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NEBRASKA PUBLIC EMPLOYEES RETIREMENT SYSTEM

COUNTY EQUAL RETIREMENT BENEFIT FUND

Actuarial Valuation Results as of January 1, 2018

for State Fiscal Year Ending June 30, 2019

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May 15, 2018

Public Employees Retirement Board
Nebraska Public Employees Retirement Systems
1526 "K" Street
Suite 400
Lincoln, NE 68509-4816

RE: Certification of Actuarial Valuation
County Equal Retirement Benefit Fund

Members of the Board:

At your request, we have prepared an actuarial valuation of the County Equal Retirement Benefit Fund as of January 1, 2018 for the purpose of determining the funded status of the Plan and any required contributions for the plan year. Funding required from each participating County for current plan members, as approved by the Retirement Board, is equal to an amount necessary to fully fund the benefit obligation, or alternatively, an annual payment which would amortize the unfunded liability over a period of twenty years commencing January 1, 1999. As of the valuation date, one year remains in the amortization period.

There were no changes to the plan provisions or actuarial methods from the prior valuation. The annuity conversion interest rate for members retiring from the Defined Contribution Plan is updated annually as required in statute. At their meeting on October 17, 2016, the Board adopted a new set of actuarial assumptions, based on the recommendations in the experience study. Although adopted late in 2016, this is the first valuation that utilizes the new set of assumptions. As discussed in the Executive Summary section of this report, the net impact of the assumption changes was immaterial.

The actuarial valuation is based on unaudited financial data provided by the System and member data provided by Ameritas, the record keeper for the Plan. We found this information to be reasonably consistent and comparable with the information used in the prior report. 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. The benefits considered are those delineated in Nebraska State Statutes as of January 1, 2018.

We further certify that all costs, liabilities, rates of interest and other factors for the County Equal Retirement Benefit Fund 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 the best estimate of anticipated experience affecting the System. Nevertheless, the emerging costs will vary from those presented in this report to the extent actual experience differs from that projected by the actuarial assumptions. The Public Employees Retirement Board has the final decision regarding the appropriateness of the assumptions and adopted them as indicated in Appendix B.

Future actuarial measurements may differ significantly from the current measurements 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. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

The consultants who worked on this assignment are pension actuaries. CMC's advice is not intended to be a substitute for qualified legal or accounting counsel.

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 has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein. We are available to answer any questions on the material contained in the report or to provide explanations or further details as may be appropriate.

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

Respectfully submitted,

Patrice Beckham

Brent A. Banister

Patrice Beckham, FSA, FCA, EA, MAAA	Brent Banister, PhD, FSA, FCA, EA, MAAA
Principal and Consulting Actuary	Chief Actuary

EXECUTIVE SUMMARY

The County Equal Retirement Benefit Fund provides a benefit for members who had account balances on January 1, 1984 and elect to convert those balances to monthly income (annuity) at retirement. The Fund was established to protect members who might be negatively affected by the legal requirement to change from sex-distinct annuity factors to unisex annuity factors. As such, the characteristics of the liability of the Fund and the funding requirements are different from the other traditional defined benefit plans managed by NPERS. This report determines the contribution requirements for the counties who still have members in the Fund as well as providing statistical information that may provide insight into the Fund's longer term financial health. The initial amortization period, which was set at 20 years on January 1, 1999, has declined to one year.

There were no changes to the actuarial methods since last year's report. However, there have been several changes to the actuarial assumptions used in this valuation as a result of the four-year experience study completed in 2016. All of the recommended assumptions were adopted by the Board at their October 17, 2016 meeting and are first used in this valuation, including:

- Price inflation decreased from 3.25% to 2.75%.
- Investment return assumption decreased from 7.75% to 7.50%.
- Interest on accumulated contribution balances decreased from 7.75% to 7.50%.
- Retirement rates were adjusted.

The decrease in the investment return assumption increased the projected benefit cost for the Fund, while the decrease in the assumed interest credited to contribution balances decreased the projected benefit cost. As a result of these two offsetting changes, there was no material change to the valuation results as a result of the assumption changes.

