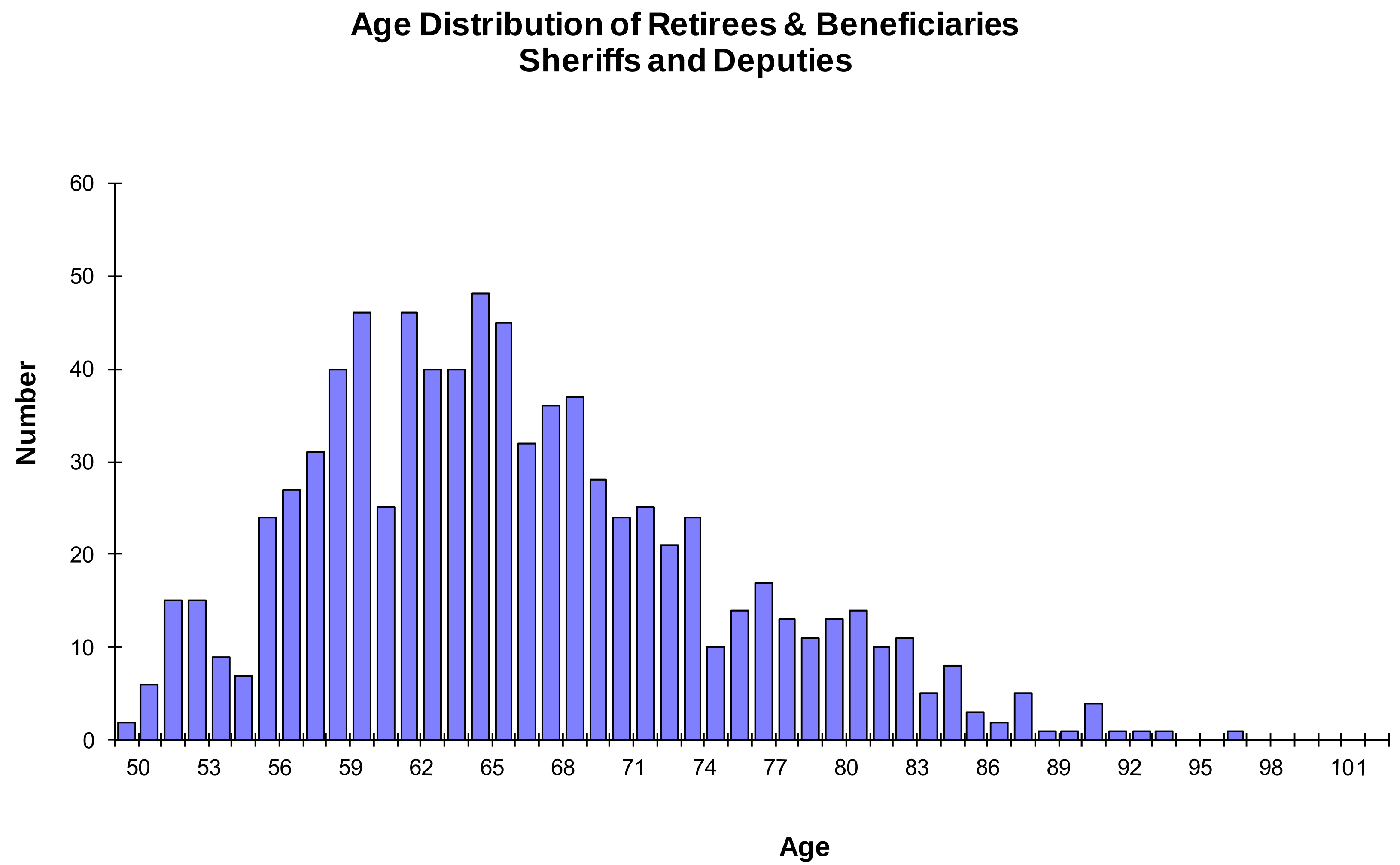
	Number of Members and Beneficiaries									Average
					Contingent			Period		Annual
Age	Option 1	Option 2	Option 3	Option 4	Beneficiary	Option 5	Option 6	Certain	Total	Benefit
Under 40	0	0	1	0	0	0	0	0	1	$15,194
40 to 44	0	0	0	0	1	0	0	0	1	6,159
45 to 49	5	0	0	1	0	0	1	0	7	33,576
50 to 54	10	5	2	12	3	2	13	0	47	41,123
55 to 59	21	14	13	21	6	4	50	0	129	39,150
60 to 64	27	25	17	44	8	9	67	0	197	35,608
65 to 69	45	24	7	31	7	8	76	0	198	31,898
70 to 74	29	14	10	28	13	5	23	0	122	24,876
75 to 79	14	5	4	22	7	5	8	0	65	21,539
80 to 84	15	5	4	16	9	2	2	0	53	13,682
85 to 89	3	4	1	3	8	0	0	0	19	10,328
90 to 94	1	1	0	3	3	0	0	0	8	6,897
95 to 99	0	1	0	0	0	0	0	0	1	8,309
100 & up	0	0	0	0	0	0	0	0	0	NA
Counts	170	98	59	181	65	35	240	0	848	$30,648
% of Total	20.0%	11.6%	7.0%	21.3%	7.7%	4.1%	28.3%	0.0%	100.0%	

