NEBRASKA PUBLIC EMPLOYEES RETIREMENT SYSTEMS 2013 State Employees' Retirement System Cash Balance Benefit Fund Actuarial Valuation Results as of January 1, 2013 for State Fiscal Year Ending June 30, 2015

May 2013

# buckconsultants<sup>-</sup>

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# A Xerox Company

May 6, 2013

Public Employees Retirement Board Nebraska Public Employees Retirement Systems Post Office Box 94816 Lincoln, NE 68509

#### Certification of Actuarial Valuation State Employees' Retirement System Cash Balance Benefit Fund

Ladies and Gentlemen:

This report summarizes the results of the actuarial valuation of the State Employees' Retirement System Cash Balance Benefit Fund as of January 1, 2013, performed by Buck Consultants.

The actuarial valuation is based on member data provided to us by UNIFI Companies, recordkeeper for the plan, and unaudited financial information provided by Nebraska Retirement Systems as summarized in this report. The benefits considered are those delineated in Nebraska State Statutes, effective as amended January 1, 2013.

All costs, liabilities and other factors under the fund were determined in accordance with generally accepted actuarial principles and procedures, using actuarial cost methods which we believe are reasonable, and that follow the Nebraska State Statutes. This report fully and fairly discloses the actuarial position of the fund.

In our opinion, the actuarial assumptions used are reasonable, taking into account expected experience of the fund, and represent our best estimate of anticipated future experience. A summary of the actuarial assumptions used in this actuarial valuation are shown in Exhibit 10.

The contributions paid by the participating Cash Balance benefit members and the 156% matching State contributions defined by statute are more than sufficient to meet the actuarially required contribution which is equal to the sum of the annual normal cost and the annual payment necessary to amortize the unfunded liabilities over 25 years. The State is required to make any additional contribution necessary to meet the statutory funding requirement. For the 2014-2015 fiscal year, this additional amount is \$0.

The undersigned are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

We are available to answer any questions on the material contained in this report, or to provide explanations to further details as may be appropriate.

Respectfully submitted,

David H. Slas

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## SUMMARY OF ACTUARIAL REPORT FOR CONTRIBUTION REQUIREMENTS AND FUNDED STATUS FOR THE 2013 PLAN YEAR

The main purposes of this report are:

- 1. To determine the level of additional State contributions for the fiscal year ending June 30, 2015 sufficient to meet the funding policy defined under Nebraska State statutes;
- 2. To review the current funded status of the Cash Balance benefit; and
- 3. To compare actual and expected experience under the plan during the plan year beginning January 1, 2012 and ending December 31, 2012.
- 4. To quantify the contribution rate available for benefit improvements, if any.

The 2013 actuarial valuation is based upon the plan provisions as of January 1, 2013, as described in Exhibit 8. The actuarial methods and assumptions are described in Exhibits 9 and 10.

Highlights from the current valuation:

- 1. No additional State contribution is required for the 2014-2015 fiscal year to meet the actuarially required contribution. Expected member contributions and State contributions exceed the total funding requirement. The Actuarial Liability as of January 1, 2013, is \$5,496,169.
- 2. For the 2013 plan year, the actuarially required contribution is over 90% of the actual contributions. Therefore, a funding excess does not exist to provide benefit improvements during the 2013 plan year.
- 3. One measure of the funded status of the system is the ratio of the system assets over the Pension Benefit Obligation (PBO). The PBO is calculated using the Projected Unit Credit Method, which determines the benefit by using accumulated cash balance account values at the valuation date and projecting salary, contribution credits, and interest credits to assumed termination or retirement, and prorating the projected balances by service earned at the valuation date to service expected at termination or retirement. As of January 1, 2013, the funded percentage on Actuarial Value of Assets is 95.3%.
- 4. An asset loss was experienced on the Actuarial Value of Assets during the 2012 plan year. The rate of return on Actuarial Value of 3.53% fell short of the 7.75% assumed asset return rate by 4.22%, resulting in a decrease to the Actuarial Value of \$31,583,937. A decremental gain of \$15,861,639 was experienced on the actuarial accrued liability due to salary increases less than expected, and the actual interest credit rate of 5.0% was less than the assumed interest credit rate of 7.0%. The net actuarial loss for the year was \$13,070,490. As a result, the actuarial funding ratio increased from 91.5% as of January 1, 2012 to 93.6% as of January 1, 2013.

## SUMMARY OF ACTUARIAL REPORT FOR CONTRIBUTION REQUIREMENTS AND FUNDED STATUS FOR THE 2013 PLAN YEAR

- 5. As the result of an experience analysis conducted on actual plan experience from January 1, 2007 through December 31, 2011, revised actuarial assumptions were proposed and adopted by the Nebraska Public Employees Retirement Board (PERB) in August 2012, to be used for the January 1, 2013 actuarial valuation. The impact of the changes to the actuarial assumptions resulted in a \$10,141,120 decrease in the actuarial accrued liability as of January 1, 2013.
- 6. An investment gain was experienced on the Market Value of Assets during the 2012 plan year. The annual rate of return on Market Value was 12.99% for the year, exceeding the assumed investment return of 7.75% by 5.24%. As a result of this gain, the Market Value funded ratio on the Accumulated Benefit Obligation increased from 86.1% as of January 1, 2012 to 94.4% as of January 1, 2013.
- 7. In accordance with LB 916 as amended by AM1739, State Defined Contribution members could elect to transfer their account balances to the State Cash Balance Benefit Fund during the election period starting September 1, 2012 and ending October 31, 2012. During this period, 1,260 DC members elected to transfer their account balances to the Cash Balance Fund effective January 2, 2013. Given the significance of this event, we have included these new members in the 2013 actuarial valuation, including \$227,897,910 in assets transferred to the Cash Balance Fund.

## **EXECUTIVE SUMMARY**

#### **Basic Actuarial Valuation Results**

The 2013 actuarial valuation results are based upon the plan provisions as of January 1, 2013, as described in Exhibit 8. The actuarial methods and assumptions are described in detail in Exhibits 9 and 10, respectively.

#### 1. State Contribution

The State's funding policy is to match the contributions paid by members at a rate of 156% of the member contribution, and make additional payments if necessary, to meet the actuarially required contribution. The actuarially required contribution is equal to the normal cost plus an amortization payment for unfunded liabilities. Unfunded liabilities created due to experience gains or losses, plan changes or assumption changes are amortized over 25 years.

The total expected State contribution for the 2013 plan year is \$37,486,962. Member contributions and matching State contributions are expected to exceed the total actuarially required funding.

Assets do not exceed the actuarial accrued liability as of the valuation date. As a result, the unfunded actuarial accrued liability is \$68,543,296. No additional payment is required for the 2013 plan year.