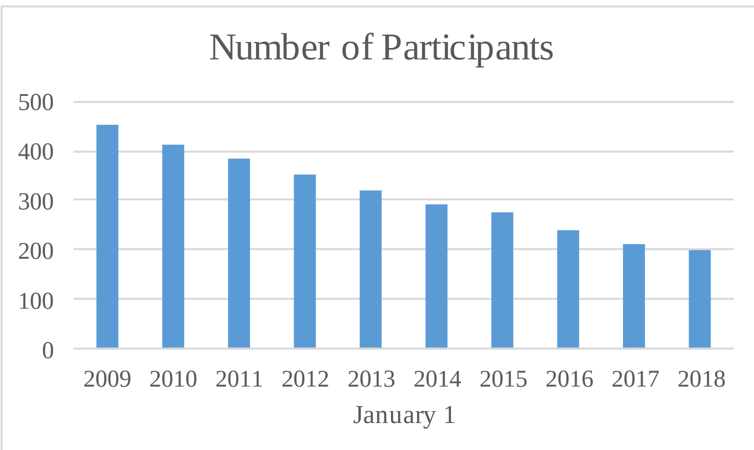
There are several risk factors that are key to the Fund's financial status over time. One of the most significant of these factors is the proportion of retirees that elect to take an annuity rather than a lump sum. An individual member's choice is based on their own personal situation and may consider different factors compared to other individuals who are also making this choice. The funding assumption is that 25% of the account balances of retiring members, in aggregate, will be converted to monthly income (an annuity). While we believe this assumption is reasonable, there are other assumptions that could also be considered reasonable that would result in a different funded status and contribution amount. In particular, if a greater portion of account balances are annuitized at retirement, the liability of the Fund would be higher than estimated in this report. The possible volatility in the amount of liability, especially at the individual county level, is a risk that should be considered and evaluated. To assist with this analysis, we have included an exhibit in the report that shows the impact of a higher annuity election by retiring members (Exhibit 4). Liability results are shown assuming 50% or 75% of the aggregate account balances are annuitized rather than the 25% assumed in the basic valuation calculations. Although these alternatives assumptions may or may not be reasonable in the aggregate, because most counties have relatively few members, the alternative results provide some measure of the possible downside risk.

Other factors and assumptions affecting the results include the following:

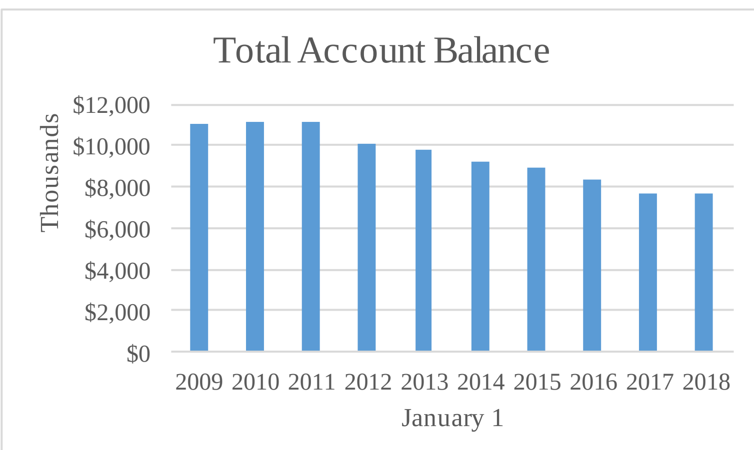
- Account growth – the account balances for both the cash balance and defined contribution members are assumed to increase at 7.50% annually. To the extent actual investment returns (or interest credits and dividends in the cash balance accounts) are lower, the benefits assumed to be paid from the Fund are lower and the liabilities are lower.

- Annuity factor interest rate – the defined contribution balances are assumed to be annuitized at the current applicable interest rate (3.14% as of January 1, 2018). If interest rates decrease in the future, the difference in the liability of a benefit determined using a unisex annuity factor and the benefit determined using a male annuity factor increases, and so the liabilities of the Fund would increase.
- General economic conditions – there are connections between the growth in the members' account balances, the interest rate environment (affecting the annuity factor interest rate), the investment return on the assets of the Fund, and the way in which potential retirees view the financial ramifications of retiring and electing an annuity. The exact interplay of these variables is extremely complex, but the fact that there is a connection means that the possible variability of the Fund's financial situation is potentially greater than it might otherwise appear. **Consequently, we urge caution in concluding that the current strong financial health of the Fund will continue indefinitely.**