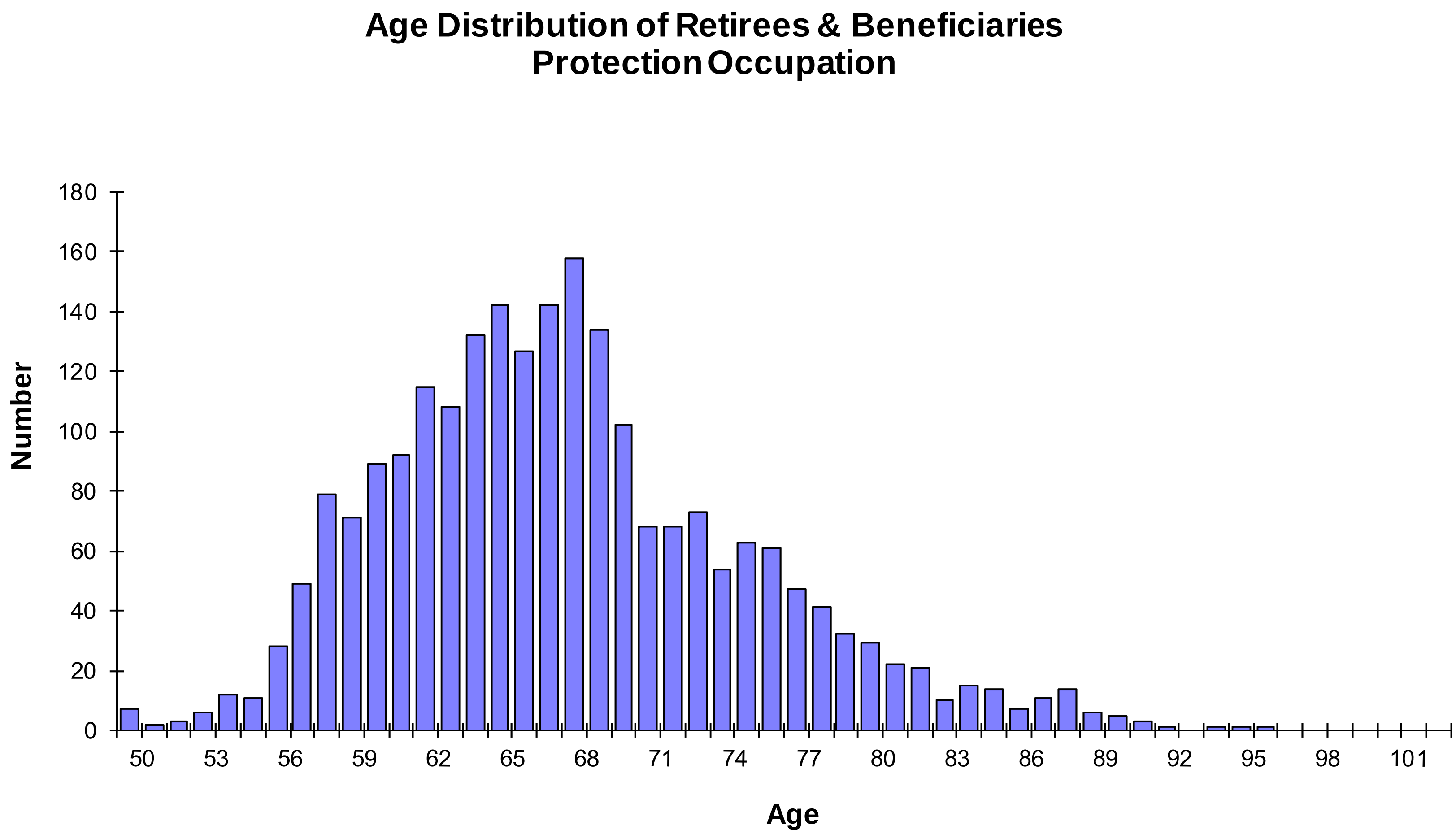
ANALYSIS OF RETIREES AND BENEFICIARIES

Males and Females - Protection Occupation

	Number of Members and Beneficiaries									Average
					Contingent			Period		Annual
Age	Option 1	Option 2	Option 3	Option 4	Beneficiary	Option 5	Option 6	Certain	Total	Benefit
Under 40	1	0	0	0	1	0	0	0	2	$11,802
40 to 44	0	0	0	0	0	1	3	1	5	25,078
45 to 49	1	0	1	4	3	0	1	1	11	19,289
50 to 54	9	1	5	3	4	0	8	0	30	20,782
55 to 59	39	28	16	52	11	9	83	0	238	30,001
60 to 64	104	84	39	87	23	26	173	0	536	29,852
65 to 69	140	126	62	108	18	27	222	0	703	24,634
70 to 74	87	54	28	59	21	23	93	0	365	19,492
75 to 79	47	35	21	58	29	15	39	0	244	15,748
80 to 84	26	5	4	35	16	8	3	0	97	12,387
85 to 89	17	2	2	20	8	3	0	0	52	10,581
90 to 94	1	0	0	2	5	2	0	0	10	7,677
95 to 99	0	0	0	0	1	1	0	0	2	6,455
100 & up	0	0	0	0	0	0	0	0	0	NA
Counts	472	335	178	428	140	115	625	2	2,295	$23,635
% of Total	20.6%	14.6%	7.8%	18.6%	6.1%	5.0%	27.2%	0.1%	100.0%	


Age Distribution of Retirees & Beneficiaries
Regular Membership
Number
6,000
5,000
4,000
3,000
2,000
1,000
0
50
53
56
59
62
65
68
71
74
77
80
83
86
89
92
95
98
101
Age


Age Distribution of Retirees & Beneficiaries
Sheriffs and Deputies
Number
60
50
40
30
20
10
0
50
53
56
59
62
65
68
71
74
77
80
83
86
89
92
95
98
101
Age


Age Distribution of Retirees & Beneficiaries
Protection Occupation
Number
180
160
140
120
100
80
60
40
20
0
50
53
56
59
62
65
68
71
74
77
80
83
86
89
92
95
98
101
Age

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	111,369
Removed those no longer entitled to benefits	(242)
Records used in the valuation	111,127
Records on the not-in-pay data file	245,039
Records removed because the member has received all benefits	(2)[1]
Records used in the valuation	245,037

These records are allocated as follows:

Active members	167,368
Retired, reemployed members	8,542
Vested inactive members	29,412
Nonvested inactive members	39,715
Total	245,037

Nonvested inactive members include deceased vested inactive members with employee contributions still held by the System. Records that had no remaining benefit or had passed away prior to the valuation date were removed.