History of Expected State Contributions						
Plan Year	State Contribution	StateAdditionalContributionContributions				
2004	\$ 12,112,627	\$ 0	\$ 12,112,627			
2005	\$ 13,618,155	\$0	\$ 13,618,155			
2006	\$ 16,912,304	\$0	\$ 16,912,304			
2007	\$ 24,266,326	\$0	\$ 24,266,326			
2008	\$ 28,814,683	\$0	\$ 28,814,683			
2009	\$ 32,461,469	\$0	\$ 32,461,469			
2010	\$ 34,062,751	\$0	\$ 34,062,751			
2011	\$ 33,645,530	\$ 0	\$ 33,645,530			
2012	\$ 34,366,120	\$ 0	\$ 34,366,120			
2013	\$ 37,486,962	\$ 0	\$ 37,486,962			

## **EXECUTIVE SUMMARY**

#### 2. Asset Values

The total assets of the system as of the valuation date at both market value and actuarial value is as follows:

		Ja	inuary 1, 2012	J	anuary 1, 2013	Annual Rate of Return
(a)	Market value	\$	702,495,027	\$	1,033,413,956	12.99%
(b)	Actuarial value, an adjusted value intended to reduce the effect of market fluctuations (See Exhibit 9)	\$	743,970,954	\$	1,009,414,476	3.53%

#### 3. Actuarial Liability/(Reserve)

The actuarial liability of the system is the excess of the total benefit obligation (present value of future benefits) over the projected financial resources (sum of (i) the actuarial value of assets, and (ii) the present value of future member and matching State contributions). If the projected financial resources exceed the total benefit obligation, the system has a Reserve. The actuarial position of the system as of the valuation date is as follows:

		January 1, 2012	January 1, 2013
(a)	Present value of future benefits	\$ 1,196,796,425	\$ 1,456,632,527
(b)	Actuarial value of assets	743,970,954	1,009,414,476
(c)	Present value of future member contributions	169,787,905	172,547,610
(d)	Present value of matching State contributions	264,869,132	269,174,272
(e)	Actuarial Liability/(Reserve) [(a) – (b) – (c) – (d)]	\$ 18,168,434	\$ 5,496,169

## EXECUTIVE SUMMARY

#### 4. Pension Benefit Obligation (PBO)

The Pension Benefit Obligation represents a standardized disclosure measure of the present value of pension benefits payable in the future, which incorporates the effects of projected salary increases, based on service earned at the valuation date. The measure is intended to provide information regarding the Cash Balance Benefit's funded status on an ongoing-concern basis, progress made in accumulating sufficient assets to pay benefits when due, and comparability to other plans.

Funded Status	January 1, 2012	January 1, 2013
<ul> <li>(a) Pension Benefit Obligation</li> <li>i) retirees, disabled members and beneficiaries receiving benefits and deferred vested members</li> </ul>		
not yet receiving benefits ii) active members	\$ 178,128,167 <u>623,044,025</u>	\$ 253,099,699 <u>806,023,557</u>
iii) total pension benefit obligation	\$ 801,172,192	\$ 1,059,123,256
(b) Assets available for benefits (actuarial value)	<u>743,970,954</u>	<u>1,009,414,476</u>
(c) Unfunded Pension Benefit Obligation	\$ 57,201,238	\$ 49,708,780
(d) Funded percentage on actuarial value of assets [(b) ÷ (a)(iii)]	92.9%	95.3%

## **EXECUTIVE SUMMARY**

#### 5. Accumulated Benefit Obligation

The accumulated benefit obligation represents another measure of the value of the benefits provided under the plan, based on the account balances and retiree benefits as of the valuation date. The measure is intended to provide information regarding the Cash Balance Benefits funded status on an immediate basis, progress on securing the current benefit obligation and comparability to similar individual account plans.

Funded Status		January 1, 2012		January 1, 2013	
(a) Cash Balance Accounts					
i) Actives	\$	637,533,581	\$	841,861,361	
ii) Inactives		<u>81,557,720</u>		<u>121,157,449</u>	
iii) Total	\$	719,091,301	\$	963,018,810	
(b) Retirees, disabilities, and beneficiaries		<u>96,570,447</u>		<u>131,942,250</u>	
(c) Total accumulated benefit obligation	\$	815,661,748	\$	1,094,961,060	
(d) Market Value of Assets		<u>702,495,027</u>		<u>1,033,413,956</u>	
(e) Deficit/(Reserve) [(c) – (d)]	\$	113,166,721	\$	61,547,104	
(f) Funded percentage on Market Value of Assets [(d) ÷ (c)]		86.1%		94.4%	

#### 6. Benefit Accrual Cost

The cost of benefits accruing over an active member's working career can be expressed as a level percentage of compensation. This cost represents the true cost of accruing benefits since it is not adjusted for any overfunding or underfunding which may exist on the valuation date. It is determined using the Entry Age Actuarial Cost Method and is also called the Normal Cost. The level benefit accrual cost determined at the valuation date is as follows:

		January 1, 2012	January 1, 2013
(a)	Benefit accrual cost amount	\$ 47,386,830	\$ 50,343,724
(b)	Annual compensation before assumed retirement age	\$ 453,855,808	\$ 500,205,057
(c)	Benefit accrual cost rate [(a) ÷ (b)]	10.44%	10.07%

## EXECUTIVE SUMMARY

#### 7. Forecast of Disbursements

A forecast of the annual benefit disbursements expected over the next ten years is presented in Exhibit 7. This forecast is based on the same actuarial assumptions with respect to salary increases and decrement rates used to determine the funding requirements. The forecast should be a useful guide in discussing the cash-flow needs of the system with investment managers and in projecting the future financing needs of the system.

#### 8. Actuarial Methods and Assumptions

The required contribution developed in this report is an estimate of the amount necessary to provide ongoing benefits to plan members assuming the system is funded in a systematic manner. These estimates are based upon the actuarial method defined under State Statutes to allocate the total cost of the Cash Balance benefit to various years and actuarial assumptions regarding the return on investments, salary rates, employee termination rates, mortality rates and other risk factors. The actuarial method used to determine the actuarial contribution requirement is the Entry Age Actuarial Cost Method.

The actuarial assumptions represent the expected long-term experience of the system on an explicit basis for each risk area considered. The experience is reviewed periodically. Where necessary, changes are recommended by the actuary and adopted by the Public Employees Retirement Board.

A summary of the actuarial methods and assumptions used in the current valuation is presented in Exhibits 9 and 10, respectively.

#### 9. Changes Since the Last Actuarial Valuation

There have been no changes in the actuarial cost method or plan provisions since the last actuarial valuation as of January 1, 2012. The changes in actuarial assumptions are a result of the most recent experience analysis concluded in August 2012 based on experience from January 1, 2007 through December 31, 2011. The actuarial assumptions were changed to more accurately reflect expected future experience. The changes are effective as of January 1, 2013 and are listed below:

- The interest credit rate on cash balance accounts was lowered from 7.00% to 6.75% per year.
- Salary increases were changed to rates grading down from 5.4% for less than one year of service to 4.0% at 20 years of service. Prior valuation rates graded from 5.9% for less than one year of service to 4.5% at 20 years of service.
- Retirement rates increased at ages 65-69 and 100% retirement age was extended to age 80 from age 70.

