



Milwaukee County Employees' Retirement System

January 1, 2015
Actuarial Valuation
Board Presentation

July 15, 2015

Actuarial Valuation Objectives

- Determine total actual contribution for 2015 plan year and budget contribution for 2016 plan year
- Determine state mandated member contribution for 2016
- Check on progress and security of promised benefits with comparison of assets to accrued liability
- Compare expectations from prior valuation to what occurred during 2014 to determine net actuarial gain or loss

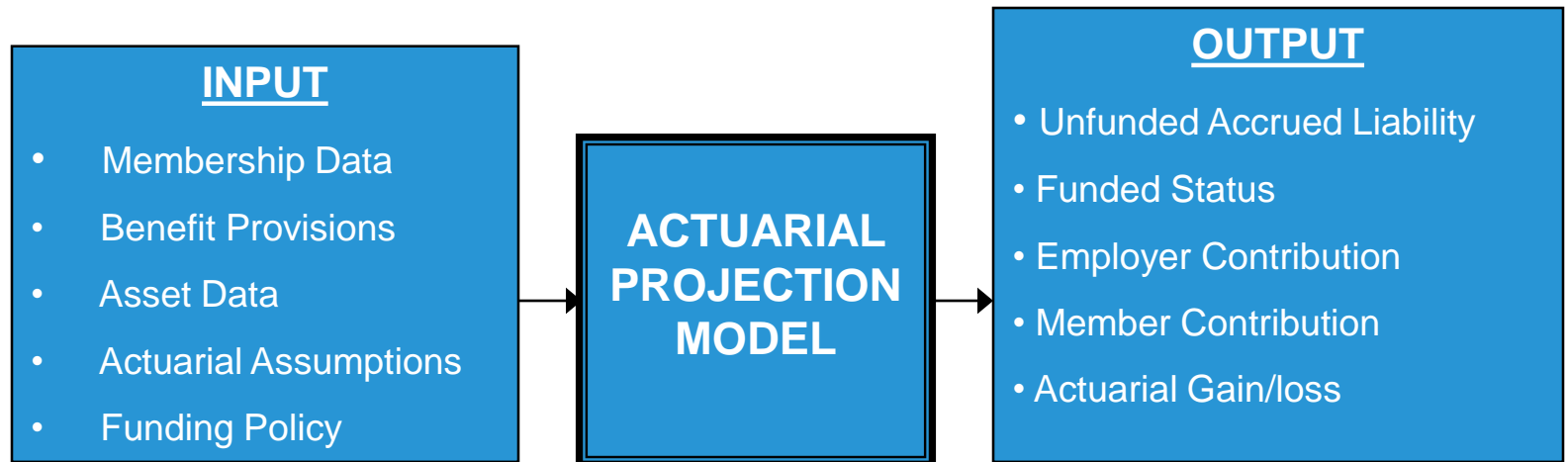
Events During 2014 Impacted 2015 Actuarial Valuation

- Results of this valuation deviated from last year's valuation for many reasons:
 - Re-inclusion of the COLA liabilities that were not included in the 2013 and 2014 valuations
 - Funding Policy changes
 - Market value returns of 5.2% compared to 8% assumed
 - Overall payroll increased slightly
 - Other plan experience also played a role, but a smaller part
 - Mortality/survival greater/lesser than expected
 - Decrementing active employees
- Overall, the net effect of the above events resulted in:
 - An actual 2015 funded status of 79.8% (based on the 2015 valuation) which is 5.3% lower than the budgeted 2015 funded status 85.1% (based on the 2014 valuation)
 - The actual 2015 contribution being higher than the budgeted 2015 contribution