[1] These 2 were removed because they are no longer active, nor are they entitled to future 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.

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 65th 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 55th 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.

Retirement Benefits:

Normal Retirement	An annuity equal to 2% of Average Salary (AS) for each year of service up to 30 years plus 1% of AS for each of the next 5 years of service. Maximum years of service recognized for benefit accrual purposes is 35 with a resulting maximum benefit of 65% of AS.
Early Retirement	An annuity, determined in the same manner as for normal retirement. However, a reduction of 0.25% per month is applied for each month the benefit commences prior to normal retirement age (based on service at early retirement). Effective July 1, 2012, the reduction changed to 0.50% per month and applies to each month that the benefit commences before age 65. Transition rules apply if members have service both before and after July 1, 2012.
Pre-retirement Death Benefits	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	An annuity, payable immediately, equal to the Normal Retirement Benefit without an early retirement adjustment.

Termination Benefits:

Less than four* years of Service (Nonvested)	A refund of all of the member's accumulated contributions.
Four* or more years of Service (Vested)	At the member's election either: (1) a refund of all of the member's accumulated contributions plus a portion (years of service divided by 30) of the employer's contributions with interest, or (2) a deferred benefit determined in the same manner as for normal retirement. Payments can begin at normal or early retirement.

* Effective July 1, 2012 seven years of service for those not vested at that time.

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:	*Option 1:* 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.
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:
(December’s Monthly benefit) X (12 months) X (Rate) X (Full calendar years retired) = FED

Source of Funds:

Regular Membership:

Contribution Rates			
Time Period	**Employees****	**Employer**	**Total**
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	Determined by Contribution Rate Funding Policy*		

*Change in contribution rate cannot exceed 1.0% per year.
**Employee rate is 40% of total contribution rate.

SHERIFFS/DEPUTIES AND PROTECTION OCCUPATION:

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	An annuity, payable immediately, equal to the Normal Retirement Benefit, without an adjustment. 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.
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)	At the member's election either: (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 (2) a deferred benefit determined in the same manner as for normal retirement. Payments begin at normal retirement.
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:

Option 1: 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 members of the Sheriffs and Deputies group and the Protection Occupation group. This alternative applies to all IPERS retirement options listed above except Option 6. The Level Income payment alternative permits a 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: (December's Monthly benefit) x (12 months) x (Rate) x (Full calendar years retired) = FED

Source of Funds:

Sheriffs and Deputies:	Determined by Contribution Rate Funding Policy. Employees contribute 50% and employers contribute 50%.
Protection Occupation:	Determined by Contribution Rate Funding Policy. 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 2014, based on experience from 2009-2013. The Investment Board has adopted and approved the use of the assumptions and methods presented in the 2009-13 Experience Study. The following is a summary of the assumptions and methods used in the valuation:

ECONOMIC ASSUMPTIONS:

Rate of Inflation (effective June 30, 2014)

3.00% per annum

Rate of Crediting Interest on Contribution Balances (effective June 30, 2014)

3.75% 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 3.00% inflation assumption and 1.00% real wage inflation.

*Total of 4.00% did not change, but the components changed June 30, 2006 and June 30, 2014

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	RP-2000 Employee Table, Generational, set back 3 years
Female	RP-2000 Employee Table, Generational, set back 8 years
School	
Male	RP-2000 Employee Table, Generational, set back 3 years
Female	RP-2000 Employee Table, Generational, set back 8 years
Other	
Male	RP-2000 Employee Table, Generational, no set back
Female	RP-2000 Employee Table, Generational, set back 8 years
Sheriffs/Deputies and Protection Occupation	
Male	RP-2000 Employee Table, Generational
Female	RP-2000 Employee Table, Generational

5% of active deaths are assumed to be service related for non-regular members.