- Pre- and post-retirement healthy mortality assumptions were changed from the 1994 Group Annuity Mortality (GAM) table projected to 2010 (for pre-retirement males rates were 65% of rates and female rates were 50% of rates) to the 1994 GAM table, with a 1-year setback, projected to 2015 (pre-retirement rates are adjusted by 55% for males and 40% for females. This change was made to reflect the most recent experience and expected future mortality improvements as required by Actuarial Standards of Practice (ASOP) No. 35.
- Termination rates are select rates in the first 5 years and ultimate rates by age from year 5 and thereafter. The select and ultimate rates were increased.
- Disability rates were removed.
- Consumer price inflation was lowered to 3.25% from 3.50% per year.
- Economic productivity was lowered to 0.75% from 1.00% per year.
- The payment form assumption for retiring active members was changed from 100% assumed to take an annuity to 50% assumed to take a lump sum and 50% assumed to take an annuity.

Α.	Summary of Market Value of Assets	Marl Dece	Market Value as of December 31, 2011		et Value as of mber 31, 2012	
1.	Cash and Equivalents	\$	1,224,945	\$	82,166	
2.	Investments		703,007,318		818,058,382	
3.	Receivables and Prepaids		40,683,027		269,365,591	
4.	Accounts Payable		(42,420,263)		(54,092,183)	
5.	Net Assets Available for Pension Benefits Considered [1 + 2 + 3 + 4]	\$	702,495,027	\$ 1	L,033,413,956	

#### SYSTEM ASSETS

В.	Development of Actuarial Value of Assets		Amount
1.	Actuarial Value of Assets as of January 1, 2012	\$	743,970,954
2.	Unrecognized return as of January 1, 2012	\$	(41,475,927)
3.	Contributions (a) Employee (b) Employer (c) Total	\$ \$	20,863,102 <u>32,096,097</u> 52,959,199
4.	Transfers In	\$	4,779,347
5.	Receivable transfer from Defined Contribution Benefit Fund	\$	227,897,910
6.	Disbursements (a) Distributions (b) Benefit Payments (c) Total	\$ \$	34,023,004 <u>12,663,998</u> 46,687,002
7.	Expected Return at 7.75% on: (a) Item 1 (b) Item 2 (c) Item 3(c) (d) Item 4 (e) Item 5 (f) Item 6(c) (g) Total [(a) + (b) + (c) + (d) + (e) + (f)]	\$	57,657,749 (3,214,384) 2,013,878 181,744 0 <u>(1,775,365)</u> 54,863,622
8.	Actual Return on Market Value for 2012 Plan Year, net of expenses*	\$	91,969,475
9.	Return to be Spread for 2012 Plan Year [8 - 7(g)]	\$	37,105,853

\* Includes adjustment on the Market Value of Assets of \$0.

## System Assets

В.	Development o	Amount						
10.	Total Market Val	ue of Assets as of Janua	ary 1, 2013		\$ 1,033,413,956			
11.	1. Return to be Spread							
	Plan Year	Return to be Spread	Unrecognized Percent	Unre	ecognized Return			
	2012 2011	\$ 37,105,853 (52,067,877)	80% 60%	\$	29,684,682 (31,240,726)			
	2010	31,579,623	40%		12,631,849			
	2009	64,618,375	20%		12,923,675			
			Total	\$	23,999,480			
12.	L2. Total Actuarial Value of Assets at January 1, 2013 [10 – 11] \$ 1,009,414,476							
13.	Asset Ratios							
	(a) Actuarial	Value to Market Value	[12 ÷ 10]		97.7%			
	(b) Market Va	lue to Actuarial Value	[10 ÷ 12]		102.4%			

## SYSTEM ASSETS

С.	Change in Asset Values During 2012	Actuarial Value	Market Value
1.	Asset value as of January 1, 2012		
	(a) Reported last year	\$ 743,970,954	\$ 702,495,027
	(b) Adjustment	n/a	0
	(c) Reported this year [(a) + (b)]	\$ 743,970,954	\$ 702,495,027
2.	Contributions for 2012		
	(a) Employee contributions paid	\$ 20,863,102	\$ 20,863,102
	(b) Employer contributions collected	32,096,097	32,096,097
	(c) Contributions for 2012 [(a) + (b)]	\$ 52,959,199	\$ 52,959,199
3.	Transfers In	\$ 4,779,347	\$ 4,779,347
4.	Receivable Transfer from Defined Contribution Benefit Fund	\$ 227,897,910	\$ 227,897,910
5.	Disbursements for 2012		
	(a) Benefit payments	\$ 46,687,002	\$ 46,687,002
	(b) Expenses and fees	2,737,133	2,737,133
	(c) Disbursements for 2012 [(a) + (b)]	\$ 49,424,135	\$ 49,424,135
6.	Investment return for 2012	\$ 29,231,201	\$ 94,706,608
7.	Asset value as of January 1, 2013 [1(c) + 2(c) + 3 + 4 - 5(c) + 6]	\$ 1,009,414,476	\$ 1,033,413,956
8.	Approximate rate of investment return, net of expenses	3.53%	12.99%

## **ACTUARIAL CONTRIBUTION REQUIREMENT**

Α.	Development of Actuarially Required Funding Rate	January 1, 2013
1.	Actuarial present value of benefits	
	<ul> <li>(a) Active members</li> <li>(b) Inactive members</li> <li>(c) Retired members, disabilities and beneficiaries</li> <li>(d) Total</li> </ul>	<pre>\$ 1,203,532,828 121,157,449 <u>131,942,250</u> \$ 1,456,632,527</pre>
2.	Present Value of Future Normal Costs	<u>378,674,755</u>
3.	Total Actuarial Accrued Liability [1(d) - 2]	\$ 1,077,957,772
4.	Actuarial Value of Assets	<u>1,009,414,476</u>
5.	Unfunded Actuarial Accrued Liability [3 - 4]	\$ 68,543,296
6.	25-Year Amortization of the Unfunded Actuarial Accrued Liability (a) Amount (b) Amount as % of Pay	\$      6,306,729 1.26%
7.	Normal Cost (a) Amount (b) Amount as % of Pay	\$     50,343,724 10.06%
8.	Total Actuarially Required Contribution (a) Amount [6(a) + 7(a)] (b) Amount as % of Pay	\$    56,650,453 11.32%

### **ACTUARIAL CONTRIBUTION REQUIREMENT**

В.	Development of Additional State Contribution for 2014/2015	Annual Amount as a % of Pay
1.	Actuarially Required Contribution (a) Total Contribution Amount (b) Amount as % of Pay	\$ 56,650,453 11.32%
2.	<ul> <li>Statutory Contribution Rates</li> <li>(a) Employee Contribution Rate</li> <li>(b) Employer Contribution Rate</li> <li>(c) Total Employee/Employer Contribution Rate [2(a) + 2(b)]</li> </ul>	4.80% <u>7.49%</u> 12.29%
3.	<ul> <li>Additional Required State Contribution</li> <li>(a) Additional Required State Contribution Rate [1(b) - 2(c), not less than 0.00%]</li> <li>(b) Additional Required State Contribution Amount for the 2013 plan year</li> </ul>	0.00% \$ 0
4.	Additional Required State Contribution Amount for the 2014/2015 fiscal year [item 3(b) with interest]	\$ 0
C.	Development of Excess Contribution Rate Available for Benefit Improvements	Annual Amount as a % of Pay
1.	Total Statutory Contribution Rate	12.29%
2.	Benefit Improvement Threshold Rate [90% of 1]	11.06%
3.	Actuarially Required Contribution Rate	11.32%
4.	Funding Excess Available for Benefit Improvement (a) As a Rate of Pay [2 - 3, not less than 0%] (b) Annual Amount	0.00% \$ 0