Events During 2014 Impacted 2015 Actuarial Valuation

- More on the re-inclusion of the COLA liabilities that were not included in the 2013 and 2014 valuations
 - After the April Board meeting, we discovered that we understated the liabilities for both the January 1, 2013 and January 1, 2014 actuarial valuation because we did not include COLAs for some participants. We discussed this with the Board at the June 17, 2015 Board meeting.
 - Impact on results:
 - The 2013 and 2014 liability was understated by about 7% to 8% ~ \$165 to \$175 million
 - Gross contribution was understated about \$10 to \$11 million each year
 - In our November 21, 2012 experience review presentation, we expected the budget contribution for 2013 to increase from \$30.6 to \$35.9 million, primarily due to updating the mortality table
 - Actual 2013 contribution reported was \$28.3 million
 - Had the COLA been included, the contribution would have been over \$38.3 million
 - Increase from \$35.9 to \$38.3 million is mostly attributable to continued work by Milwaukee County staff on data
 - Difficult to say actual contribution would have been \$38.3 million given data improvements continued into 2014 valuation
 - Re-inclusion increased liability by \$178 million for 2015 valuation
 - Under the prior funding policy of 30 years and 3.50% increases, the increase in contribution would have been \$11 million, consistent with the 2013 reduction in contribution attributable to the COLA
 - Under the current policy of 20 years and 1.75% increases, the increase in contribution is \$16 million

Actuarial Valuation Process



Actuarial Assumptions

- **Demographic**

- Normal retirement
- Disability retirement
- Death in active service
- Early retirement
- Withdrawal (termination)
- Death after retirement

- **Economic**

- Rate of return 8.0%
- Inflation 3.0%
- Individual salary increases Average
 - General 3.3%
 - Deputy Sheriffs 3.9%
 - Elected Officials 3.0%
- Payroll growth 3.5%

The latest assumptions were adopted for use with the January 1, 2013 actuarial valuation. The next experience study is to be completed in time for adoption with the January 1, 2018 actuarial valuation.

Refer to table 18 of the actuarial valuation report, beginning on page 30, for more information on the actuarial assumptions used for the valuation.

Funding Policy (Actuarial Methods)

- The Funding Policy of the Retirement System has 3 actuarial methods components:
 - Actuarial Cost Methods allocate total costs to past service (the actuarial accrued liability, or how much money you should have in the ERS) and current year's service (normal cost, or the cost of benefits accruing during the year)
 - Individual entry age normal cost method is used by over 75% of public sector plans
 - Develops normal costs that are expected to stay level as a % of payroll
 - Asset Valuation Methods smooth, or average, the market value returns over time to alleviate contribution volatility that results from market returns
 - Smoothing period for Retirement System is 10 years
 - Asset corridor of 30% - actuarial value of assets is constrained to range of 70% and 130% of market
 - Amortization Methods determine the payment schedule for unfunded actuarial accrued liability
 - Contribution variances: 5 years layered, as a level dollar amount
 - Reimbursable expenses: expected administrative expenses immediately reflected
 - All other: 20 years layered, as level percentage of expected revenue growth which is anticipated to be 1.75%

For the January 1, 2015 actuarial valuation, the Retirement Board adopted the following changes to the funding policy:

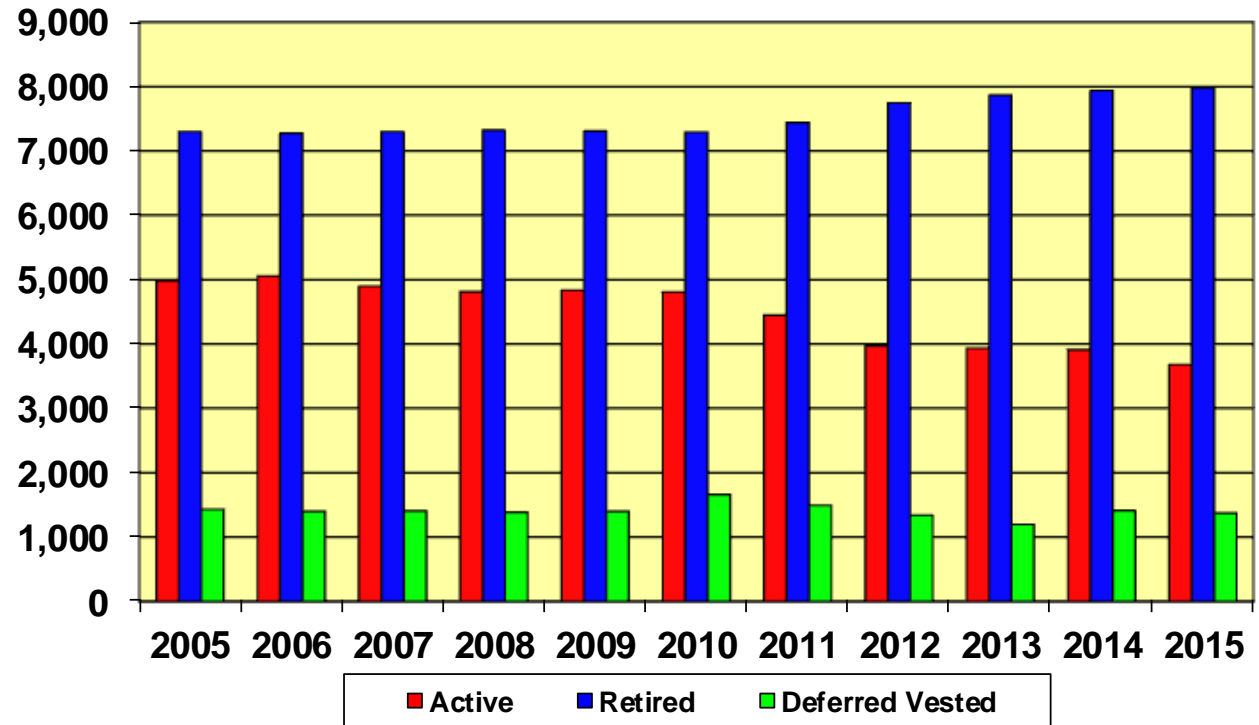
- Reduce the current 30 year amortization period to 20 years
- Immediately reflect administrative expenses; do not amortize over 10 years
- Reduce future increases in payments from the current 3.50% policy to expected revenue growth, assumed to be 1.75% per year
- Update the entry age normal cost from aggregate to individual

Buck Consultants presented many acceptable funding policies to the Board over the past several months. The policy above is one of the many acceptable policies that were presented.

Refer to table 18 of the actuarial valuation report, on page 34, for more information on the actuarial methods used for the valuation.

Ten Year History of ERS Member Demographics

Trend of decreasing active members has resulted in lower benefit accruals



Refer to data exhibits in the actuarial valuation report, beginning on page 42 and ending on page 69, for more information on the member data submitted for the valuation.

Benefit Provisions

- The benefit provisions are governed by the County Ordinance
- There have been no changes in benefit provisions for the January 1, 2015 valuation

The multiplier decrease/retirement age increase provisions have decreased the normal cost of the ERS by roughly 20% over the past couple of years as it has been implemented across all groups. The State mandated contribution provisions have decreased the overall County contribution by roughly one-third by shifting costs to the members in the form of member contributions. The amount shifted to the members can vary from valuation to valuation.

Refer to Table 19 of the actuarial valuation report, beginning on page 35, for more information on the benefit summary submitted for the valuation.

ERS Market Value Reconciliation

Market Value returns during 2014 were less than the 8% assumed rate of return, resulting in higher contributions and lower funded ratio, all else being equal.