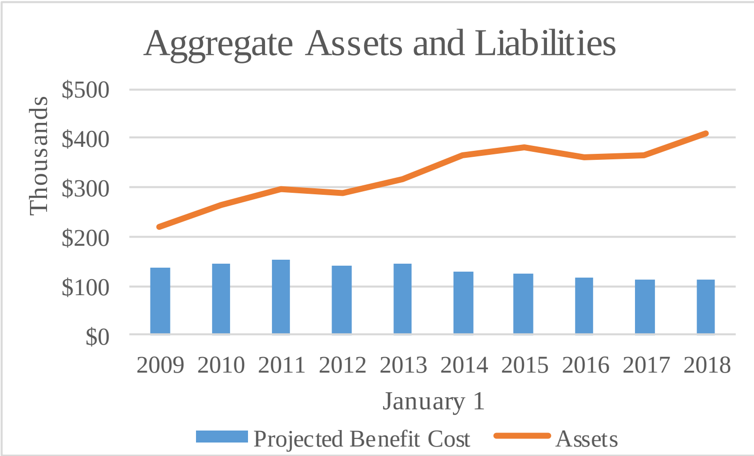
It is important to note that an unfunded liability is not, by itself, an indication of whether or not the Fund has sufficient assets to meet future liabilities. Further, the presence of an unfunded liability or surplus is not an indication of what future contributions may be required to fund the benefits.The following graphs show trends in the Fund over recent years:



Because there are no new members in the Fund, the number of participants has declined in past years and is expected to continue to decline in future years.



When comparing the total account balances in the current and past years, the growth in account balances due to investment earnings partially offsets the impact of a declining membership.



While an individual county may occasionally need to make a contribution to avoid a shortfall between liabilities and assets, the combined assets of the Fund are well above the aggregate liabilities.

EXHIBIT 1 – SUMMARY OF ACTUARIAL RESULTS

Below is a comparison of the aggregate results of the current and prior year's actuarial valuations.

Results	Actuarial Valuation as of January 1 2018	2017
Number of Members		
Cash Balance	107	117
Defined Contribution	92	96
Total	199	213
Pre-1984 Account Balance with Interest, Beginning of Year		
Cash Balance	$4,319,189	$4,502,470
Defined Contribution	3,347,680	3,163,589
Total	$7,666,869	$7,666,059
Projected Benefit Cost*		
a. Amount	$112,857	$113,640
b. As a Percent of the Account Balance	1.472%	1.482%
c. Annuity Factor Interest Rate – Cash Balance	7.75%	7.75%
d. Annuity Factor Interest Rate – Defined Contribution	3.14%	2.62%
Market Value of Assets		
a. Asset Value as of Prior Year's Valuation	$363,637	$362,068
b. Deposits During the Year	0	0
c. Withdrawals During the Year	7,378	27,437
d. Investment Return or (Loss)	53,893	30,202
e. Other	0	(1,196)
f. Market Value of Assets as of Valuation Date [a. + b. - c. + d + e.]	$410,152	$363,637
Unfunded Liability/(Surplus)	($297,295)	($249,997)
Total Contribution Amount (All Counties)	$0	$0

*Cost is based on the assumption that 75% of all members will elect a lump sum or installment payments instead of an annuity. To the extent that actual experience in the future deviates from this assumption, the costs in future years could vary as well, perhaps significantly.