## **ACTUARIAL CONTRIBUTION REQUIREMENT**

D. Schedule of Amortization Bases	Original Amount	January 1, 2013 Remaining Payments	Date of Last Payment	E Ja	Outstanding Balance as of nuary 1, 2013	(	Annual Contribution
1. 2009 Unfunded Accrued Liability Base	\$ 20,710,304	21	07/01/2033	\$	19,391,270	\$	1,829,291
2. 2010 Unfunded Accrued Liability Base	\$ 23,400,784	22	07/01/2034	\$	22,325,687	\$	2,066,935
3. 2011 Unfunded Accrued Liability Base	\$ 5,379,859	23	07/01/2035	\$	5,221,302	\$	475,190
4. 2012 Unfunded Accrued Liability Base	\$ 21,541,093	24	07/01/2036	\$	21,235,501	\$	1,902,673
5. 2013 Unfunded Accrued Liability Base	\$ 369,536	25	07/01/2037	\$	369,536	\$	32,640
Total				\$	68,543,296	\$	6,306,729

## Actuarial Gain/(Loss)

The actuarial gain/(loss) is comprised of both the liability gain/(loss) and the actuarial asset gain/(loss). Each of these represents the difference between the expected and actual values as of January 1, 2013.

1.	Expected Actuarial Accrued Liability	
	a. Actuarial Accrued Liability as of January 1, 2012	\$ 813,285,510
	b. Normal Cost during 2012 Adjusted for Actual Pay and Transfers	48,909,794
	c. Benefit Payments for Plan Year Ending December 31, 2012	46,687,002
	d. Interest on a, b, and c to End of Year	63,114,153
	e. Decrease Due to Change in Assumptions	10,141,120
	f. Increase Due to DC Members Transferring	 225,338,076
	<ul> <li>g. Expected Actuarial Accrued Liability at January 1, 2013</li> <li>[a + b - c + d - e + f]</li> </ul>	\$ 1,093,819,411
2.	Actuarial Accrued Liability at January 1, 2013	 1,077,957,772
3.	Liability Gain/(Loss) [1g – 2]	\$ 15,861,639
4.	Expected Actuarial Value of Assets	
	a. Actuarial Value of Assets as of January 1, 2012	\$ 743,970,954
	b. Contributions and Transfers In During Plan Year	57,738,546
	c. Benefit Payments During Plan Year	46,687,002
	d. Interest on a, b, and c to End of Year	58,078,005
	e. DC Transfers	 227,897,910
	<ul> <li>f. Expected Actuarial Value of Assets at January 1, 2013</li> <li>[a + b - c + d + e]</li> </ul>	\$ 1,040,998,413
5.	Actuarial Value of Assets as of January 1, 2013	<u>1,009,414,476</u>
6.	Actuarial Asset Gain/(Loss) [5 – 4f]	\$ (31,583,937)
7.	Contributions	
	a. Statutory Contribution	\$ 52,959,199
	b. Actuarial Contribution Adjusted for Actual Pay	 50,404,537
	c. Excess Contribution [a – b]	\$ 2,554,662
	d. Interest on c to End of Year	97,146
8.	Contribution Gain/(Loss) [c + d]	\$ 2,651,808
9.	Actuarial Gain/(Loss) [3 + 6 + 8]	\$ (13,070,490)

## **ACTUARIAL BALANCE SHEET**

Α.	Financial Resources	-		January 1, 2013
1.	Actuarial Value of Assets			\$ 1,009,414,476
2.	Present Value of Future Normal Cost Contributions (a) Member (b) Employer	\$	172,547,610	
	(c) Total		200,127,145	378,674,755
3.	Unfunded Actuarial Accrued Liability			68,543,296
4.	Total Assets [1 + 2(c) + 3]			\$ 1,456,632,527
i		-		-
В.	Benefit Obligations			January 1, 2013
1.	Present Value of Future Benefits			
	(a) Active members (b) Inactive members	\$	1,203,532,828	
	(c) Retirees, disabilities and beneficiaries		<u>131,942,250</u>	
	(d) Total			\$ 1,456,632,527

## **ACCOUNTING INFORMATION**

#### A. Pension Benefit Obligation under the Projected Unit Credit Cost Method.

	נ	lanuary 1, 2012	<b>ן</b>	anuary 1, 2013
Pension Benefit Obligation (PBO)				
Vested PBO				
<ul><li>(a) members currently receiving payments</li><li>(b) other members</li></ul>	\$	96,570,447	\$	131,942,250
i) accumulated member contributions		282,210,045		374,077,256
ii) employer financed vested		413,623,673		<u>544,581,996</u>
Total Vested PBO	\$	792,404,165	\$	1,050,601,502
Non-vested PBO		<u>8,768,027</u>		<u>8,521,754</u>
Total PBO	\$	801,172,192	\$	1,059,123,256
Actuarial Value of Assets		<u>743,970,954</u>		<u>1,009,414,476</u>
Unfunded Pension Benefit Obligation		57,201,238	\$	49,708,780
Funded Percentage				
(a) on vested PBO		93.9%		96.1%
(b) on total PBO		92.9%		95.3%

#### B. Change in Pension Benefit Obligation from January 1, 2012 to January 1, 2013.

Pension Benefit Obligation at January 1, 2012	\$ 801,172,192
Increase/(Decrease) during Period	
Assumption Changes	\$ (13,621,316)
DC Transfers	216,469,494
Benefits Accumulated	44,774,838
Benefits Paid	(46,687,002)
Interest Cost	63,785,529
Plan Experience	<u>(6,770,479)</u>
Total Change	\$ 257,951,064
Pension Benefit Obligation at January 1, 2013	\$ 1,059,123,256

## **ACCOUNTING INFORMATION**

Exhibits 9 and 10 provide a more detailed summary of the underlying actuarial methods and assumptions used in the calculations of the Pension Benefit Obligation. The benefits valued are those in effect on January 1, 2013, as outlined in Exhibit 8. The determination of the Pension Benefit Obligation has been made in accordance with generally accepted actuarial principles and practices.

#### C. Schedule of Employer Contributions - Disclosure Requirements Under GASB No. 25

Plan Year Ending	An C	nual Required ontributions	Percentage Contributed
December 31, 2007	\$	22,913,163	100%
December 31, 2008	\$	29,208,772	100%
December 31, 2009	\$	30,321,032	100%
December 31, 2010	\$	30,679,003	100%
December 31, 2011	\$	31,088,483	100%
December 31, 2012	\$	32,096,097	100%

#### D. Actuarial Assumptions, Method and Additional Information under GASB No. 25

Valuation Date	December 31, 2012
Actuarial Cost Method	Entry Age
Amortization Method	Level dollar amount, closed
Equivalent Single Amortization Period	22 years
Asset Valuation Method	5 year smoothing of market value
Actuarial Assumptions: Investment rate of return* Projected salary increases* *Includes inflation at	7.75% 4.0% - 5.4% 3.25%
Cost-of-living adjustment	None, except 2.5% per year is used for retirees electing annuity payments with a COLA feature.