Item	Year ended December 31,	
	2013	2014
1. Market Value of Assets at beginning of year	\$ 1,768,434,628	\$ 1,879,234,430
2. Contributions for Plan Year		
a. County	\$ 21,998,256	\$ 19,005,395
b. Member	8,954,525	10,051,605
c. Total	30,952,781	29,057,000
3. Disbursements for Plan Year		
a. Benefit payments and refunds	\$ 172,248,723	\$ 177,366,124
b. Administrative expenses payable to County	1,289,344	1,329,904
c. Total	173,538,067	178,696,028
4. Market Value of Assets at end of year	1,879,234,430	1,822,579,695
5. Net Investment Income * (4 - 1 - 2c + 3c)	253,385,088	92,984,293
6. Expected Net Investment Income (8.00% per annum)	135,068,659	143,774,924
7. Gain (Loss) on Market Value of Assets (5 - 6)	118,316,429	(50,790,631)
8. Estimated Rate of Return	15.0%	5.2%

*Net Investment Income is the change in the value of assets for reasons other than contributions and disbursements.

Refer to Tables 7 and 8 of the actuarial valuation report, beginning on page 17 for more information on the plan assets submitted for the valuation.

Actuarial Value of Assets

1. Market Value of Assets as of December 31, 2014				\$ 1,822,579,695
2. Determination of Deferred Gain (Loss)				
Year	Gain/(Loss)	Percentage Deferred	Amount Deferred	
2014	\$ (50,790,631)	90%	\$ (45,711,568)	
2013	\$ 118,316,429	80%	\$ 94,653,143	
2012	\$ -	70%	\$ -	
2011	\$ -	60%	\$ -	
2010	\$ -	50%	\$ -	
2009	\$ -	40%	\$ -	
2008	\$ -	30%	\$ -	
2007	\$ -	20%	\$ -	
2006	\$ -	10%	\$ -	
2005	\$ -	%	\$ -	
Total				48,941,575
3. Actuarial Value of Assets (1 - 2)				\$ 1,773,638,120

The purpose of the actuarial value of assets is to control contribution volatility by reflecting 1/10th of the gain or loss in returns from the 8% assumption each year. As of the current valuation, we have a cushion of 2.7% for future returns that fall short of the 8% assumed rate of return.

Assets were re-established at market value on January 1, 2013, so actual Gain/(Loss) amounts prior to 2013 are not applicable.

Refer to Tables 9 and 10 of the actuarial valuation report, beginning on page 19, for more information on the actuarial value of assets.

Actuarial Value of Assets

As of 12/31	Asset Values		Rates of Return		
	Market	Actuarial	Market	Actuarial	Assumed
2010	\$ 1,895,166,843	\$ 1,929,427,864	11.7%	5.5%	8.0%
2011	1,742,106,887	1,836,542,926	0.2%	3.5%	8.0%
2012	1,768,434,628	1,768,434,628	10.8%	4.8%	8.0%
2013	1,879,234,430	1,772,749,644	15.0%	8.7%	8.0%
2014	1,822,579,695	1,773,638,120	5.2%	8.9%	8.0%

Compound Rate of Return (five years):	8.4%	6.3%
Range of Returns	14.8%	5.4%

While it can be tedious to understand the derivation of the actuarial value of assets on the prior slide, the impact of the Actuarial Value of Assets on controlling volatility cannot be understated, as seen above. The range of returns for market is roughly 3 times that for actuarial value; using market would lead to more contribution volatility. Note that reflecting an 8.9% return in the valuation decreased the contribution by \$0.9 million. In contrast, reflecting the 5.2% market return from 2014 would have increased the contribution by roughly \$3.2 million.

Refer to Tables 9 and 10 of the actuarial valuation report, beginning on page 19, for more information on the actuarial value of assets.

Unfunded Actuarial Accrued Liability

The funded ratio decreased this year, and came in at 79.8%, lower than the 85.1% ratio we expected from last year. The corresponding increase in unfunded actuarial accrued liability will result in a need for increased contributions.

Note the volatility in the unfunded liability on a market basis is much greater than that on an actuarial basis. That volatility would directly impact the contribution volatility.

Refer to page 6 of the actuarial valuation report (and a few other pages) for more information on the unfunded actuarial accrued liability.