EXHIBIT 2 – SUMMARY OF FUND ASSETS BY COUNTY

County Name	Beginning Balance January 1, 2017	Employer Contributions for 2017	Withdrawals	Investment Return	Other	Ending Balance December 31, 2017
1. Adams	$ 17,526	$ 0	$ 0	$ 2,631	$ 0	$ 20,157
2. Box Butte	6,973	0	0	1,046	0	8,019
3. Buffalo	20,271	0	2,826	2,715	0	20,160
4. Cass	1,158	0	0	174	0	1,332
5. Cheyenne	1,746	0	0	261	0	2,007
6. Cuming	13,164	0	0	1,975	0	15,139
7. Custer	11,972	0	0	1,797	0	13,769
8. Dawson	26,629	0	0	3,997	0	30,626
9. Dodge	22,670	0	1,945	3,286	0	24,011
10. Gage	9,473	0	0	1,422	0	10,895
11. Gosper	1,339	0	0	201	0	1,540
12. Hall	29,925	0	0	4,488	0	34,413
13. Harlan	3,635	0	0	545	0	4,180
14. Hitchcock	7,906	0	0	1,187	0	9,093
15. Jefferson	13,770	0	0	2,067	0	15,837
16. Kimball	12,257	0	0	1,840	0	14,097
17. Lincoln	4,425	0	0	664	0	5,089
18. Madison	10,157	0	0	1,525	0	11,682
19. Morrill	12,758	0	0	1,914	0	14,672
20. Platte	29,178	0	0	4,379	0	33,557
21. Polk	3,042	0	0	457	0	3,499
22. Red Willow	3,920	0	0	589	0	4,509
23. Richardson	8,424	0	0	1,265	0	9,689
24. Saline	3,913	0	0	587	0	4,500
25. Sarpy	26,788	0	862	3,927	0	29,853
26. Saunders	16,460	0	0	2,470	0	18,930
27. Scotts Bluff	11,531	0	1,247	1,617	0	11,901
28. Seward	7,325	0	0	1,100	0	8,425
29. Washington	14,248	0	498	2,109	0	15,859
30. York	11,054	0	0	1,658	0	12,712
Totals	$ 363,637	$ 0	$ 7,378	$ 53,893	$ 0	$ 410,152

EXHIBIT 3 – ACTUARIAL RESULTS AND CONTRIBUTION ALTERNATIVES BY COUNTY

County Name	Number of Members	Projected Benefit Cost*	Assets	2017 Full Contribution	2018 Full Contribution
1. Adams	6	$ 2,372	$ 20,157	$ 0	$ 0
2. Box Butte	6	2,998	8,019	0	0
3. Buffalo	16	6,880	20,160	0	0
4. Cass	2	969	1,332	0	0
5. Cheyenne	2	405	2,007	0	0
6. Cuming	1	173	15,139	0	0
7. Custer	9	3,999	13,769	0	0
8. Dawson	7	4,956	30,626	0	0
9. Dodge	10	8,440	24,011	0	0
10. Gage	11	5,673	10,895	0	0
11. Gosper	3	1,113	1,540	0	0
12. Hall	10	3,445	34,413	0	0
13. Harlan	4	2,452	4,180	0	0
14. Hitchcock	2	1,389	9,093	0	0
15. Jefferson	5	3,468	15,837	0	0
16. Kimball	3	585	14,097	0	0
17. Lincoln	5	1,103	5,089	0	0
18. Madison	13	6,700	11,682	0	0
19. Morrill	2	1,900	14,672	0	0
20. Platte	17	9,351	33,557	0	0
21. Polk	3	1,409	3,499	0	0
22. Red Willow	3	205	4,509	0	0
23. Richardson	3	2,410	9,689	0	0
24. Saline	2	470	4,500	0	0
25. Sarpy	22	15,352	29,853	0	0
26. Saunders	9	9,121	18,930	0	0
27. Scotts Bluff	8	8,150	11,901	0	0
28. Seward	6	3,650	8,425	0	0
29. Washington	6	1,519	15,859	0	0
30. York	3	2,200	12,712	0	0
Totals	199	$ 112,857	$ 410,152	$ 0	$ 0

* Cost is based on the assumption that 75% of retiring members will choose a lump sum or installment payments instead of an annuity. To the extent that actual experience in the future deviates from this assumption, the costs in future years could vary as well, at times significantly.

EXHIBIT 4 – RISK MEASURES BY COUNTY

This exhibit compares the Projected Benefit Cost (liability) assuming 25% of the account balances of retiring members are converted to an annuity (the funding assumption) with alternative assumptions of 50% and 75%. As the table below indicates, greater utilization of the annuity option by members could significantly increase the liability of the plan and, therefore, the unfunded liability and contribution amount. If a county has assets exceeding the liability of one or both of the alternative assumption scenarios, it indicates it is in a better position to withstand possible adverse experience.