#### **ACCOUNTING INFORMATION**

#### E. Schedule of Funding Progress Under GASB No. 25

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded Accrued Liabilities (UAL) (b) – (a)	Funded Ratio (a) ÷ (b)	Covered Payroll (c)	UAL as a % of Covered Payroll [(b) – (a) / (c)]
December 31, 2007	\$ 606,552,428	\$ 586,829,526	\$ (19,722,902)	103.4%	\$ 384,708,712	(5.1%)
December 31, 2008	\$ 637,539,094	\$ 658,249,398	\$ 20,710,304	96.9%	\$ 433,397,447	4.8%
December 31, 2009	\$ 670,591,669	\$ 714,408,952	\$ 43,817,283	93.9%	\$ 454,776,381	9.6%
December 31, 2010	\$ 714,131,805	\$ 762,680,399	\$ 48,548,594	93.6%	\$ 449,206,006	10.8%
December 31, 2011	\$ 743,970,954	\$ 813,285,510	\$ 69,314,556	91.5%	\$ 458,826,702	15.1%
December 31, 2012	\$1,009,414,476	\$1,077,957,772	\$ 68,543,296	93.6%	\$ 500,493,490	13.7%

## SUMMARY OF MEMBER DATA

Α.	Active Members	J	lanuary 1, 2012	January 1, 2013		
1.	Number of active members (a) Before assumed retirement age (b) Beyond assumed retirement age (c) Total		11,155 <u>108</u> 11,263		11,948 <u>8</u> 11,956*	
2.	<ul><li>Annual considered compensation</li><li>(a) Before assumed retirement age</li><li>(b) Beyond assumed retirement age</li><li>(c) Total</li></ul>	\$ \$	453,855,808 <u>4,970,894</u> 458,826,702	\$ \$	500,205,057 <u>288,433</u> 500,493,490	
3.	<ul><li>Accumulated contributions</li><li>(a) Employee Cash Balance Account</li><li>(b) Employer Cash Balance Account</li><li>(c) Total Cash Balance Account</li></ul>	\$ \$	248,928,183 <u>388,605,398</u> 637,533,581	\$ \$	324,910,494 <u>516,950,867</u> 841,861,361	
4.	Active member averages (a) Age (b) Service (c) Compensation (d) Cash Balance Account	\$ \$	44.7 8.3 40,738 56,604	\$	46.1 9.9 41,861 70,413	
В.	Inactive Members					
1. 2. 3.	Number of inactive members Total Vested Cash Balance Account Inactive member averages (a) Age	\$	3,380 81,557,720 41.2	\$	4,569** 121,157,449 41.0	
	(b) Vested Cash Balance Account	\$	24,130	\$	26,517	
С.	Retired and Disabled Members and Beneficiarie	S		<b>T</b>		
1.	Number of members (a) Retired (b) Disabled (c) Beneficiaries (d) Total		701 0 <u>36</u> 737		869 0 <u>41</u> 910	
2.	Annual benefits (a) Retired (b) Disabled (c) Beneficiaries (d) Total	\$	10,030,385 0 <u>471,584</u> 10,501,969	\$	13,443,061 0 <u>528,146</u> 13,971,207	

\* Includes 1,246 members who transferred from defined contribution.

\*\* Includes 14 members who transferred from defined contribution.

## SUMMARY OF MEMBER DATA

#### D. Distribution of Retired and Disabled Members and Beneficiaries as of January 1, 2013

Age Range	Number	Annual Benefit	Average Annual Benefit
Under 50	9	\$ 58,863	\$ 6,540
50 – 54	5	37,513	7,503
55 – 59	44	540,164	12,276
60 – 64	177	2,748,493	15,528
65 – 69	333	5,582,492	16,764
70 – 74	257	3,715,285	14,456
75 – 79	70	1,070,266	15,290
80 and Over	<u>15</u>	<u>218,131</u>	<u>14,542</u>
Total	910	\$ 13,971,207	\$ 15,353

#### E. Member Data Reconciliation

	-		Inactive Members							
	Active Members	Terminated With Vested Employer Balances	Terminated With Non-Vested Employer Balances	Retired and Disabled Members	Bene- ficiaries	Total				
As of January 1, 2012	11,263	1,372	2,008	701	36	15,380				
Changes in status										
a) Normal & early retirements	(124)	(33)	0	157	0	0				
b) Became payable	0	0	0	0	0	0				
c) Deaths	(11)	0	0	(9)	0	(20)				
d) Nonvested terminations	(650)	0	650	0	0	0				
e) Vested terminations	(730)	730	0	0	0	0				
f) Contribution refund	(788)	(176)	(265)	0	0	(1,229)				
g) New Beneficiaries	0	0	0	0	7	7				
h) Disability retirements	0	0	0	0	0	0				
i) DC retirements	0	0	0	26	0	26				
j) Return to active service	62	(25)	(37)	0	0	0				
k) Data Change	<u>0</u>	<u>0</u>	<u>0</u>	<u>(8)</u>	<u>(2)</u>	<u>(10)</u>				
Total changes in status	(2,241)	496	348	166	5	(1,226)				
New entrants*	2,934	72	273	2	0	3,281				
Net change	693	568	621	168	5	2,055				
As of January 1, 2013	11,956	1,940	2,629	869	41	17,435				

\* Includes members who transferred from defined contribution.