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Funded Ratio (a / b)	Unfunded Actuarial Accrued Liability (b - a)	Covered Payroll (c)	Unfunded as a Percentage of Covered Payroll [(b - a) / c]
12/31/2014	\$ 1,773,638	\$ 2,222,620	79.8%	\$ 448,982	\$ 191,432	234.5%
12/31/2013	1,772,750	2,069,547	85.7%	296,797	188,605	157.4%
12/31/2012	1,768,435	2,025,319	87.3%	256,884	189,132	135.8%
12/31/2011	1,836,543	2,059,554	89.2%	223,011	190,748	116.9%
12/31/2010	1,929,428	2,091,927	92.2%	162,499	221,647	73.3%

Actuarial Valuation Date	Market Value of Assets (a)	Actuarial Accrued Liability (b)	Funded Ratio (a / b)	Unfunded Actuarial Accrued Liability (b - a)	Covered Payroll (c)	Unfunded as a Percentage of Covered Payroll [(b - a) / c]
12/31/2014	\$ 1,822,579	\$ 2,222,620	82.0%	\$ 400,041	\$ 191,432	209.0%
12/31/2013	1,879,234	2,069,547	90.8%	190,313	188,605	100.9%
12/31/2012	1,768,435	2,025,319	87.3%	256,884	189,132	135.8%
12/31/2011	1,742,107	2,059,554	84.6%	317,447	190,748	166.4%
12/31/2010	1,895,167	2,091,927	90.6%	196,760	221,647	88.8%

Actuarial Gain/(Loss)

Based on last year's valuation, we expected the actuarial accrued liability to be \$2.066 b (3) and the actuarial value of assets to be \$1.758 b (12), for a funded ratio of 85.1%. The actual amounts were \$2.223 b (6) and \$1.774 b (13), respectively. The actuarial accrued liability came in higher than expected primarily due to the re-inclusion of the COLA liability, which increased the liability by 178.1 m (4). This was offset by other liability gains of \$21.8 m (7) generating a liability loss of \$156.2 m (8). The actuarial assets also came in higher than expected, generating a gain of \$15.3 m (14). The impact of the overall loss of \$140.9 m (15) is higher contributions than anticipated.

Refer to table 3 on page 12 (and a few other pages) for more information on the unfunded actuarial accrued liability.

Item	Amount
1. Actuarial Accrued Liability at January 1, 2014	\$2,069,546,764
2. Increases/(Decreases) During the Year	
a. Normal Cost for 2014	14,660,305
b. Member Contributions for Service Purchases	-
c. Benefit Payments and Refunds	(177,366,124)
d. Assumed Interest to End of Year*	159,575,042
e. Plan and Assumption Changes	-
f. Total: (a + b + c + d + e)	<u>(3,130,777)</u>
3. Expected Liability at January 1, 2015: (1 + 2)	2,066,415,987
4. Impact of COLA reinclusion	178,053,780
5. Expected Actuarial Liability after COLA reinclusion	2,244,469,767
6. Actuarial Accrued Liability at January 1, 2015	2,222,620,399
7. All other liability gains at January 1, 2015	21,849,368
8. Liability Gain/(Loss): (7 - 4)	\$ (156,204,412)
10. Actuarial Value of Assets at January 1, 2014	\$1,772,749,644
11. Increases/(Decreases) During the Year	
a. County Contributions	19,005,395
b. Member Contributions	10,051,605
c. Benefit Payments and Refunds	(177,366,124)
d. Administrative Expenses Reimbursable by County	(1,329,904)
e. Assumed Interest to End of Year*	135,256,142
f. Total: (a + b + c + d + e)	<u>(14,382,886)</u>
12. Expected Actuarial Assets at January 1, 2015 (10 + 11)	1,758,366,758
13. Actuarial Value of Assets at January 1, 2015 (prior to method change)	1,773,638,120
14. Actuarial Asset Gain/(Loss): (13 - 12)	\$ 15,271,362
15. Total Gain/(Loss): (9 + 14)	\$ (140,933,050)

GROSS ERS Budget and Actual Contributions

Item	2016 Budget	2015	
		Actual	Budget
1. Normal Cost with Interest	\$ 17,070,000	\$ 16,999,506	\$ 15,769,000
2. Net Annual Amortizations	40,785,000	39,300,143	22,536,000
3. Expenses	1,581,000	1,554,175	N/A
4. Total Contribution (1 + 2 +3, not less than zero)	\$ 59,436,000	\$ 57,853,824	\$ 38,305,000

The budgeted contributions shown above for the 2016 and 2015 plan years were estimated based on participant data as of January 1, 2015, and January 1, 2014, respectively.