Post-Retirement (effective June 30, 2014)

State	RP-2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	1 Year set back with 5% increase above age 75
School	RP-2000 Healthy Annuitant Table, Generational
Male	1 Year set back with rates decreased by 5% below age 75
Female	3 Year set back with 10% decrease before age 75 and 10% increase above age 75
Other	RP-2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	2 Year set back with 5% increase above age 75
Sheriffs/Deputies and Protection Occupation	RP-2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	No age adjustment

Beneficiaries: Same as members

Disabled Members (all groups): RP-2000 Disabled Mortality, Generational
Set back 1 year for males and set forward 3 years for females

Retirement Rates (effective June 30, 2014)

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

	Assumed Retirement Rates – Early		
Age	State	School	Other
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%

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

Assumed Retirement Rates – Select

	Unreduced		
Age	State	School	Other
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		
Age	State	School	Other
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%

	Assumed Retirement Rates	
Age	Sheriffs and Deputies	Protection Occupation
50	20.0%	
51	20.0%	
52	20.0%	
53	20.0%	
54	20.0%	
55	17.0%	20.0%
56	17.0%	10.0%
57	17.0%	10.0%
58	17.0%	10.0%
59	17.0%	10.0%
60	17.0%	10.0%
61	17.0%	10.0%
62	30.0%	35.0%
63	30.0%	30.0%
64	30.0%	30.0%
65	100.0%	100.0%

Terminated vested members are assumed to retire at age 62 (55 for Sheriffs/Deputies and Protection Occupation groups).

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.

All retirees are assumed to elect a modified cash refund annuity (Option 2).

Rates of Disablement (effective June 30, 2010)

	Assumed Rates					
	Males			Females		
Age	State	School	Other	State	School	Other
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
Sheriffs/Deputies
Protection Occupation

Age	Rate
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

	Male			Female		
Years of Service	State	School	Other	State	School	Other
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%	1.2%	2.0%	1.1%	1.2%	2.4%
30	1.1%	1.2%	1.2%	1.1%	1.2%	1.5%

Sheriffs/Deputies and Protection Occupation

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

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

	Regular Membership					
	Male			**Female**		
Years of Service	State	School	Other	State	School	Other
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%

	Sheriffs/Deputies and Protection Occupation
Years of Service	Rate
5	53%
10	65%
15	85%
20	95%
25	100%
30	100%

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

	Annual Increase			
Years of Service	State	School	Other	Sheriffs/Deputies and Protection Occupation
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 2013)

The portion of the actuarial present value of benefits allocated to the valuation year is called the normal cost. The portion of the actuarial present value of benefits not provided for by the actuarial present value of future normal costs is called the actuarial liability. Deducting the actuarial value of assets from the actuarial 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 corresponding amortization payment. The UAL is amortized according to the Actuarial Amortization Method adopted by the Investment Board and summarized below:

1. Amortization payments will be calculated as a level percentage of payroll.
2. For the actuarial valuation prepared as of June 30, 2013, the amortization period of the UAL shall be 30-year open for all membership groups.
3. For the actuarial valuation prepared as of June 30, 2014:
    a. The UAL for each membership group shall be amortized over a 30-year closed period.
    b. This will be designated as the initial UAL base for subsequent valuations and it will be amortized over the remaining years of the 30-year closed period set on June 30, 2014.
4. For each valuation subsequent to June 30, 2014, annual net experience gains/losses for each membership group will be amortized over a new, closed 20-year period.
5. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAL will be amortized over a demographically appropriate period selected by the Investment Board at the time that the change is incurred.
6. The dollar amount of the UAL payment for purposes of computing the UAL component of the actuarial and required contribution rate will be the sum of the amortization payments for each amortization schedule divided by the total projected payroll. Unless the plan has been 110 percent funded for the current and prior two years, a negative amortization payment shall be ignored.

7. If the valuation shows that the group has surplus, the prior amortization bases will be eliminated and one base equal to the amount of surplus shall be established. 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 Sheriffs/Deputies and Protection Occupation 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, Sheriffs and Deputies and Protection Occupation) 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 June 30, increased by the salary scale.