## SUMMARY OF MEMBER DATA

#### F. Age and Service Distribution of Active Members as of January 1, 2013

Age Last Birthday		0-4		5-9	10-14		15-19		20-24		25-29	30-34		35-39	40	) and Over	Gra	nd Total
	Number	594		12	0		0		0		0	0		0		0		606
<25	Total Salary	\$ 16,919,336	\$	367,558	\$ 0	\$	0	\$	0	\$	0	\$ 0	\$	0	\$	0	\$ 17	7,286,894
	Average Sal.	\$ 28,484	\$	30,630	\$ 0	\$	0	\$	0	\$	0	\$ 0	\$	0	\$	0	\$	28,526
	Number	1,080		231	0		0		0		0	0		0		0		1,311
25-29	Total Salary	\$ 36,436,790	\$	8,730,500	\$ 0	\$	0	\$	0	\$	0	\$ 0	\$	0	\$	0	\$ 45	5,167,290
	Average Sal.	\$ 33,738	\$	37,794	\$ 0	\$	0	\$	0	\$	0	\$ 0	\$	0	\$	0	\$	34,453
	Number	778		566	26		0		0		0	0		0		0		1,370
30-34	Total Salary	\$ 27,500,096	\$	23,413,844	\$ 1,117,662	\$	0	\$	0	\$	0	\$ 0	\$	0	\$	0	\$ 52	2,031,602
	Average Sal.	\$ 35,347	\$	41,367	\$ 42,987	\$	0	\$	0	\$	0	\$ 0	\$	0	\$	0	\$	37,979
	Number	472		443	121		11		0		0	0		0		0		1,047
35-39	Total Salary	\$ 17,209,731	\$	18,579,338	\$ 5,509,034	\$	542,656	\$	0	\$	0	\$ 0	\$	0	\$	0	\$ 41	1,840,759
	Average Sal.	\$ 36,461	\$	41,940	\$ 45,529	\$	49,332	\$	0	\$	0	\$ 0	\$	0	\$	0	\$	39,963
	Number	470		377	157		58		3		0	0		0		0		1,065
40-44	Total Salary	\$ 16,596,580	\$	16,037,127	\$ 7,378,017	\$	2,661,960	:	\$ 131,467	\$	0	\$ 0	\$	0	\$	0	\$ 42	2,805,151
	Average Sal.	\$ 35,312	\$	42,539	\$ 46,994	\$	45,896	:	\$ 43,822	\$	0	\$ 0	\$	0	\$	0	\$	40,193
	Number	436		336	136		138		98		0	0		0		0		1,144
45-49	Total Salary	\$ 15,138,706	\$	13,719,303	\$ 6,119,338	\$	6,697,760	\$	5,083,273	\$	0	\$ 0	\$	0	\$	0	\$ 46	5,758,380
	Average Sal.	\$ 34,722	\$	40,831	\$ 44,995	\$	48,535	\$	51,870	\$	0	\$ 0	\$	0	\$	0	\$	40,873
	Number	377		361	157		134		325		121	0		0		0		1,475
50-54	Total Salary	\$ 13,578,443	\$	14,527,392	\$ 7,026,395	\$	6,548,629	\$	16,567,972	\$	6,915,453	\$ 0	\$	0	\$	0	\$ 65	5,164,284
	Average Sal.	\$ 36,017	\$	40,242	\$ 44,754	\$	48,870	\$	50,978	\$	57,153	\$ 0	\$	0	\$	0	\$	44,179
	Number	385		383	193		128		202		551	8		1		0		1,851
55-59	Total Salary	\$ 14,482,230	\$	15,755,286	\$ 8,238,738	\$	6,230,139	\$	9,854,771	\$	30,694,574	\$ 352,275	\$	48,770	\$	0	\$ 85	5,656,783
	Average Sal.	\$ 37,616	\$	41,137	\$ 42,688	\$	48,673	\$	48,786	\$	55,707	\$ 44,034	\$	48,770	\$	0	\$	46,276
	Number	209		274	162		117		172		178	432		5		1		1,550
60-64	Total Salary	\$ 8,097,860	\$	10,893,146	\$ 6,875,676	\$	5,596,415	\$	8,400,148	\$	9,834,124	\$ 26,702,867	\$	330,649	\$	32,075	\$ 76	5,762,960
	Average Sal.	\$ 38,746	\$	39,756	\$ 42,442	\$	47,833	\$	48,838	\$	55,248	\$ 61,812	\$	66,130	\$	32,075	\$	49,524
	Number	47		81	53		40		48		48	33		83		2		435
65-69	Total Salary	\$ 1,870,373	\$	3,114,664	\$ 2,375,558	\$	1,823,510	\$	2,547,947	\$	2,649,722	\$ 2,055,356	\$	5,783,470	\$	107,689	\$ 22	2,328,289
	Average Sal.	\$ 39,795	\$	38,453	\$ 44,822	\$	45,588	\$	53,082	\$	55,203	\$ 62,284	\$	69,680	\$	53,844	\$	51,329
	Number	11		14	13		11		15	l .	10	8		6		14		102
70 & Up	Total Salary	\$ 453,003	\$	559,258	\$ 697,404	\$	4//,480	\$	634,588	\$	492,411	\$ 349,448	\$	234,640	\$	/92,866	\$ <sup>2</sup>	1,691,098
	Average Sal.	\$ 41,182	\$	39,947	\$ 53,646	\$	43,407	\$	42,306	\$	49,241	\$ 43,681	\$	39,107	\$	56,633	\$	45,991
	Number	4,859	Ι.	3,078	1,018	Ι.	637	Ι.	863	Ι.	908	481	Ι.	95	Ι.	17		11,956
Total	I otal Salary	\$ 168,283,148	\$	125,697,416	\$ 45,337,822	\$	30,578,549	\$	43,220,166	\$	50,586,284	\$ 29,459,946	\$	6,397,529	\$	932,630	\$ 500	J,493,490
	Average Sal.	\$ 34,633	\$	40,837	\$ 44,536	\$	48,004	\$	50,081	\$	55,712	\$ 61,247	\$	67,342	\$	54,861	\$	41,861

## SUMMARY OF MEMBER DATA

#### G. Reconciliation of Data Submitted By NPERS and Valuation Data

	Active Members	Inactive Members	Retired Members, Beneficiaries, and Disabled	Total
Number of Data Records				
Submitted By NPERS	10,660	4,610	909	16,179
a) Deaths	0	0	0	0
b) Active/Inactive Death – Benefit Payable	0	0	0	0
c) Retiree Death – Assumed Beneficiary	0	0	0	0
d) Assumed Inactive	(4)	4	0	0
e) Assumed Active	1	(1)	0	0
f) Death after the Valuation Date	0	0	1	1
g) Termination Date after Valuation Date	51	(51)	0	0
h) Also Listed as Retired	0	(28)	0	(28)
i) DC Transfer	1,246	14	0	1,260
j) QDRO Spouse	0	0	0	0
k) DC Member with Balance	2	21	0	23
Net change	1,296	(41)	1	1,256
Number of Members Included in the				
Valuation as of January 1, 2013	11,956	4,569	910	17,435

## Forecast of Expected Disbursements

Plan Year Ending December 31	Active Employees	Retired and Disabled Members and Beneficiaries	Total
2013	\$ 56,349,867	\$ 13,942,115	\$ 70,291,982
2014	62,842,059	13,745,991	76,588,050
2015	69,460,816	13,584,953	83,045,769
2016	75,784,649	13,354,803	89,139,452
2017	80,230,825	13,057,111	93,287,936
2018	84,684,523	12,773,168	97,457,691
2019	89,625,307	12,605,225	102,230,532
2020	93,849,110	12,371,909	106,221,019
2021	97,490,244	11,941,882	109,432,126
2022	101,067,573	11,538,709	112,606,282

**Note:** These amounts are based on the assumption members terminating before reaching retirement eligibility will elect a lump sum distribution of their cash balance account. One-half of members eligible for retirement will elect a monthly annuity, payable for life with five years certain and the remaining half will elect a lump sum distribution of their cash balance account. Deferred vested and non-vested members are excluded from the disbursement forecast.

## SUMMARY OF PLAN PROVISIONS

#### Membership

All permanent full-time employees of the State shall begin immediate participation in the State Employees' Retirement System as of January 1, 2007 or date of hire, if later, and all permanent fulltime or permanent part-time employees who have attained the age of twenty may exercise the option to begin immediate participation in the State Employees' Retirement System.

Existing members of the State Employees' Retirement System may elect, during the period beginning November 1, 2007 and ending December 31, 2007 to participate in the Cash Balance benefit. If no election is made by December 31, 2007, the member shall be treated as though he or she elected to continue participating in the Defined Contribution benefit as provided in the State Employees' Retirement Act.