The 2015 actual contribution and 2016 budget contribution reflects the following funding policy changes adopted by the Retirement Board:

- Reduce the current 30 year amortization period to 20 years
- Immediately reflect expected administrative expenses rather than amortizing over 10 years
- Reduce future increases in payments from the current 3.50% policy to expected revenue growth, which is assumed to be 1.75% per year
- Update the actuarial cost method from Aggregate Entry Age Normal to Individual Entry Age Normal

Note that for purposes of the contribution rates shown in the report, these amounts are gross contribution amounts. It is our understanding that County staff will net out the amount of employee contributions that are collected to arrive at a net County contribution.

A reconciliation of these amounts can be found on the next slide.

Refer to Table 6 of the actuarial valuation report, on page 15, for more information on the budget and actual contributions.

ERS Reconciliation of Contributions

Item	Amount
1. 2015 Budget Contribution	\$ 38,305,000
2. Increase / (Decrease) during 2014 due to	
a. Unanticipated liability loss (gain)	\$ (2,226,000)
b. Asset experience other than expected	317,000
c. 2014 reimbursable expenses other than assumed	-
d. 2014 contribution variance other than assumed	-
e. COLA reinclusion	11,112,000
f. Increase due to assumption/method/plan changes	10,346,000
h. Total	<u>19,549,000</u>
3. 2015 Actual Contribution (1 + 2)	\$ 57,854,000
4. Expected Increase / (Decrease) during 2015 due to	
a. Normal cost and existing amortization base	\$ 758,000
b. Phase-in of deferred asset (gains) losses	(970,000)
c. Increase in reimburseable expenses	27,000
d. Expected contribution variance for 2015	1,767,000
e. Full recognition of bases	-
f. 2015 reimbursable expenses	-
g. Total	<u>1,582,000</u>
5. 2016 Budget Contribution (3 + 4)	\$ 59,436,000

The increase between the 2015 Budget and Actual Contributions is due to a combination of the funding policy changes and re-inclusion of the COLA liabilities not included in last year's valuation.

The increase between the 2015 Actual Contribution and the 2016 Budget contribution is primarily due to the expected contribution variance for 2015.

This chart can be found on page 2 of the actuarial valuation report.