County Name	Number of Members	Projected Benefit Cost 25% Annuitize	Projected Benefit Cost 50% Annuitize	Projected Benefit Cost 75% Annuitize	Assets
1. Adams	6	$ 2,372	$ 4,744	$ 7,116	$ 20,157
2. Box Butte	6	2,998	5,996	8,994	8,019
3. Buffalo	16	6,880	13,760	20,640	20,160
4. Cass	2	969	1,938	2,907	1,332
5. Cheyenne	2	405	810	1,215	2,007
6. Cuming	1	173	346	519	15,139
7. Custer	9	3,999	7,998	11,997	13,769
8. Dawson	7	4,956	9,912	14,868	30,626
9. Dodge	10	8,440	16,880	25,320	24,011
10. Gage	11	5,673	11,346	17,019	10,895
11. Gosper	3	1,113	2,226	3,339	1,540
12. Hall	10	3,445	6,890	10,335	34,413
13. Harlan	4	2,452	4,904	7,356	4,180
14. Hitchcock	2	1,389	2,778	4,167	9,093
15. Jefferson	5	3,468	6,936	10,404	15,837
16. Kimball	3	585	1,170	1,755	14,097
17. Lincoln	5	1,103	2,206	3,309	5,089
18. Madison	13	6,700	13,400	20,100	11,682
19. Morrill	2	1,900	3,800	5,700	14,672
20. Platte	17	9,351	18,702	28,053	33,557
21. Polk	3	1,409	2,818	4,227	3,499
22. Red Willow	3	205	410	615	4,509
23. Richardson	3	2,410	4,820	7,230	9,689
24. Saline	2	470	940	1,410	4,500
25. Sarpy	22	15,352	30,704	46,056	29,853
26. Saunders	9	9,121	18,242	27,363	18,930
27. Scotts Bluff	8	8,150	16,300	24,450	11,901
28. Seward	6	3,650	7,300	10,950	8,425
29. Washington	6	1,519	3,038	4,557	15,859
30. York	3	2,200	4,400	6,600	12,712
Totals	199	$ 112,857	$ 225,714	$ 338,571	$ 410,152

EXHIBIT 4 (CONTINUED) – RISK MEASURES BY COUNTY

County Name	Number of Members	Unfunded Liability 25% Annuitize	Unfunded Liability 50% Annuitize	Unfunded Liability 75% Annuitize
1. Adams	6	$ 0	$ 0	$ 0
2. Box Butte	6	0	0	975
3. Buffalo	16	0	0	480
4. Cass	2	0	606	1,575
5. Cheyenne	2	0	0	0
6. Cuming	1	0	0	0
7. Custer	9	0	0	0
8. Dawson	7	0	0	0
9. Dodge	10	0	0	1,309
10. Gage	11	0	451	6,124
11. Gosper	3	0	686	1,799
12. Hall	10	0	0	0
13. Harlan	4	0	724	3,176
14. Hitchcock	2	0	0	0
15. Jefferson	5	0	0	0
16. Kimball	3	0	0	0
17. Lincoln	5	0	0	0
18. Madison	13	0	1,718	8,418
19. Morrill	2	0	0	0
20. Platte	17	0	0	0
21. Polk	3	0	0	728
22. Red Willow	3	0	0	0
23. Richardson	3	0	0	0
24. Saline	2	0	0	0
25. Sarpy	22	0	851	16,203
26. Saunders	9	0	0	8,433
27. Scotts Bluff	8	0	4,399	12,549
28. Seward	6	0	0	2,525
29. Washington	6	0	0	0
30. York	3	0	0	0
Totals	199	$ 0	$ 9,435	$ 64,294

Exhibit 5 – Summary of Member Data

Age Range	Data	Gender Male		Female		Total	
Less Than 55	Count of Members		0		0		0
	Average of Total Balance	$	0	$	0	$	0
	Sum of Total Balance	$	0	$	0	$	0
55-59	Count of Members		1		4		5
	Average of Total Balance	$	2,418	$	14,955	$	12,447
	Sum of Total Balance	$	2,418	$	59,819	$	62,237
60-64	Count of Members		48		39		87
	Average of Total Balance	$	30,305	$	23,520	$	27,264
	Sum of Total Balance	$	1,454,656	$	917,274	$	2,371,930
65-69	Count of Members		35		28		63
	Average of Total Balance	$	46,048	$	36,051	$	41,605
	Sum of Total Balance	$	1,611,682	$	1,009,436	$	2,621,118
70-74	Count of Members		11		14		25
	Average of Total Balance	$	77,180	$	52,057	$	63,111
	Sum of Total Balance	$	848,977	$	728,791	$	1,577,768
75 and Above	Count of Members		15		4		19
	Average of Total Balance	$	65,209	$	13,921	$	54,411
	Sum of Total Balance	$	978,134	$	55,682	$	1,033,816
Total Members			110		89		199
Average of Total Balance		$	44,508	$	31,135	$	38,527
Grand Total Balance		$	4,895,867	$	2,771,002	$	7,666,869