The calculations for the actuarial contribution rate 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.

No future additions to, or payments from, the Favorable Experience Dividend Reserve Account or the Active Member Supplemental Accounts are reflected in the valuation.

DEFINITION OF TERMS

Accrued Service	Service credited under the system that was rendered before the date of the actuarial valuation.
Actuarial Assumptions	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.
Actuarial Cost Method	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."
Actuarial Equivalent	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.
Actuarial Liability	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."
Actuarial Present Value	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.
Amortization	Paying off an interest-discounted amount with periodic payments of interest and principal, as opposed to paying off with lump sum payment.
Experience Gain (Loss)	The difference between actual experience and actuarial assumptions anticipated experience during the period between two actuarial valuation dates.
Normal Cost	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.

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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.

Goal:

To establish policy and procedures in setting contribution rates that combined with investment income will fund the benefits specified in Chapter 97B of the Iowa Code.

To move towards fully funding the benefits (100% or greater funded ratio) in as expeditious manner as is reasonable within the guidelines acknowledged herein.

Procedure:

The Investment Board shall retain a consulting actuary to conduct an annual actuarial valuation of assets and liabilities. The consulting actuary shall use the entry age normal cost method and all other actuarial assumptions and methods approved by the Investment Board.

In the annual valuation process, the consulting actuary shall calculate an Actuarial Contribution Rate and a Required Contribution Rate pursuant to this policy. Each shall be calculated as a level percent of pay.

There is a one year lag between the completion of an annual actuarial valuation report and the fiscal year to which the contribution rates calculated therein are applied. Therefore, the Actuarial Contribution Rate and the Required Contribution Rate declared in the annual valuation process are applicable to the fiscal year immediately following the completion of the valuation report (for example the rates declared in the report presented to the Investment Board in December, 2014 are applicable to the rates for the fiscal year beginning July 1, 2015).

Actuarial Contribution Rate (ACR):

1. ACR is the combined employer and employee contribution rate that is the minimum rate necessary to fund the benefits using the actuarial assumptions and methods approved by the Investment Board.

2. A separate ACR shall be determined for each membership group within IPERS according to this policy.

3. The ACR shall consist of:
    a. Normal cost and an amortization payment (not less than zero) of any unfunded actuarial liability.

   b. Normal cost may only be offset by a negative amortization payment after a membership group has attained a funded ratio of 110 percent or greater for 3 consecutive years.

Required Contribution Rate:

1. The Required Contribution Rate is the combined employer and employee rate payable pursuant to this policy and Iowa Code §97B.11(3)(d).

2. The Required Contribution Rate shall be determined by comparing the ACR determined in the annual valuation process to the Required Contribution Rate of the previous year.
   a. If the ACR is less than the previous Required Contribution Rate by fewer than 50 basis points, then the Required Contribution Rate shall remain unchanged from the previous year.
   b. If the ACR is less than the previous Required Contribution Rate by 50 basis points or more, then the Required Contribution Rate shall be lowered by 50 basis points provided the funded ratio of the membership group is 95% or higher.
   c. If the ACR is greater than the Required Contribution Rate of the previous year, then the Required Contribution Rate shall be:
      i. Increased to be equal to ACR for Sheriffs and Deputies.
      ii. Increased to be equal to ACR for Protection Occupation.
      iii. Increased to be equal to ACR for Regular membership, or one percentage point greater than the prior year's Required Contribution Rate, whichever is smaller.

Policy Guidelines:

In adopting actuarial assumptions and methods to be used in setting contributions, the Investment Board shall strive to provide a balance among 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 and deferring decreases in contribution rates until strong funded ratios are attained).

3. Interperiod equity (such as shortening the amortization schedule when reasonable and 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 (in consultation with the BAC review affordability of required contribution rates and/or the benefit provisions).

5. At a minimum, this policy will be reviewed in conjunction with the quadrennial experience study.