State Mandated Member Contributions

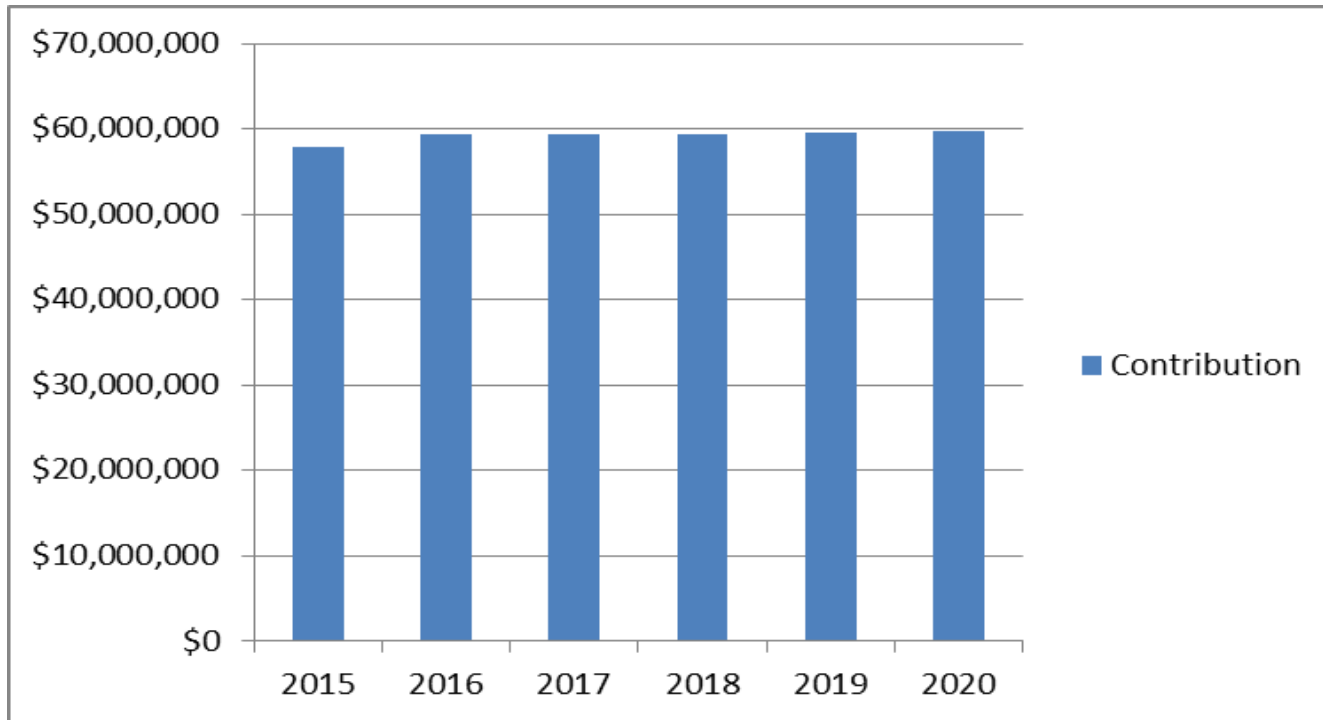
Item	Results Based on Current Contributions			
	Non-Contributors	Public Safety	General	All Members
Valuation Results as of January 1, 2015				
1. Present Value of Future Benefits				
a) Active Participants *	\$ -	\$ 89,261,127	\$ 515,919,069	\$ 605,180,196
b) Participants with Deferred Benefits	70,895,992	-	-	70,895,992
c) Participants Receiving Benefits	1,649,471,985	-	-	1,649,471,985
d) Total	\$ 1,720,367,977	\$ 89,261,127	\$ 515,919,069	\$ 2,325,548,173
2. Present Value of Future Normal Cost	\$ -	\$ 9,808,143	\$ 93,119,631	\$ 102,927,774
3. Actuarial Accrued Liability: (1 - 2)	\$ 1,720,367,977	\$ 79,452,984	\$ 422,799,438	\$ 2,222,620,399
4. Actuarial Value of Assets	\$ 1,372,843,615	\$ 63,403,018	\$ 337,391,487	\$ 1,773,638,120
5. Funded Status: (4 ÷ 3)	79.8%	79.8%	79.8%	79.8%
6. Unfunded Actuarial Accrued Liability: (3 - 4)	\$ 347,524,362	\$ 16,049,966	\$ 85,407,951	\$ 448,982,279
7. Total Normal Cost for the Plan Year	\$ -	\$ 1,499,915	\$ 14,240,368	\$ 15,740,283
Projected Employee Contribution for 2016				
1. Actual Contribution for 2015				
a) Normal Cost with Interest	\$ -	\$ 1,619,909	\$ 15,379,597	\$ 16,999,506
b) Net Annual Amortization Payments **	30,419,368	1,404,879	7,475,896	39,300,143
c) Expenses	1,202,973	55,558	295,644	1,554,175
d) Total Contribution: ((a + b + c), not less than zero)	\$ 31,622,341	\$ 3,080,346	\$ 23,151,137	\$ 57,853,824
2. Employee Contribution (50% of 1d for Contributors)	N/A	\$ 1,540,173	\$ 11,575,569	N/A
3. Expected Salaries in 2015	\$ -	\$ 18,870,924	\$ 172,561,991	\$ 191,432,915
4. Employee Contribution Rate (2 ÷ 3 + 1.08 ^{1/2})	N/A	7.9%	6.5%	N/A

* The actives in the Public Safety group include 278 members comprised of Represented Firefighters and Sheriffs and Non-Represented Firefighters and Sheriffs.