EXHIBIT 6 – SUMMARY OF MEMBER DATA BY COUNTY

County	Data	Gender Male	Female	Total
Adams	Count of Members	4	2	6
	Sum of Total Balance	$ 116,192	$ 58,270	$ 174,462
Box Butte	Count of Members	3	3	6
	Sum of Total Balance	$ 60,230	$ 161,206	$ 221,436
Buffalo	Count of Members	8	8	16
	Sum of Total Balance	$ 224,964	$ 230,040	$ 455,004
Cass	Count of Members	2	0	2
	Sum of Total Balance	$ 79,233	$ 0	$ 79,233
Cheyenne	Count of Members	0	2	2
	Sum of Total Balance	$ 0	$ 33,039	$ 33,039
Cuming	Count of Members	0	1	1
	Sum of Total Balance	$ 0	$ 12,828	$ 12,828
Custer	Count of Members	6	3	9
	Sum of Total Balance	$ 192,777	$ 77,481	$ 270,258
Dawson	Count of Members	6	1	7
	Sum of Total Balance	$ 282,941	$ 64,285	$ 347,226
Dodge	Count of Members	6	4	10
	Sum of Total Balance	$ 293,263	$ 250,838	$ 544,101
Gage	Count of Members	6	5	11
	Sum of Total Balance	$ 271,603	$ 129,448	$ 401,051
Gosper	Count of Members	2	1	3
	Sum of Total Balance	$ 25,843	$ 42,450	$ 68,293
Hall	Count of Members	3	7	10
	Sum of Total Balance	$ 97,632	$ 128,808	$ 226,440
Harlan	Count of Members	1	3	4
	Sum of Total Balance	$ 129,700	$ 51,697	$ 181,397
Hitchcock	Count of Members	2	0	2
	Sum of Total Balance	$ 78,514	$ 0	$ 78,514
Jefferson	Count of Members	3	2	5
	Sum of Total Balance	$ 165,653	$ 60,184	$ 225,837
Kimball	Count of Members	0	3	3
	Sum of Total Balance	$ 0	$ 44,868	$ 44,868
Lincoln	Count of Members	2	3	5
	Sum of Total Balance	$ 51,288	$ 30,039	$ 81,327
Madison	Count of Members	7	6	13
	Sum of Total Balance	$ 219,921	$ 197,132	$ 417,053
Morrill	Count of Members	1	1	2
	Sum of Total Balance	$ 155,519	$ 23,753	$ 179,272

EXHIBIT 6 (Continued) – SUMMARY OF MEMBER DATA BY COUNTY

County	Data	Gender Male	Female	Total
Platte	Count of Members	12	5	17
	Sum of Total Balance	$ 496,009	$ 146,405	$ 642,414
Polk	Count of Members	2	1	3
	Sum of Total Balance	$ 73,410	$ 14,476	$ 87,886
Red Willow	Count of Members	2	1	3
	Sum of Total Balance	$ 8,652	$ 8,423	$ 17,075
Richardson	Count of Members	2	1	3
	Sum of Total Balance	$ 103,249	$ 30,430	$ 133,679
Saline	Count of Members	2	0	2
	Sum of Total Balance	$ 39,889	$ 0	$ 39,889
Sarpy	Count of Members	12	10	22
	Sum of Total Balance	$ 742,216	$ 312,005	$ 1,054,221
Saunders	Count of Members	7	2	9
	Sum of Total Balance	$ 365,588	$ 207,407	$ 572,995
Scotts Bluff	Count of Members	5	3	8
	Sum of Total Balance	$ 517,983	$ 57,233	$ 575,216
Seward	Count of Members	1	5	6
	Sum of Total Balance	$ 36,974	$ 202,454	$ 239,428
Washington	Count of Members	2	4	6
	Sum of Total Balance	$ 50,669	$ 53,912	$ 104,581
York	Count of Members	1	2	3
	Sum of Total Balance	$ 15,955	$ 141,891	$ 157,846
	Members			
	Cash Balance	58	49	107
	Defined Contribution	52	40	92
	Total	110	89	199
Grand Total Balance				
Cash Balance		$ 2,686,237	$ 1,632,952	$ 4,319,189
Defined Contribution		2,209,630	1,138,050	3,347,680
Total		$ 4,895,867	$ 2,771,002	$ 7,666,869