Existing members of the State Employees' Retirement System may elect, during the period beginning October 1, 2002, and ending December 31, 2002, to participate in the Cash Balance benefit. If no election is made by January 1, 2003, the member shall be treated as though he or she elected to continue participating in the Defined Contribution benefit as provided in the State Employees' Retirement Act. For a member who first participates in the Retirement System on or after January 1, 2003, he or she shall automatically participate in the Cash Balance benefit subject to plan eligibility requirements.

#### **Compensation Considered**

Compensation means gross wages or salaries payable to the member for personal services performed during the plan year, overtime pay, member retirement contributions, and amounts contributed by the member to plans under sections 125, 403(b) and 457 of the Internal Revenue Code or any other section of the code which defers or excludes such amounts from income.

#### **Member Contributions**

Members of the State retirement system shall contribute an amount equal to four and eight-tenths percent (4.8%) of annual compensation to the fund. The member contribution shall be credited to the employee cash balance account.

#### **Employer Contributions**

The State shall contribute at a rate of 156% of the members' contributions to the fund. The State contribution shall be credited to the employer cash balance account.

#### **Interest Credit Rate**

Interest credit rate means the greater of (a) five percent or (b) the applicable federal mid-term rate as published by the Internal Revenue Service as of the first day of the calendar quarter for which interest credits are credited, plus one and one-half percent, such rate to be compounded annually.

#### **Interest Credits**

Interest credits means the amount credited to the employee cash balance account and the employer cash balance account at the end of each day. Such interest credit for each account shall be determined by applying the daily portion of the interest credit rate to the account balance at the end of the previous day.

## SUMMARY OF PLAN PROVISIONS

#### **Retirement Age**

A member is eligible for retirement after attaining age 55.

#### Service

Service is defined to mean the actual total length of employment with the State and is not interrupted by a) temporary or seasonal suspension of service that does not terminate the member's employment, b) leave of absence authorized by the state for no longer than twelve months, c) leave of absence due to disability or d) leave due to military service.

#### **Retirement Allowance**

Upon attainment of age 55 regardless of service, the retirement allowance, shall be equal to the accumulated employee and employer cash balance accounts including interest credit, annuitized for payment in the normal form. Also available are additional forms of payment allowed under the plan which are actuarially equivalent to the normal form including the option of a lump sum or partial lump sum.

#### **Normal Form of Payment**

The normal form of payment under the Cash Balance benefit is a single life annuity with five-year certain, payable monthly. Members will have the option to convert their member cash balance account to a monthly annuity with built in cost-of-living adjustments of 2.5% annually. This monthly benefit and all other options allowed under the Plan will be of actuarial equivalence to the accumulated employee and employer cash balance accounts including interest credits.

#### **Optional Form of Payment**

Optional forms of payment include a lump sum and the following annuities (with or without a 2.5% COLA): life annuity, modified cash refund, certain and life annuity (5, 10 or 15 years), certain only annuity (5, 10, 15 or 20 years) and joint and survivor annuity (50%, 75% or 100%).

#### **Deferred Vested Allowance**

A member who terminates with at least 3 years of participation in the system, including eligibility and vesting credit, may choose to leave his employee and employer cash balance accounts in the fund and be eligible to receive a vested monthly allowance at retirement age or request a distribution of his employee and employer cash balance accounts plus interest credit, with no future benefit payable from the plan.

#### **Severance Benefits**

A member who terminates with less than 3 years of participation in the system, including eligibility and vesting credit, may elect to receive a distribution of his/her employee cash balance account including interest credit, with no future benefit payable from the plan.

#### **Disability Allowance**

If a member becomes disabled prior to retirement, the member shall receive the total amount of his/her accumulated employee and employer cash balance accounts including interest credit, as a lump sum or converted into a monthly annuity, as defined under the retirement allowance.

### SUMMARY OF PLAN PROVISIONS

#### **Pre-retirement Death Allowance**

If a member dies prior to retirement, the surviving spouse, designated beneficiary (if different), or estate shall receive the total amount of his/her accumulated employee and employer cash balance accounts including interest credit, as a lump sum or converted into a monthly annuity, as defined under the retirement allowance.

#### **Defined Contribution Transfers at Retirement**

Upon retirement, members participating in the Defined Contribution Benefit Fund may elect to annuitize their accumulated account balance and receive a monthly benefit payment from the Cash Balance Benefit Fund. The accumulated account balance is transferred from the Defined Contribution Benefit Fund to the Cash Balance Benefit Fund upon the retirement of a DC member electing an annuity. The actuarial assumptions used to convert the accumulated account balance are (i) the 1994 Group Annuity Mortality Table with a 50% male / 50% female mix, and (ii) the PBGC Table 2 rate at the beginning of the year plus 0.75%.

#### **Benefit Improvements**

In accordance with Section 84-1319 of the Nebraska State Statutes, the Public Employees' Retirement Board may grant benefit improvements, but in no event will such improvement result in an actuarially required contribution rate in excess of 90% of the total statutory contribution rate.

#### **Changes in Plan Provisions Since the Prior Year**

There have been no changes in plan provisions since the last actuarial valuation as of January 1, 2012, other than the election window that allowed DC plan members to elect to transfer their account balances and participate in the Cash Balance Benefit Fund as of January 2, 2013 under LB 916 as amended by AM1739.

#### SUMMARY OF ACTUARIAL METHODS AND PROCEDURES AS OF JANUARY 1, 2013

#### A. ACTUARIAL METHODS

1. Calculation of Normal Cost and Actuarial Accrued Liability: The method used to determine the normal cost and actuarial accrued liability was the Entry Age Actuarial Cost Method described below.

#### **Entry Age Actuarial Cost Method**

Projected pension benefits were determined for all active members under age 80. Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members under age 80 and determining an average normal cost rate which is then related to the total payroll of active members under age 80. The actuarial assumptions shown in Exhibit 9 were used in determining the projected benefits and cost factors. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, active members age 80 and over, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits expected to be paid. No normal costs are now payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date. The unfunded actuarial accrued dollar payment amount over 25 years from January 1, 2009 and subsequent changes in the unfunded actuarial accrued liability are funded with a closed level dollar payment over 25 years from the date established.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

#### SUMMARY OF ACTUARIAL METHODS AND PROCEDURES AS OF JANUARY 1, 2013

- 2. Calculation of the Actuarial Value of Assets: Effective January 1, 2003, the actuarial value of assets was initialized at Market Value and equals the sum of the employee and employer cash balance accounts. In future years, the actuarial value of assets will be based on a five-year smoothing method with phase-in and is determined by spreading the effect of each year's investment return in excess of or below the expected return. The Market Value of assets at the valuation date is reduced by the sum of the following, each determined after January 1, 2003:
  - (i) 80% of the return to be spread during the first year preceding the valuation date.
  - (ii) 60% of the return to be spread during the second year preceding the valuation date.
  - (iii) 40% of the return to be spread during the third year preceding the valuation date.
  - (iv) 20% of the return to be spread during the fourth year preceding the valuation date.

The return to be spread is the difference between (1) the actual investment return on Market Value and (2) the expected return on Actuarial Value. The expected return on Actuarial Value includes interest on the previous year's unrecognized return.