** The Net Annual Amortization Payments for the Contributors was prorated based on the contributors' actuarial accrued liability compared to total actuarial accrued liability of the Retirement System.

Member contributions increased from last year for the same reasons that caused the ERS contributions amount to increase. Consideration can be given to modifying the split between the Public Safety and General Contribution rates. While some of the difference between the rates is due to benefit provisions, more is due to demographic differences between the groups.

Five year Projection of GROSS Actual Contributions – Next Five Years



The contributions increased by \$1.6 million from 2015 to 2016 primarily due to the expected contribution variance for 2015, which was amortized over 20 years as part of the fresh start. The gross contribution is projected to be relatively stable after that increase, but will fluctuate due to actual experience.

Key Takeaways

- Overall, the following events resulted in the funded status to be lower than anticipated and employer contributions to be higher than anticipated from the January 2014 valuation:
 - Changes in the Funding Policy
 - Re-inclusion of the COLA liabilities that were not included in the 2013 and 2014 valuations
 - Market value returns of 5.2% compared to 8% assumed
- Over the next few years, contributions will trend upwards but at a much slower pace due to the change in funding policy.
- The Plan has matured to the point that expected investment returns are not expected to fund all benefit disbursements despite the ERS being well funded. Note that anticipated contributions and expected investment income are approximately in balance with the level of anticipated benefit payments at the current time. This is a characteristic of a relatively mature plan.
- Cash flow will be at a premium in the near term as roughly one-tenth of the assets are paid out in benefit payments in the next few years. The actuarial valuation reflects this phenomenon. The Board should continue to monitor its policies to address this.

Summary of Results - OBRA

Item	January 1, 2015	January 1, 2014
Contributions		
a) Budget (2016 and 2015)	\$ 819,000	\$ 402,000
b) Actual	\$ 770,384	\$ 373,500
c) Made in prior year	\$ 440,000	\$ 360,000
Participant Data		
Number of Participants		
a) Active Participants	394	326
b) Participants with Deferred Benefits	4,783	4,434
c) Participants Receiving Benefits	47	39
d) Total	<u>5,224</u>	<u>4,799</u>
Valuation Results		
Actuarial Accrued Liability		
a) Active Participants	\$ 443,185	\$ 596,708
b) Participants with Deferred Benefits	2,278,756	2,215,590
c) Participants Receiving Benefits	761,771	598,365
d) Total	<u>\$ 3,483,712</u>	<u>\$ 3,410,663</u>
Actuarial Value of Assets	\$ 1,560,392	\$ 1,602,994
Funded Status:	44.8 %	47.0 %
Unfunded Actuarial Accrued Liability:	\$ 1,923,320	\$ 1,807,669

The 2015 actual contribution was higher than the budgeted amount due to the funding policy changes. The funded status of the OBRA plan decreases due to insufficient contributions made.

Next Steps

- Approve 2016 recommended budget contributions and member contribution or provide further guidance
- Send letter to County Executive requesting funds
- Questions?
- Thank you

Certification

The results were prepared under the direction of Larry Langer who meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. These results have been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about them.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law.

The assumptions, methods, asset information and data information are contained in the actuarial report referenced herein. All of the statements of reliance, assumptions, descriptions and caveats in the actuarial valuation report are incorporated by reference.

Larry Langer, ASA, EA, MAAA
Principal, Consulting Actuary

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