Member	Any person employed by a County participating in either the Defined Contribution or Cash Balance Benefit under the County Employees Retirement System who has an accumulated account balance based on contributions which were made prior to January 1, 1984.
Contributions	Each participating County shall make contributions to the fund on an actuarial basis as approved by the Retirement Board.
Eligibility for Benefits	Any member who retires or terminates service and elects to convert to an annuity using their accumulated account balance, with interest, commencing on or after age 55, is eligible to receive a benefit from the fund.
Benefit Amount	The fund shall provide the Actuarially Equivalent amount required to purchase the additional monthly annuity, if any, which is equal to: a. the income provided by the accumulated contributions made prior to January 1, 1984 with interest, based on male annuity conversion factors in effect on the annuity starting date, Less b. the income provided by the accumulated contributions made prior to January 1, 1984 with interest, which are based on 50% male / 50% female annuity conversion factors in effect on the annuity starting date.
Cash Balance Conversion	Any member who elected to transfer his or her account balance to the Nebraska County Cash Balance Plan as of January 1, 2003, January 1, 2008 or January 2, 2013 will have his or her Benefit Amount determined using the annuity conversion interest rate applicable to the County Employees Retirement System (Cash Balance Benefit), which is 7.75%. Any other member will have his or her Benefit amount determined using the annuity conversion interest rate applicable to the County Employees Retirement System (Defined Contribution benefit), which for 2018 is 3.14%.
Cost of Living Adjustment (COLA)	Any member who elects an annuity has the option to purchase a 2.50% COLA, compounded annually.

Changes in Benefit Provisions Since the Prior Year

There were no changes in the benefit provisions since the last valuation.

APPENDIX B – SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Economic Assumptions

1. Investment Return	7.50% per annum, compounded annually, net of expenses.
2. Consumer Price Inflation	2.75% per annum, compounded annually.
3. Interest on accumulated contribution balances (contributions made before January 1, 1984)	7.50% per annum, compounded annually.
4. Annuity Conversion Interest Rates	7.75% for annuities from the Cash Balance Plan 3.14% for annuities from the Defined Contribution Plan

Demographic Assumptions

1. Mortality	
a. Pre-retirement	None.
b. Post-retirement	1994 Group Annuity Mortality (based on Actuarial Equivalence definition in statute).
2. Withdrawal	None.
3. Disability	None.

4. Retirement

Rates vary by age as follows:

Age	County Annual Rates
55	4.5%
56	4.5
57	4.5
58	4.5
59	4.5
60	4.5
61	5.0
62	10.0
63	10.0
64	10.0
65	20.0
66	20.0
67	15.0
68	15.0
69	15.0
70-79	20.0
80	100.0

Other Assumptions

1. Payment election

75% of the account balances of retiring members are assumed to be paid as a lump sum distribution or installment payment, and 25% of the account balances of retiring members are assumed to be paid as an annuity form of distribution.

2. Form of Annuity Payment

Of members electing an annuity, 80% of those members were assumed to elect a 5-year certain and life annuity without COLA, and 20% of those members were assumed to elect a 5-year certain and life with a 2.5% annual COLA.

APPENDIX B – SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

Methods

1. Funding Method	The present value of future benefits or Projected Benefit Cost, less the Market Value of Assets, equals the Unfunded Liability or Surplus. The minimum recommended contribution is equal to an annual amount necessary to amortize the Unfunded Liability over twenty years from January 1, 1999.
2. Asset Valuation Method	Fair market value.

Changes in Assumptions Since the Prior Year

The assumed interest rate used for Defined Contribution annuity calculations is equal to the lesser of (i) the Pension Benefit Guaranty Corporation initial interest rate for valuing annuities for terminating plans as of the beginning of the year during which payment begins plus 0.75% or (ii) the interest rate used in the actuarial valuation as recommended by the actuary and approved by the board. The rate has changed from 2.62% to 3.14%.

The investment return assumption and the assumed interest on accumulated contribution balances were lowered from 7.75% to 7.50%. The price inflation assumption was lowered from 3.25% to 2.75% and retirement rates were modified. These changes were made as a result of recommendations in the 2016 Experience Study.