**3. Calculation of Pension Benefit Obligation:** The method used to determine the Pension Benefit Obligation was the Projected Unit Credit Actuarial Cost Method with service proration. Under this method, the benefit is based on salary projected to assumed termination or retirement and service as of the valuation date.

#### **B. VALUATION PROCEDURES**

No actuarial liability is included for participants who terminated without being vested prior to the valuation date, except those due a refund of the cash balance account.

The compensation amounts used in the projection of benefits and liabilities for active members were prior plan year compensations.

Projected benefits were limited by the dollar limitation required by the Internal Revenue Code Section 415 as it applies to governmental plans and compensation limited by Section 401(a)(17).

#### **Changes in Methods and Procedures Since the Prior Year**

There have been no changes in the actuarial methods or procedures since the last actuarial valuation as of January 1, 2012.

## SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JANUARY 1, 2013

#### **ECONOMIC ASSUMPTIONS**

- 1. Investment Return
- 2. Inflation
- 3. Interest Credit Rate on Cash Balance Accounts
- 4. Annuitization Rate of Member & Employer Accumulated Balances
- 5. Salary Scale

7.75% per annum, compounded annually, net of expenses.

3.25% per annum, compounded annually.

6.75% per annum, compounded annually.

7.75% per annum, compounded annually.

Graduated rates by service.

	Annual 1	Increase in Salary			
Service	Merit &				
	Productivity	Inflation	Total		
0	2.11%	3.25%	5.43%		
1	1.98%	3.25%	5.30%		
2	1.79%	3.25%	5.10%		
3	1.49%	3.25%	4.79%		
4	1.27%	3.25%	4.56%		
5	1.19%	3.25%	4.48%		
6	1.16%	3.25%	4.44%		
7	1.14%	3.25%	4.43%		
8	1.10%	3.25%	4.38%		
9	1.06%	3.25%	4.35%		
10	1.03%	3.25%	4.31%		
11	1.02%	3.25%	4.30%		
12	0.98%	3.25%	4.26%		
13	0.94%	3.25%	4.22%		
14	0.92%	3.25%	4.20%		
15	0.89%	3.25%	4.17%		
16	0.85%	3.25%	4.13%		
17	0.82%	3.25%	4.10%		
18	0.81%	3.25%	4.09%		
19	0.78%	3.25%	4.06%		
20	0.73%	3.25%	4.00%		

## SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JANUARY 1, 2013

#### **DEMOGRAPHIC ASSUMPTIONS**

1. Mortality

Mortality assumptions were based on actual experience during the last experience analysis and includes an allowance for expected future mortality improvement as required under ASOP 35.

a. Active members

1994 Group Annuity Mortality Table, setback 1 year, projected to 2015 (55% of male rates for males, 40% of female rates for females).

b. Retired members and beneficiaries

1994 Group Annuity Mortality Table, setback 1 year, sex distinct projected to 2015 using Scale AA.

c. Mortality rates under the mortality table for active members are shown below at sample ages:

Sample Age	Active Mortality Rate				
	Males	Females			
30	.04%	.01%			
40	.05	.02			
50	.09	.04			
60	.28	.14			
70	.89	.46			
80	2.44	1.22			

d. Life expectancies under the mortality table for active members are shown below at sample ages:

Sample Age	Life Expectancy (Years)					
	Males	Females				
30	58.5	64.8				
40	48.7	54.9				
50	39.0	45.0				
60	29.5	35.3				
70	20.8	26.1				
80	13.1	17.6				

e. Mortality for Annuitization of Employee and Employer Cash Balance Accounts 1994 Group Annuity Mortality Table, with 50% Male, 50% Female blending.

Sample Age	Mortality Rate	Life Expectancy (Years)
55	.34%	28.0
60	.62%	23.5
65	1.16%	19.4
70	1.87%	15.7
75	2.99%	12.2
80	5.07%	9.3

## SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JANUARY 1, 2013

2. Retirement

Graduated rates by retirement age after 5 years of service.

Age	Annual Rates
55	5.0%
56	5.0%
57	5.0%
58	5.0%
59	5.0%
60	5.0%
61	8.0%
62	15.0%
63	10.0%
64	15.0%
65	25.0%
66	25.0%
67	25.0%
68	25.0%
69-79	20.0%
80	100.0%

#### 3. Termination

Graduated rates by age and service.

	Annual Rate Per 100 Members						
Age	<1	1-<2	2-<3	3-<4	4-<5	5+	
20	17.0	16.0	15.0	13.5	12.0	13.3	
25	17.0	16.0	15.0	13.5	12.0	13.3	
30	17.0	16.0	15.0	13.5	12.0	10.3	
35	17.0	16.0	15.0	13.5	12.0	7.5	
40	17.0	16.0	15.0	13.5	12.0	6.4	
45	17.0	16.0	15.0	13.5	12.0	4.8	
50	17.0	16.0	15.0	13.5	12.0	4.0	
55	17.0	16.0	15.0	13.5	12.0	4.0	

4. Disability

None.

#### SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JANUARY 1, 2013

#### **OTHER ASSUMPTIONS**

1. Payment Assumptions

As shown in the table below, 50% of all members eligible for retirement are assumed to be paid in the form of an annuity and the other 50% in the form of a lump sum, and 100% of members eligible for all other types of benefits are assumed to be paid in the form of a lump sum. Deferred vested and non-vested members are assumed to take a refund of their account balance as of the valuation date.

Benefit	Assumed Form of Payment
Retirement	50% Lump Sum/50% Annuity*
Vested	Lump Sum
Non-vested	Lump Sum
Disability	Lump Sum
Death	Lump Sum

\*Five-year certain and life annuity.

2. Cost of Living Adjustment

None assumed, except 2.5% per year is used for retirees electing annuity payments with a COLA feature.

#### **Changes in Assumptions Since the Prior Year**

See Executive Summary, item 9, for changes made as a result of the experience analysis concluded in August 2012 based on experience from January 1, 2007 through December 31, 2011. These changes affected the cash balance interest credit rates, healthy mortality, salary increases, inflation, retirement rates, withdrawal rates, disability rates and payment assumptions. The changes were made to more accurately reflect expected future experience.

#### **GLOSSARY OF TERMS** Total accumulated cost to fund pension benefits arising Actuarial Accrued Liability from service in all prior years. Actuarial Cost Method Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension plan for a group of participants to the years of service that give rise to that cost. Actuarial Present Value Amount which, together with future interest, is expected of Future Benefits to be sufficient to pay all future benefits. Actuarial Valuation Study of probable amounts of future pension benefits and the necessary amount of contributions to fund those benefits. Person who performs mathematical calculations pertaining Actuary to pension and insurance benefits based on specific procedures and assumptions. Annual Required Contribution Disclosure measure of annual pension cost. GASB 25 and GASB 27 Governmental Accounting Standards Board Statement numbers 25 and 27 which specify how the Net Pension Obligation and Annual Required Contribution are to be calculated. Normal Cost That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole. Unfunded Actuarial The portion of the actuarial accrued liability not offset by Accrued Liability plan assets. Vested Benefits Benefits which are unconditionally guaranteed regardless of employment status.